Perfectionism, engagement and burnout in youth sport and dance: A self-determination theory perspective

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The candidate confirms that the work submitted is his own, except where work which has formed part of jointly authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

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Abstract

Recently researchers have found that indicators of perfectionistic strivings and perfectionistic concerns share divergent relationships with athlete burnout. To extend this research the thesis examined whether self-determination theory could help to explain these divergent relationships. The first study suggested that the positive association between perfectionistic concerns and athlete burnout was explained, in part, by controlled motivation. In contrast, the inverse association between perfectionistic strivings and athlete burnout was explained, in part, by autonomous motivation. Building on study one, the second study of the thesis examined whether perfectionistic concerns and perfectionistic strivings also shared divergent associations with athlete engagement, and whether basic psychological needs could explain these associations. The study two findings suggested that perfectionistic concerns and perfectionistic strivings did share opposing associations with athlete engagement. Moreover, the positive perfectionistic strivings-engagement and inverse perfectionistic concerns-engagement associations were explained by basic psychological need satisfaction and thwarting. In addition, the positive perfectionistic concerns-burnout and inverse perfectionistic strivings-burnout associations were also mediated by basic psychological need satisfaction and thwarting. Study three built on the first two studies by examining how perfectionistic strivings and perfectionistic concerns predicted self-conscious emotions on a day-to-day basis. The study three findings suggested that perfectionistic concerns predicted reduced pride, increased shame and guilt, and greater emotional instability; whereas perfectionistic strivings did not significantly predict self-conscious emotions. The fourth study examined how parents and dance tutors moderate dancers' perfectionism. The study four findings advanced previous research in sport and dance by demonstrating that parental conditional regard strengthened the positive association between perfectionistic concerns and ill being in youth dancers. Together the studies

suggested that perfectionistic concerns and perfectionistic strivings share opposing relationships with well-being and ill-being outcomes in youth sport and dance and that self-determination theory provides a theoretical lens through which to understand these relationships.

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Chapter 1: Introduction

"I'm a perfectionist. I'm pretty much insatiable."

Serena Williams

The notion that perfectionism plays a role in the development of elite athletes and performers is a popular one (Gould, Dieffenbach, & Moffett, 2002; Mainwaring, 2009). Never settling for second best, constantly striving to improve, and eradicating even the smallest of errors are all features associated with elite performers. Perfectionism appears to have been influential for athletes who've reached the pinnacle of their sport. For instance, seventeen-time Grand Slam champion Serena Williams (2005, 2009) has outlined her perfectionism and insatiable desire for self-improvement. Olympic Gold medallist Victoria Pendleton (2012), has outlined her insistent striving for perfection. World Cup winning rugby player Jonny Wilkinson (2012) has recounted how perfectionism enabled him to practice for hours on end and become the world's most revered outside half. Andre Agassi (2009) who in 1999 became only the fifth male tennis player in history to win all four Grand Slams, has indicated that perfectionism was integral to his development as a tennis player.

However, despite all their tremendous achievements, for the aforementioned athletes, perfectionism has also come at a cost. Serena Williams (2011) has shown angry outbursts on court when she and others have failed to meet her exacting standards. Victoria Pendleton (2012) has described how her self-critical perfectionism towards her achievements on the track means that she's never satisfied. Jonny Wilkinson (2012) has described his obsessive dedication towards practice, in which he'd stay behind at training for hour after hour practicing kicks at goal. This led to constant pressure on his body which resulted in several debilitating injuries, threatening

to cut short his career. Andre Agassi (2009) revealed that the aggressive perfectionistic tendencies of his father became indicative of the standards he set for himself on court. Failing to meet those standards resulted in drug abuse and performance difficulties that nearly ended his career. Taken together, these athletes' personal accounts suggest that that perfectionism underpins psychological maladjustment as well as energising intense achievement striving.

This divergent influence of perfectionism is also evident in empirical studies examining perfectionism in sport and other achievement focussed domains. For example, recent studies in education have found links between perfectionism and higher self-esteem, better academic performance, and elevated pride (Elion, Wang, Slaney & French, 2012; Rice, Lopez, Richardson, & Stinson, 2013; Stoeber, Kobori, & Tanno, 2013). However, the same studies also suggest that perfectionism is linked to lower self-esteem, worse academic performance, and elevated embarrassment.

Contradictory findings are also evident in research examining perfectionism in the performing arts. For instance, in a study with youth musicians, Stoeber and Eismann (2007) found that perfectionism was linked to adaptive motivation in the form of intrinsic motivation and higher effort. However, Stoeber and Eismann (2007) also found that perfectionism was linked to extrinsic motivation and distress. Similarly, in youth dancers, perfectionism has been linked to positive affect, but also to negative affect, social physique anxiety, reduced self-confidence and somatic anxiety (Cumming & Duda, 2012; Nordin-Bates, Cumming, Aways, & Sharp, 2011).

In sport, the findings have followed a similar pattern. Perfectionism has been linked with adaptive motivational constructs including task orientation and intrinsic motivation in youth athletes (Appleton, Hall, & Hill, 2009; McArdle & Duda, 2004), as well as better performance in undergraduate athletes (Stoll, Lau, & Stoeber, 2008). Conversely, perfectionism has also been linked to maladaptive outcomes such as

increased anxiety in high school athletes (Hall, Kerr & Matthews, 1998), amotivation in youth athletes (McArdle & Duda, 2004), and athlete burnout in elite junior soccer players (Hill, Hall, Appleton, & Kozub, 2008).

These seemingly divergent findings continue to be a source of debate within the perfectionism literature. Specifically, researchers have argued that while perfectionism may have some redeeming motivational qualities, it is an ultimately debilitating personality disposition (Flett & Hewitt, 2005; Hall, 2006; Hall, Hill, & Appleton, 2012). Others however, have argued that because perfectionism energises the pursuit of extremely high standards it can be a valuable characteristic, which may help to underpin success in sport and in other achievement contexts (Gotwals, Stoeber, Dunn, & Stoll, 2012; Stoeber & Otto, 2006). To understand the seemingly divergent nature of perfectionism, this chapter will reflect on the theory and research which has informed contemporary models of perfectionism, consider the central components of the disposition, outline a theoretical framework for this thesis, and pose two outcomes through which the influence of perfectionism can be assessed.

Perfectionism: A brief history

Perfectionism has intrigued philosophers and researchers for centuries. The Ancient Greek Stoic Epictetus proposed that humans are happy when they obtain what they desire and are unhappy when their desires go unfulfilled (Stephens, 2007). Given that perfection is by its very nature unobtainable, Epictetus' view implies that perfectionism will lead to unhappiness. The idea that perfectionism might be a source of emotional maladaptation is a theme that continued in the work of pioneering psychologists. For instance, Pierre Janet in outlining the stages of obsessive-compulsive disorder contended that: "Psychasthenics are continually tormented by an inner sense of imperfection" (cited in Pitman, 1987, p. 226). Similarly, Freud (1923/1961) alluded to

perfectionism being a source of dissatisfaction and maladaptive psychological consequences.

Perfectionism also drew attention from Neo-Freudians. The Neo-Freudian approach is intriguing in light of the contemporary perfectionism debate because it includes original notions that perfectionism might be positive. This is highlighted most clearly in the work of Adler (1927). Adler (1927) proposed perfectionism as a fundamental human characteristic and an integral source of motivation. Some have argued that Adler's notion of perfectionism is akin to the drive for self-actualization underpinning Maslow's (1970) hierarchy of needs (e.g. Parker, 1997). However, not all Neo-Freudians viewed perfectionism as adaptive. Horney (1950) described perfectionism as a neurotic characteristic. Specifically, Horney's 'tyranny of the should' emphasises the problematic nature of perfectionistic tendencies toward compulsive behaviour and unrealistic expectations.

These opposing Neo-Freudian views can be seen as the grounding for Hamachek's (1978) conceptualisation of perfectionism. In outlining the notion of normal and neurotic perfectionists, Hamachek's (1978) view can be seen as a synthesis between the divergent views of Adler and Horney. Hamachek contends that normal perfectionists strive to achieve high levels of performance and take deep satisfaction in this striving. In contrast, neurotic perfectionists are never satisfied with their efforts and they always feel they could and should do better. In the work of Adler, Horney, and Hamachek there is clear evidence of early theoretical propositions that have informed the current debate regarding the nature of perfectionism. These authors continue to be regularly cited in contemporary perfectionism literature (e.g. Hall et al., 2012). However, the views of Adler, Horney and Hamachek are lacking in terms of empirical foundation. Researchers sought to remedy this through the design of perfectionism measures during the 1980s.

Following the development pattern of the major schools of psychology in the 20th century, the views on perfectionism during the 1980s were predicated on the tenets of cognitive-behaviourism. In particular, following the work of scholars such as Beck (1967) and Ellis (1962), proponents of cognitive-behavioural therapy including Burns (1980) and Pacht (1984) promoted the notion of perfectionism as a one-dimensional dysfunctional characteristic. Their work suggests that perfectionism underpins a range of psychological and interpersonal maladjustment including mood disorders, poor quality relationships, and psychopathology. Burns (1980) suggested that in 'Reaching for the stars, perfectionists may end up clutching at air' (p. 34). This conceptualisation of perfectionism was operationalized in the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). Subsequently, based on the DAS, Burns (1980) devised the Perfectionism Scale. The Perfectionism Scale was the first dedicated perfectionism measure to receive support in terms of validity and reliability (Campbell & Di Paula, 2002). Research adopting this measure found support for perfectionism as a dysfunctional characteristic by highlighting links between perfectionism, depression, anxiety and stress (Flett, Hewitt, & Dyck, 1989; Hewitt & Dyck, 1986; Hewitt & Flett, 1990).

While the development of unidimensional measures offered some empirical progress, researchers began to question whether this approach fully captured the perfectionism disposition. Specifically, two groups of researchers argued that perfectionism was a more complex multidimensional disposition (Frost, Marten, Lahart & Rosenblate, 1990; Hewitt & Flett, 1991). This led to the emergence of two complimentary multidimensional models of perfectionism. The first by Frost et al. (1990) emphasises the relative importance of different components of perfectionism and is captured in the Multidimensional Perfectionism Scale (FMPS). This includes six dimensions 1) personal standards; 2) organisation; 3) concern over mistakes; 4) doubts

about actions; 5) parental expectations; 6) parental pressure. Personal standards are the pursuit of exceedingly high personal standards. Organisation is a personal requirement for order and precision. Concern over mistakes is being overly concerned about even minor errors in performance. Doubts about action are uncertainties about performance and also about preparation. Parental pressure is the pressure of parental evaluation, and parental expectations are the individual's perception of their parents' expectations. Frost et al. (1990) suggested that being overly concerned about mistakes in performance is most central to the concept of perfectionism and that personal standards and organisation reflect relatively more adaptive components of perfectionism.

The second model by Hewitt and Flett (1991) is also captured in a Multidimensional Perfectionism Scale (HMPS). The HMPS emphasises the intrapersonal and interpersonal focus and valence of perfectionism through three dimensions: (1) self-oriented perfectionism; (2) socially prescribed perfectionism; and (3) other oriented perfectionism. Self-oriented perfectionism is intrapersonal in nature and reflects excessively high personal standards and harsh self-criticism. As Hall (2006) suggests, the motivational profile of the self-oriented perfectionism is akin to that of the Covington's (1992) overstriver and characterised by intense achievement striving driven by a fear of failure. Socially prescribed perfectionism is also inwardly focussed but reflects the perception that significant others hold extremely high standards for oneself and that failure to meet such standards will result in harsh criticism from others. Finally, other oriented perfectionism differs in that it is outward in focus. Specifically it involves the high expectations and critical evaluation of significant others.

The Hewitt and Flett (1991) and Frost et al. (1990) multidimensional models laid the foundation for an exponential increase in research examining perfectionism in clinical and educational contexts. Flett and Hewitt (2002) estimated an increase of nearly 330 percent in the 1990s when compared to the 1980s. From this emergence,

researchers began to find discrepancies in the pattern of associations between different perfectionism dimensions and psychological outcomes. This is evident in an initial series of HMPS studies conducted by Hewitt and Flett (1991). In a study with university students Hewitt and Flett's (1991) findings suggest that socially prescribed perfectionism is strongly associated with negative cognition and emotions such as, self-criticism, overgeneralization, self-blame and anger; and psychopathology such as depression and psychoticism. Self-oriented perfectionism also appears to share positive associations with this symptomatology; however, these associations are relatively weaker when compared to socially prescribed perfectionism. Moreover, self-oriented perfectionism appears to be positively associated with other more adaptive constructs such as the importance of performance and carrying out goals.

In a further study with psychiatric patients Hewitt and Flett's (1991) findings suggest that socially prescribed perfectionism is positively associated with a plethora of personality disorders; schizoid, avoidant, and passive-aggressive personality patterns, and clinical symptoms including anxiety, psychotic thinking, and psychotic depression. In contrast, self-oriented perfectionism appears to share no association with personality disorders and is positively associated with fewer clinical symptoms than socially prescribed perfectionism. Follow-up studies during the early 1990s found support for the relatively more maladaptive profile of socially prescribed perfectionism in student and clinical samples (e.g. Hewitt & Flett, 1993; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991; Hewitt, Flett, & Weber, 1994).

The perfectionism dimensions proposed by Frost et al. (1990) appear to also share contrasting patterns of associations with psychological outcomes. In a study with university students Frost et al.'s (1990) findings suggest that consistent patterns of maladjustment emanate from the doubts about action and concern over mistakes dimensions of perfectionism. Specifically, doubts about action and concern over

mistakes appear to be associated with psychopathology including psychoticism, and obsessive compulsiveness; different types of depression such as self-critical, and dependency depression; and situational guilt. In accord, the personal standards dimension also appears to share positive associations with depression and compulsivity. However, the findings also suggest that personal standards is linked with a sense of efficacy. Further studies have provided support for the relatively more maladaptive profile of concern over mistakes and doubts about actions when compared to personal standards (e.g. Antony, Purdon, Huta, & Swinson, 1998; Frost & Steketee, 1997; Frost, et al., 1995). Together the findings based on investigations conducted with the HMPS and FMPS provide the first substantial lines of empirical research highlighting that different components of perfectionism may lead to different and sometimes opposing outcomes.

The emergence of multidimensional models is where the empirical origins of the current perfectionism debate began to gain momentum. Based on research examining the Hewitt and Flett (1991) and Frost et al. (1990) models, some researchers suggested that perfectionism dimensions could be described as either adaptive or maladaptive (e.g. Rice, Ashby, & Slaney, 1998). Specifically, researchers described self-oriented perfectionism and high personal standards as adaptive and socially prescribed perfectionism, concern over mistakes and doubts about actions as maladaptive (Flett and Hewitt, 2002). These and equivalent distinctions are evident in the work of several different research groups who have examined perfectionism (e.g. functional vs. dysfunctional perfectionism, Rheaume et al., 2000; adaptive vs. maladaptive perfectionism, Rice, et al., 1998; healthy vs. unhealthy, Stumpf & Parker, 2000; positive vs. negative perfectionism, Terry-Short, Owens, Slade & Dewey, 1995). However, these distinctions are not without criticism. Flett and Hewitt (2002) suggested that ‘adaptive’ perfectionism may not adequately represent perfectionism and may be more reflective

of conscientiousness or achievement-oriented striving. Moreover, Flett and Hewitt (2002) questioned the distinction between adaptive and maladaptive perfectionists based on cluster analysis which had been utilized in some studies (e.g. Parker, 1997; Rice & Mirzadeh, 2000). This approach potentially lacks validity because it is sample specific. Therefore, the distinction between adaptive and maladaptive perfectionists might reflect a purely quantitative rather than qualitative distinction (Flett & Hewitt, 2002). In addition, while certain dimensions of perfectionism have been found to be relatively less maladaptive than others, the findings linking the so-called adaptive perfectionism dimensions with adaptive outcomes are by no means unequivocal (see Stoeber & Otto, 2006 for a review). Consequently, labelling perfectionism dimensions as adaptive, functional, healthy or positive may be misleading.

Multidimensional perfectionism in sport

To this point the perfectionism debate had largely been conducted in the clinical and social psychology domains. However, the turn of the millennium saw increasing interest in perfectionism in sport, and so research and the debate extended into this domain (e.g. Gotwals et al., 2012; Hall, 2006; Hall et al., 2012). Researchers' findings in sport based on the Hewitt and Flett (1991), Frost et al. (1990), and domain specific models of perfectionism (e.g. Dunn, Causgrove Dunn, & Syrotuik, 2002) suggest that certain perfectionism dimensions appear to be largely debilitating. For instance, socially prescribed perfectionism has been inversely associated with unconditional self-acceptance (Hall et al., 2009; Hill, et al., 2008), and positively associated with avoidant coping (Hill, Hall, & Appleton, 2010a), validation seeking (Hill, Hall, Appleton, & Murray, 2010), and athlete burnout (Hill et al., 2008). Similarly, concern over mistakes has been linked to precompetitive cognitive anxiety (Frost & Henderson, 1991; Hall et al., 1998), obligatory exercise and ego orientation (Hall, Kerr, Finnie, & Kozub, 2007), and lower levels of confidence (Frost & Henderson, 1991). Doubts about action have

been positively associated with precompetitive somatic anxiety (Hall et al., 1998), obligatory exercise and ego orientation (Hall et al., 2007).

In contrast, other perfectionism dimensions appear to share more complex associations with psychological outcomes in sport. In middle distance runners, self-oriented perfectionism has been associated with exercise dependence (Hall, Hill, Appleton, & Kozub, 2009). In elite junior athletes, the self-oriented dimension has been associated with ego goal orientation (Appleton et al., 2009), self-criticism, fear of failure, concern over mistakes, negative reactions to imperfection (Hill, Hall, & Appleton, 2010b), low levels of unconditional self-acceptance (Hill et al., 2008), and validation seeking (Hill, Hall, Appleton, & Murray, 2010). However, self-oriented perfectionism has also been found to be associated with relatively adaptive outcomes such as task goal orientation (Appleton et al., 2009), problem focussed coping (Hill et al., 2010a), conscientiousness, personal standards (Hill et al., 2010b), and growth seeking (Hill, Hall, Appleton, & Murray, 2010). Similarly, the personal standards dimension has been associated with maladaptive outcomes including ego orientation (Hall et al., 1998), obligatory exercise (Hall et al., 2007) and lower self-esteem (Koivula, Hassmén, & Fallby, 2002); but also, more adaptive outcomes including confidence, perceived ability and task orientation (Hall et al., 2007; Hall et al., 1998). Together these findings suggest that it is too simplistic to describe perfectionism as either adaptive or maladaptive. Instead it appears that perfectionism is a largely debilitating personality disposition with certain dimensions that under specific conditions underpin positive cognitive, affective, and behavioural outcomes.

Stoeber et al. (e.g. Stoeber & Otto, 2006; Stoeber, Stoll, Pescheck, & Otto, 2008; Stoll, et al., 2008) have argued that this more positive influence of perfectionism, occurs when certain dimensions of perfectionism that are indicative of self-driven striving (e.g. perfectionistic strivings, self-oriented perfectionism, personal standards) are considered

independent of other dimensions of perfectionism that indicative of self-and other-evaluative concerns (e.g. negative reactions to imperfection, socially prescribed perfectionism, concern over mistakes, doubts about actions). A recent review of perfectionism research in sport by Gotwals et al. (2012) highlights several studies which have found support for this assertion. However, Hall et al. (2012) have argued that when considered in isolation, discrete dimensions of perfectionism do not fully capture the disposition. Hall et al. (2012) indicated that dimensions of perfectionism typically share moderate or strong correlations, and that this shared variance suggests they should be considered together rather than independently. In line with the views of Flett and Hewitt (2002) in the wider psychological context, Hall et al. (2012) suggested that when considered in isolation, dimensions such as perfectionistic strivings, self-oriented perfectionism and personal standards more closely represent a form of adaptive achievement striving rather than perfectionism per se. Nonetheless, there appears to be value in identifying dimensions of perfectionism which are largely indicative of self-driven striving and those which largely indicative of self-and-other-evaluative concerns.

The contemporary conceptualisation of perfectionism in sport

Given the argument outlined above it is beneficial to distinguish athletes' levels of perfectionism across two broad dimensions (Stoeber, 2011). Several different terms have been used to describe the two broad dimensions of perfectionism; for example, personal standards perfectionism and evaluative concerns perfectionism (Dunkley, Blankstein, Halsall, Williams, & Winkworth., 2000), functional and dysfunctional perfectionism (Rheaume et al., 2000), adaptive and maladaptive perfectionism (Rice, et al., 1998), perfectionistic concerns and perfectionistic strivings (Stoeber, & Otto, 2006; Stoeber, 2011), healthy and unhealthy perfectionism (Stumpf & Parker, 2000), and positive and negative perfectionism (Terry-Short et al., 1995). For this thesis the terms *perfectionistic concerns* and *perfectionistic strivings* will be used throughout. These

terms were chosen because they have been used in recent reviews of perfectionism in sport (e.g. Gotwals et al., 2012), place less emphasis on the positive vs. negative valence of perfectionism than other terms, and are arguably more intuitive and succinct than terms such as personal standards perfectionism and evaluative concerns perfectionism.

Stoeber (2011) has suggested that several sub-dimensions of perfectionism from existing multidimensional models are good indicators of perfectionistic concerns or perfectionistic strivings. For example, concern over mistakes and doubts about actions (Frost et al., 1990; Gotwals & Dunn, 2009), socially prescribed perfectionism (Hewitt & Flett, 1991), negative reactions to imperfection (Stoeber, Otto, Pescheck, Becker, & Stoll, 2007) and discrepancy (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) are indicators of perfectionistic concerns. In contrast, personal standards (Frost et al., 1990; Gotwals & Dunn, 2009), self-oriented perfectionism (Hewitt & Flett, 1991), striving for perfection (Stoeber et al., 2007), high standards (Slaney et al., 2001), and striving for excellence (R.W. Hill et al., 2004) are indicators of perfectionistic strivings.

For the current thesis the broad perfectionistic concerns dimension consisted of concern over mistakes, doubts about actions measured using the Sport Multidimensional Perfectionism Scale – Version 2 (SMPS-2; Gotwals & Dunn, 2009), and socially prescribed perfectionism measured using the Multidimensional Perfectionism Scale – Short Form (HMPS-SF; Cox, Enns, & Clara, 2002). The broad perfectionistic strivings dimension consisted of personal standards (SMPS-2; Gotwals & Dunn, 2009) and self-oriented perfectionism (HMPS-SF; Cox, et al., 2002). These indicators were chosen to ensure domain specificity in regards to SMPS-2 but also because previous factor analytic studies support the use of these indicators. Specifically, broad perfectionistic concerns and perfectionistic strivings dimensions have emerged in factor analytic studies which have examined the two multidimensional models that underpin the

SMPS-2 (i.e. Frost et al., 1990) and the HMPS-SF (i.e. Hewitt & Flett, 1991) (e.g. Blankstein & Dunkley, 2002; Cox, et al., 2002; Dunkley, et al., 2000; Frost, Heimberg, Holt, Mattia & Neubauer, 1993; Rice, Lopez, & Vegara, 2005).

Given the indicators adopted, perfectionistic concerns can be considered to be heightened concern over mistakes, chronic doubts about one's ability to meet the requirements of the situation, the perceived socially imposed pressure for perfection, and the fear of criticism when one fails to meet the high expectations of others. In contrast, perfectionistic strivings can be defined as self-imposed standards and striving for those standards, accompanied by harsh self-criticism when those standards aren't met.

The developmental origins of perfectionistic concerns and perfectionistic strivings

In addition to the conceptualisation of perfectionistic strivings and perfectionistic concerns it is also important to understand how these broad dimensions of perfectionism develop. This is because the current thesis includes participants who are in adolescence, a key period in the development of perfectionism (Flett, Hewitt, Oliver, & Macdonald, 2002). Generally, it has been argued that perfectionistic concerns and perfectionistic strivings both develop as a product of one's social environment (Flett et al., 2002). In particular, parents are identified as being key social agents in the origins of children's perfectionism, but other influential figures may include coaches, teachers and peers. The way in which these significant others foster the development of children's perfectionism appears to vary across perfectionistic strivings and perfectionistic concerns. This variation can be understood in the context of two predominant family patterns models of perfectionism development (viz. social expectations and social learning) (Flett et al., 2002).

The social expectations model suggests that perfectionism develops as a result of parental approval being contingent on the child attaining perfection. Such parental

contingencies mean that the child begins to tie their sense of self-worth to achievement. In turn this leads to a sense of helplessness, worthlessness and fear of failure when the child fails to meet stringent expectations (Flett et al., 2002). In contrast, the social learning model suggests that perfectionism develops as a result of the child imitating significant others who they admire. From this perspective, given the influential nature of the parent-child relationship, children are likely to model their mother's and/or father's perfectionistic behaviour and begin to develop similar perfectionistic tendencies (Flett et al., 2002).

Traditionally, it has been theorized that perfectionistic concerns develop via the social expectations model (e.g. Flett et al., 2002; Hamachek, 1978; Missildine, 1963). Qualitative research by Speirs Neumeister (2004) with gifted college students has provided some support for this developmental sequence for perfectionistic concerns by demonstrating that perfectionistic concerns are experienced by individuals who have been exposed to an authoritarian controlling parenting style. In further support of the social expectations model, recent findings from a longitudinal study by Damian, Stoeber, Negru and Băban (2013) suggest that perceived parental expectations predict adolescents' perfectionistic concerns 7-9 months later. However, research by Speirs Neumeister, Williams and Cross (2009) with gifted high school students, as well as research with elite junior athletes by Appleton, Hall and Hill (2010) has emphasised the important role that imitating parents can also play in the development of perfectionistic concerns. Together, these findings suggest that perfectionistic concerns develop via a combination of social learning and social expectations.

In contrast to perfectionistic concerns, it has been theorized that perfectionistic strivings develop predominantly via the social learning model (e.g. Flett et al., 2002). Some recent research has provided support for this developmental sequence. For example, Appleton et al. (2010) found that athletes' perfectionistic strivings were

positively predicted by athletes' perceptions of fathers' and mothers' perfectionistic strivings. Furthermore, Damian et al. (2013) found that parental expectations and criticisms did not predict adolescents' perfectionistic strivings 7-9 months later, suggesting a lack of support for the social expectations model. However, other research suggests that parental expectations may play a role in the development of perfectionistic strivings. For example, Sapieja, Dunn and Holt (2011) found that youth soccer players who they characterised as healthy perfectionists (i.e. high perfectionistic strivings with low perfectionistic concerns) had significantly higher perceptions of maternal and paternal authoritativeness (highly demanding but supportive), than non-perfectionists (i.e. low perfectionistic strivings and low perfectionistic concerns) or unhealthy perfectionists (i.e. low perfectionistic strivings and high perfectionistic concerns). Together these findings suggest that social learning is integral in the development of perfectionistic strivings and that social expectations may provide a secondary pathway through which perfectionistic strivings are developed. The influence of perfectionistic concerns and perfectionistic strivings

Within the sport psychology literature there is consensus that perfectionistic concerns is a largely debilitating perfectionism dimension. This is because perfectionistic concerns and its indicators have been linked with maladaptive outcomes in athletes from several sports across different countries. However, only two sport studies have examined perfectionistic concerns (or an equivalent e.g. evaluative concern perfectionism) as a broad dimension. Firstly, Kaye, Conroy and Fifer (2008) found that perfectionistic concerns was positively associated with mastery avoidance goals and fear of failure, and negatively associated with mastery approach goals in US college students enrolled in physical activity classes. Secondly, Gaudreau and Antl (2008) found that perfectionistic concerns was positively associated with maladaptive coping

strategies, controlled motivation, and lower levels of life satisfaction in French Canadian athletes (Gaudreau & Antl 2008).

Further evidence that perfectionistic concerns is fundamentally debilitating stems from studies which have examined the discrete influence of the perfectionistic concerns indicators. For example, the concern over mistakes indicator of perfectionistic concerns has been linked to cognitive anxiety and ego orientation in UK high school runners (Hall et al., 1998), anxiety, failure orientation, low confidence, and negative reactions to mistakes during competition in US female college athletes (Frost & Henderson, 1991), controlled motivation in Greek youth basketball players (Mouratidis & Michou, 2011), as well as higher anxiety, lower self-esteem and lower confidence in elite Swedish athletes (Koivula et al., 2002). Together, the studies by Hall et al. (1998) and Koivula et al. (2002) also suggest that the doubts about action indicator is linked to higher anxiety, lower self-esteem and lower confidence.

Recent studies suggest that the socially prescribed perfectionism indicator of perfectionistic concerns also underpins psychological maladjustment in sport. For example socially prescribed perfectionism has been linked to validation seeking in UK kayakers (Hill, Hall, Appleton, & Murray, 2010), lower unconditional self-acceptance in elite UK youth soccer players (Hill et al., 2008), avoidant coping in UK junior athletes (Hill et al., 2010a), low satisfaction with goal progress in male elite athletes from UK tennis, football and cricket academies (Appleton et al., 2009), as well as controlled forms of motivational regulation and amotivation in elite UK junior athletes (Appleton & Hill, 2012). Consequently, it appears clear that perfectionistic concerns are debilitating for athletes and may hinder their development.

Conversely, the findings regarding perfectionistic strivings are more ambiguous. The broad perfectionistic strivings dimension has been linked to autonomous motivation, adaptive coping strategies and approach motivation but also to controlled

motivation (Gaudreau & Antl, 2008; Kaye et al., 2008). This mixed profile of perfectionistic strivings appears to extend to other motivational, cognitive and affective outcomes when the discrete influence of individual perfectionistic strivings indicators is taken into account. For example, the personal standards indicator of perfectionistic strivings has been linked to success and failure orientation, perfectionistic cognitions, concentration difficulties, worry (Frost & Henderson, 1991), ego orientation and task orientation, lower confidence and higher anxiety (Hall et al., 1998), higher confidence and lower anxiety (Koivula et al., 2002), as well as autonomous motivation and controlled motivation (Mouratidis & Michou, 2011). Similarly, the self-oriented perfectionism indicator of perfectionistic strivings has been linked to ego orientation and task orientation (Appleton et al., 2009), intrinsic motivation, introjected regulation, external regulation (Appleton & Hill, 2012), lower unconditional self-acceptance (Hill et al., 2008), adaptive coping strategies (Hill et al., 2010a), and growth seeking (Hill, Hall, Appleton, & Murray, 2010). Taken together these findings suggest that perfectionistic strivings might be best understood as a vulnerability factor which under certain conditions underpins adaptive outcomes via heightened striving, but under conditions of perceived failure places individuals at risk of psychological debilitation (Flett & Hewitt, 2005).

Multidimensional perfectionism and self-determination theory

It's clear from the studies outlined above that perfectionistic concerns and perfectionistic strivings share relationships with a range of psychological outcomes. However, nowhere is their influence more proximal than in relation to motivation. Adler (1927) suggested perfectionism was a motivational force, and despite the current perfectionism debate, contemporary researchers are broadly in agreement that perfectionism can energise achievement striving in sport (e.g. Gotwals et al., 2012; Hall et al., 2012). However, the reasons for this elevated quantity of motivation may differ

across perfectionistic concerns and perfectionistic strivings. Based on previous research (e.g. Appleton et al., 2012; Gaudreau & Antl, 2008; Mouratidis & Michou, 2011), it appears that perfectionistic concerns are regulated by introjected and external factors; whereas, perfectionistic strivings are regulated by a mix of external, introjected and more autonomous factors. This suggests that both perfectionistic concerns and perfectionistic strivings could undermine what researchers have termed the quality of motivation (Lemyre, Roberts & Stray-Gundersen, 2007; Quested & Duda, 2011). Specifically, these researchers suggest that high quality motivation entails a predominance of intrinsic motivation and autonomous forms of extrinsic regulation (e.g. identified regulation and integrated regulation) and low levels of controlled forms of extrinsic regulation (e.g. introjected regulation and external regulation). In contrast, low quality motivation entails a predominance of controlled forms of regulation and low levels of intrinsic motivation and autonomous forms of regulation.

It is potentially problematic that perfectionistic concerns and perfectionistic strivings may underpin low quality motivation because this appears to render athletes vulnerable to detrimental psychological outcomes including athlete burnout (Lemyre, Hall & Roberts, 2008). Consequently, a central aim of this thesis is to examine whether perfectionistic concerns and perfectionistic strivings render athletes' motivationally vulnerable to detrimental psychological outcomes.

The theory which best encapsulates quality of motivation and thus provides the basis from which to examine this aim is self-determination theory (Deci & Ryan, 1985, 2000, 2002). Self-determination theory is a macro theory of motivation. (Vansteenkiste, Niemiec & Soenens, 2010). The unifying principle for self-determination theory is that people are innately intrinsically motivated (Deci, 1975). Intrinsic motivation manifests in the curiosity and growth seeking behaviours evident in young children (Deci & Ryan, 2002). However, the extent to which this self-fulfilment is realised is guided by social

environments (Deci & Ryan, 2002). Typically these environments increasingly require people to engage in behaviours which are not inherently interesting or enjoyable (Vansteenkiste et al., 2010). Consequently, individuals start to engage in behaviours due to extrinsic rather than intrinsic factors. Ryan and Deci (2000) suggest it is the extent to which extrinsic motivation is personally endorsed or internalized which predicts individuals' psychological well-being. In turn, the extent to which behaviour becomes internalized is governed by the satisfaction or thwarting of basic psychological needs.

Basic psychological needs include the needs for autonomy; competence; and relatedness. Autonomy is having a sense of volition and the perception of being the source of one's own behaviour (deCharms, 1968), competence is the feeling of effectance (White, 1959) and having the opportunity to demonstrate one's capabilities in the social environment, and relatedness is a sense of belongingness and closeness with others (Baumeister & Leary, 1995). According to self-determination theory the social environment governs the extent to which individuals' will perceive their needs to be satisfied or thwarted. The motivational sequence outlined in self-determination theory has received support from researchers in sport (e.g. Lonsdale, Hodge, & Rose, 2009; Cresswell & Eklund 2005; Hodge, Lonsdale, & Jackson, 2009; Gagné, Ryan, & Bargmann, 2003), as well as in other achievement focussed contexts such exercise (Hagger & Chatzisarantis, 2007), education (see Reeve, 2002 for a review), and occupation (Gagné & Deci, 2005). Self-determination theory therefore provides a comprehensive and empirically supported theoretical framework from which to examine the influence of perfectionism in sport and related contexts.

It is likely that perfectionism has an impact on the quality of motivation at each stage of motivational sequence outlined above. Firstly, it is clear from the studies by Gaudreau and Antl (2008) and Appleton and Hill (2012) that perfectionistic strivings and perfectionistic concerns elicit variable motivational quality via different

motivational regulations. Secondly, perfectionistic concerns and perfectionistic strivings also appear to impact motivational quality via basic psychological needs (Mallinson & Hill, 2011). Specifically, Mallinson and Hill's (2011) findings from junior sports participants suggest that perfectionistic concerns and perfectionistic strivings are linked to basic psychological needs thwarting. Finally, interactions between the broad dimensions of perfectionism and the social environment may also influence motivational quality. This is because perfectionism shapes athletes' perceptions of their sporting environment. Therefore, perfectionistic concerns and perfectionistic strivings are likely influence perceptions of autonomy support or control from coaches and teachers and also athletes' perceptions of parenting style. Consequently, these tenets of self-determination (viz. motivational regulation, basic psychological needs, perceived psychological climate) are likely to be valuable in explaining the influence of perfectionistic concerns and perfectionistic strivings in youth sport and dance.

Athlete burnout and athlete engagement

To examine the associations that perfectionism and self-determined motivation share with ill-being and well-being in youth sport and dance, the current thesis includes two main outcomes – athlete burnout and athlete engagement. Burnout and engagement are appropriate in this respect because they represent two opposing outcomes that are strongly influenced by motivation, and have previously been linked to perfectionism. In addition they are domain specific indicators of ill-being (burnout) and well-being (engagement) that have been explained in the context of self-determination theory (Hodge et al., 2009; Lonsdale et al., 2009; Perreault, Gaudreau, Lapointe, & Lacroix, 2007). Furthermore, psychological engagement is a vital component in youth athletic development and burnout may be particularly problematic for youth athletes as it undermines performance, well-being and athletic development (Feigley, 1984; Gould,

Udry, Tuffey & Loehr, 1996; Raedeke, 1997). Therefore, burnout and engagement are important considerations when conducting research in youth sport and dance.

Athlete burnout

The emergence of burnout as a concept in sport owes much to the work of organisational psychologists who first coined the term "burnout" (Bradley, 1969). Schaufeli & Buunk (2003) describe two major traditions in organisational burnout research. Firstly, the pioneering phase, which is centred on research by Freudenberger (1974, 1980, 1983). Freudenberger's line of research is focussed on the practicalities of assessment, treatment, and prevention of the syndrome. Secondly, the empirical phase, which is focussed on theoretically informed research and was driven, in large part, by Maslach and Jackson's (1981) burnout inventory (MBI).

The MBI is based on burnout in human service settings and Maslach and Jackson (1986, p. 1) define burnout as: "…a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment." Emotional exhaustion is the depletion of emotional resources caused by interpersonal demands. Depersonalization is the development of negative and cynical attitudes towards the recipients of one's services. Reduced personal accomplishment is the tendency to negatively evaluate one's work with recipients (Schaufeli & Buunk, 2003). This inventory and definition had until recently guided a large proportion of the burnout research in sport (see Goodger, Gorely, Lavallee, Harwood., 2007 for a review). However, because the MBI was originally developed in an organisational context, researchers have questioned whether it accurately captures burnout in sport (Raedeke, 1997; Raedeke & Smith, 2001).

The case for a domain specific measure emanates from the difficulty in applying the depersonalization and reduced personal accomplishment subscales outside of a human service context (Raedeke & Smith, 2001). Whilst previous attempts have been made in sport (e.g. Feigley, 1984; Fender, 1989; Eades, 1990) they fail to sufficiently

adapt the human service definitions into a sport setting, and fail to adopt a multidimensional approach (Lemyre, et al., 2008). These two limitations mean that the earlier conceptualizations of athlete burnout, have failed to consistently capture the salient features of burnout in the sport environment.

Raedeke and Smith (2001) sought to remedy these limitations by modifying the MBI through the development of the athlete burnout questionnaire (ABQ). They replaced the reduced personal accomplishment and depersonalization subscales with reduced sense of accomplishment and sport devaluation respectively. Raedeke and Smith's (2001) sport specific definition describes athlete burnout as a multidimensional psychosocial syndrome, which includes a reduced sense of accomplishment, emotional and physical exhaustion, and sport devaluation. A reduced sense of accomplishment is characterised by a perception of reduction in sport skills and abilities; emotional and physical exhaustion reflects the intense demands of training and competition; and sport devaluation reflects athletes ceasing to care about sport and their performance.

Given these symptoms, it's clear that burnout shares certain diagnostic criteria with other syndromes such as overtraining and overreaching. For example, it has been suggested that burnout and overtraining are associated with impaired performance, increased fatigue, exhaustion and mood disturbance (Kenttä & Hassmén, 2002). However, burnout is distinct from these syndromes because of the reduction of motivation for one's sport which is reflected in sport devaluation. While overtraining and overreaching might underpin similar negative outcomes, they are unlikely to be associated with reduced motivation for one's sport (Lemyre et al., 2007).

Based on studies adopting Raedeke and Smith's (2001) model of burnout, researchers have found that athlete burnout is linked to a multitude of debilitating cognitive, affective, behavioural and physiological outcomes. For example, researchers' findings suggest that athlete burnout is positively associated with stress and anxiety

(Raedeke & Smith, 2001), lower levels of hope (Gustafsson, Skoog, Podlog, Lundqvist, & Wagnsson, 2013) overtraining (Lemyre et al., 2007) and reduced immune function (Cresswell & Eklund, 2007). Together these findings suggest that athlete burnout is a prominent indicator of ill-being in sport. Given that burnout is inherently debilitating and is linked with such negative secondary consequences, a major focus for sport psychology researchers has been to identify the antecedents of the burnout syndrome.

Perfectionism and athlete burnout

One such antecedent is perfectionism. Perfectionism is likely to contribute to athlete burnout because it influences the way in which athletes appraise their achievement information (Hall, 2006; Hall et al., 2012; Lemyre et al., 2008). Hall et al. (2012) have suggested that perfectionistic athletes rarely appraise their achievements as satisfactory but feel compelled to continue in order to preserve self-worth and their athletic identity. Over time this leads to a sense of entrapment (Raedeke, 1997) and a widening discrepancy between the actual and the ideal self (Hewitt & Flett, 1991). In turn this leads to the reduced sense of accomplishment, emotional and physical exhaustion and sport devaluation which typify the burnout syndrome (Hall et al., 2012).

Partial support for these proposed links between perfectionism and athlete burnout is evident in several studies (e.g. Appleton & Hill, 2012; Appleton et al., 2009; Gotwals, 2011; Gould et al., 1996; Hill et al., 2008; Hill et al., 2010a; Hill et al., 2010b; et al, 2008). More specifically, this research suggests that indicators of perfectionistic concerns such as socially prescribed perfectionism, concern over mistakes and doubts about actions consistently positively predict athlete burnout. In contrast, indicators of perfectionistic strivings such as self-oriented perfectionism and personal standards are either negatively associated with athlete burnout or share no significant association with athlete burnout.

Some of these studies have also highlighted several mechanisms that explain the associations between HMPS model of perfectionism and burnout. For instance, Hill et al. (2008) have found that unconditional self-acceptance mediates the perfectionism-burnout associations in youth soccer players. Specifically, Hill et al.'s (2008) findings suggest that socially prescribed perfectionism and self-oriented perfectionism share a positive indirect association with athlete burnout via lower levels of unconditional self-acceptance. Extending this work, Hill et al. (2010a) have examined whether coping might also explain the perfectionism-burnout associations in youth athletes. Their findings suggest that socially prescribed perfectionism shares a positive indirect association with athlete burnout via higher levels of avoidant coping. In contrast, it appears that self-oriented perfectionism shares an inverse indirect association with athlete burnout via higher levels of problem-focussed coping and lower levels of avoidant coping. In a further extension to this line of research Hill et al. (2010b) have examined whether validation vs. growth seeking explain the perfectionism-burnout associations in kayak-slalom and canoe polo athletes. Their findings suggest that socially prescribed perfectionism shares a positive association with athlete burnout via higher levels of validation seeking. In contrast, it appears that neither validation seeking nor growth seeking explain the self-oriented perfectionism-burnout association.

In addition to these explanatory mechanisms, the motivational quality stemming from perfectionistic concerns and perfectionistic strivings may be integral in explaining the perfectionism-burnout associations. This assertion has been supported in a recent study with elite youth athletes by Appleton and Hill (2012). Appleton and Hill examined whether motivational regulations could explain the associations between the Hewitt and Flett (1991) model of perfectionism and athlete burnout. Their findings suggest that the positive relationship between the socially prescribed perfectionism indicator of perfectionistic concerns and athlete burnout is mediated by amotivation. In

contrast, they suggest that the inverse relationship between self-oriented perfectionism indicator of perfectionistic strivings and athlete burnout is mediated by intrinsic motivation and amotivation.

Other recent studies suggest that further indicators of motivational quality within self-determination theory contribute to burnout. For example, Lonsdale et al. (2009) have examined burnout from a self-determination theory perspective in Canadian athletes. Their findings suggest that satisfaction of the basic psychological needs for competence and autonomy predicts lower levels of burnout via high quality motivation indicated by high scores on the self-determination index. Low quality motivation also appears to share a temporal association with athlete burnout. For example, in a study with elite New Zealand athletes Lonsdale and Hodge (2011) have found that low quality motivation indicated by low scores on the self-determination index at time 1 positively predict increased burnout symptoms at time 2 (i.e. four months later). However, Londsdale and Hodge's (2011) study doesn't enable understanding about the factors which may give rise to low quality, controlled forms of regulation and subsequent burnout. Consequently, this thesis aims to expand the work of Appleton and Hill (2012), Lonsdale et al (2009) and Lonsdale and Hodge (2011) by examining whether the tenets of self-determination theory can explain the perfectionistic concerns-burnout and perfectionistic strivings-burnout associations.

Athlete engagement

As with athlete burnout, the development of the athlete engagement construct is grounded in research carried out in an organisational context. Specifically, the concept of athlete engagement has been based on Schaufeli and Van Dierendonck's (2000) organisational definition of work engagement. Work engagement has been described as 'the positive antipode of burnout' (Schaufeli and Bakker, 2004, p. 294). However, although engagement and burnout are antithetical they are also independent states

(Schaufeli & Bakker, 2004). This acknowledgement has led to an independent measure of engagement in the organisational context, namely the Utrecht Work Engagement Scale (UWES; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). It is on this premise of independence and the UWES measure that the definition and operationalization of athlete engagement has been based.

Specifically, Lonsdale et al. have operationalized athlete engagement in the Athlete Engagement Questionnaire (AEQ; Lonsdale, Hodge & Jackson, 2007; Lonsdale, Hodge, & Raedeke, 2007). They have defined athlete engagement as a persistent, positive, cognitive-affective experience consisting of confidence, vigour, dedication, and enthusiasm. Confidence is characterized by a belief in performance ability and self-assurance that desired goals will be achieved; dedication is the investment of time and effort in order to achieve important goals; vigor is the feeling of physical and mental liveliness; and enthusiasm is represented by excitement and elevated enjoyment.

Given that athlete engagement is antithetical to burnout but an independent construct, it is somewhat surprising that engagement has so far received little attention in sport. This has led to a lack of knowledge regarding the potential antecedents and consequences of athlete engagement. Hodge et al. (2009) sought to address this by examining the associations between basic psychological needs satisfaction, athlete engagement and flow in Canadian athletes. They found that athlete engagement was positively associated with basic psychological needs satisfaction. In particular, it appeared that competence satisfaction and autonomy satisfaction were strongly associated with athlete engagement. Athlete engagement also predicted the autotelic experience of flow and partially mediated the relationship between basic psychological needs satisfaction and flow. These findings support the notion of athlete engagement as

a relatively positive cognitive-affective experience, and therefore suggest that athlete engagement is a useful indicator of well-being.

Perfectionism and engagement

Athlete engagement is a pertinent construct for athletes who invest substantial amounts of time in their efforts to be successful (Lonsdale, et al., 2007). Perfectionistic athletes fall into this category because the pursuit of exacting standards demands significant physical investment in sport. However, it is questionable whether perfectionistic athletes' physical engagement will be accompanied by adaptive psychological engagement. In particular, perfectionistic concerns seem likely to undermine athlete engagement. This is because persistent negative self and other evaluations will undermine confidence, dedication, vigour and enthusiasm. Perfectionistic strivings may be relatively less likely to undermine engagement, particularly when athletes perceive performance success. Nonetheless perfectionistic strivings may undermine adaptive engagement when striving fails to meet exacting standards.

To date, no study has investigated the relationships between perfectionism and engagement in sport, but there has been some research in organisational psychology. In their study with employees and in support of the assertions above, Childs and Stoeber (2010) found that the socially prescribed perfectionism indicator of perfectionistic concerns was associated with lower levels of engagement. In contrast, their findings suggested that the self-oriented perfectionism indicator of perfectionistic strivings was associated with higher levels of engagement.

Because athlete engagement is antithetical to athlete burnout, the mechanisms which explain the perfectionism-burnout associations are also likely to be central in explaining the perfectionism-engagement associations. As seen above in the study by Hodge et al. (2009), athlete engagement is linked to motivational quality in the form of

basic psychological needs satisfaction. Consequently, the current thesis aims to explore whether the tenets of self-determination theory can help to explain the perfectionism-burnout and perfectionism-engagement associations in youth athletes.

The current thesis

Clear disagreement exists within the literature regarding the precise nature of perfectionism. However, the broad perfectionistic concerns and perfectionistic strivings dimensions offer an encompassing approach to examining perfectionism in the context of youth sport. Nonetheless, relatively little research has examined these broad dimensions as composite variables. This thesis aims to address this by examining perfectionistic concerns and perfectionistic strivings in the context of self-determination theory.

In line with this aim, the first study of the thesis examines whether motivational quality, specifically autonomous and controlled motivation, mediates the associations between broad dimensions of perfectionism and athlete burnout in junior athletes. Given that basic psychological needs have been shown to be a strong indicator of motivational quality, the second study of the thesis examines whether basic psychological needs satisfaction and thwarting mediate the perfectionism-engagement and perfectionism-burnout associations in junior athletes. The avoidance of shame and guilt, and the pursuit of pride are integral to low quality motivational regulation introjection. In addition, little work has examined the daily influence of perfectionistic concerns and perfectionistic strivings. Therefore, the third study of the thesis examines the associations between perfectionism and day-to-day self-conscious emotions and whether these day-to-day emotions predict engagement and burnout in county cricketers on tour. It has been suggested that the psychological climate can have an important impact on motivational quality. In addition, creating an autonomy supportive psychological climate has been suggested as a potential management strategy for the

negative components of perfectionism. Therefore, the fourth study of the thesis examines whether the psychological climates created by teachers and parents moderate the perfectionism-engagement and perfectionism-burnout associations in youth dancers.

Based on the theoretical and empirical evidence above, it is hypothesised that perfectionistic concerns will emerge from the studies as being relatively more maladaptive than perfectionistic strivings. For example, it is hypothesised that perfectionistic concerns will share consistent positive associations with athlete burnout and indicators of low quality motivation. In contrast, it is hypothesised that perfectionistic strivings will emerge as a vulnerability factor. For example, it is hypothesised that perfectionistic strivings will share positive associations with engagement and high quality motivation, and inverse associations with burnout, but will also share positive associations with indicators of low quality motivation.

Together this programme of research aims to make a unique contribution to existing literature by highlighting the perfectionism-burnout and perfectionism-engagement associations in the context of self-determination theory in youth sport and dance.

Chapter 2 - Perfectionism and Junior Athlete Burnout: The Mediating Role of Autonomous and Controlled Motivation[1]

"…the problem that threatens to end my career prematurely – the problem that feels like my father's legacy – is perfectionism."

Andre Agassi

As indicated in Chapter 1 the main aim of the thesis is to establish whether motivational quality in the context of self-determination theory has a role in explaining the associations that perfectionistic concerns and perfectionistic strivings share with ill-being and well-being in youth sport and dance. The primary indicator of motivational quality within self-determination theory exists in the form of motivational regulation (Lemyre et al., 2007). Motivational regulation has previously been shown to mediate perfectionism-burnout associations using the Hewitt and Flett (1991) model of perfectionism (Appleton & Hill, 2012). However, researchers are yet to examine the mediating role of motivational regulation in the associations between broad dimensions of perfectionism and athlete burnout. Consequently, this chapter presents the first empirical study of the thesis. The main purpose of the first study is to examine whether autonomous (i.e. high quality motivation) and controlled (i.e. low quality motivation) motivational regulation mediate the perfectionistic concerns-burnout and perfectionistic strivings-burnout associations.

Athlete burnout and the role of perfectionism

Athlete burnout is an extreme form of sport disaffection that can afflict junior athletes (Coakley, 1992). The syndrome manifests in symptoms of reduced perceptions

[1] Copyright © American Psychological Association. Chapter 2 adapted with permission from Jowett, Hill, Hall, & Curran (2013).

of athletic accomplishment, perceived emotional and physical exhaustion, and devaluation of participation (Raedeke & Smith, 2001). Along with performance difficulties, these symptoms have implications for the psychological well-being of athletes. For example, depression and general anxiety have been reported by athletes experiencing burnout (Cresswell & Eklund, 2004). To observers, athlete burnout can appear to mark a motivational shift from high levels of behavioural commitment to psychological, emotional and physical withdrawal. In accord, burnout has been described as 'motivation gone awry' (Gould, 1996). What underpins this apparent motivational shift in sport is currently unclear. However, personality characteristics are thought to play an important role, with a number of theoretical frameworks offering explanations of the manner in which they may do so (see Creswell & Eklund, 2006, for a review). Perfectionism has been identified as one factor that may predispose athletes to dysfunctional achievement striving and burnout (Gould, et al., 1996).

Perfectionism has been broadly defined as striving for exceedingly high standards accompanied by harsh self-criticism (Frost, et al., 1990). Two multidimensional approaches to perfectionism have typically been adopted to investigate the association between perfectionism and athlete burnout. The first outlined by Frost et al. (1990) includes six dimensions, four of which reflect intrapersonal perfectionistic tendencies. These include the setting of exacting personal standards and indicators of an irrational importance placed on these standards, such as preoccupation with mistakes, chronic doubt about inadequacies, and the necessity for precision and order. The other two dimensions reflect interpersonal perfectionistic tendencies. These involve perceptions of parental pressure (i.e., unrealistic standards and criticism). Research adopting this approach has found that high personal standards tend to be inversely associated with athlete burnout, whereas concern over making mistakes, doubts about action, and parental pressure tend to be positively associated with athlete

burnout (Gotwals, 2011; Gould et al., 1996; Lemyre et al., 2008). Evidence regarding a need for organisation is mixed (see Gotwals, 2011; Gould et al., 1996).

The second approach used to examine the perfectionism-burnout relationship was developed by Hewitt and Flett (1991). They argue that perfectionism can be directed both inward and outward and that it has both intrapersonal and interpersonal qualities, which are reflected in three specific dimensions. Self-oriented perfectionism is an intrapersonal dimension characterised by an internal drive for exceedingly high personal standards and a tendency to criticise oneself harshly. Socially prescribed perfectionism is an interpersonal dimension characterised by perceptions that others hold unrealistically high standards for oneself, are critical, and withhold approval based on attempts to obtain external standards. Research has demonstrated that socially prescribed perfectionism is positively associated with athlete burnout (Appleton, et al., 2009; Hill et al., 2008; Hill, Hall, Appleton, & Murray, 2010), whereas self-oriented perfectionism has demonstrated a negative association (Appleton et al., 2009; Hill et al., 2008), no association (Hill et al., 2010), and a positive indirect association (Hill et al., 2008) with athlete burnout.

Research to date has examined the association between perfectionism and athlete burnout using the two models of perfectionism independently. However, in response to the emergence of both of these models in sport research, researchers have recently begun to adopt a higher-order approach. The potential integration of the two models is supported by factor analytical studies that suggest that two broad dimensions of perfectionism may account for the dimensions of these models (Bieling, Israeli, & Antony, 2004; Cox, et al., 2002; Frost et al., 1993). Perfectionistic strivings subsumes personal standards and self-oriented perfectionism, whereas perfectionistic concerns subsumes socially prescribed perfectionism, concern over mistakes and doubts about actions (Dunkley, et al., 2000). Based on their sub-dimensions, perfectionistic strivings

primarily entails the setting of exacting standards with elements of stringent self-evaluation; whereas, perfectionistic concerns primarily entails a commitment to exacting standards due to perceived expectations of significant others, accompanied by overly critical self-evaluation (Dunkley et al., 2000). Adopting a higher-order approach may have some advantages in comparison to utilising models independently. For example, it includes a wider array of dimensions to help capture perfectionism and avoids disaggregation of individual sub-dimensions that in isolation may not fully capture perfectionism. Consequently, the approach provides a useful extension to research in this area.

To date, only a small number of studies have adopted a higher-order approach in sport. These have found perfectionistic concerns to be positively associated with avoidance achievement goals and avoidant coping strategies but have found perfectionistic strivings to be positively associated with approach achievement goals and approach coping strategies (Gaudreau & Antl, 2008; Kaye, et al., 2008; Stoeber, Stoll, Salmi, & Tiikkaja, 2009; Zarghmi, Ghamary, Shabani, & Varzaneh, 2010). Differential outcomes of perfectionistic concerns and perfectionistic strivings are also evident in research outside of sport. For example, research has found perfectionistic concerns to be positively associated with distress and avoidant coping, as well as more extreme outcomes such as depression and suicide ideation (Dunkley et al., 2000; Enns, Cox, Sareen, & Freeman, 2001). In contrast, perfectionistic strivings has been found to be negatively related to detrimental outcomes such as general negative affect, self-blame, anxiety, and depression (Bieling et al., 2004; Dunkley, Zuroff, & Blankstein, 2003). In some instances, it has also been found to have more adaptive correlates, such as active coping and conscientiousness (Dunkley et al, 2000; Enns et al., 2001). Although research has yet to examine the relationship between the two broad

dimensions of perfectionism and athlete burnout, based on current evidence, it would be expected that they would also be differentially related to burnout symptoms.

A number of theories have been put forward to explain the occurrence of athlete burnout (see Cresswell & Eklund, 2006 for a review). Self-determination theory (Ryan & Deci, 2002) offers a distinctively organismic approach to understanding burnout and may encompass existing theories (Cresswell & Eklund, 2006). Ryan and Deci (2002) contend that humans possess an innate propensity for personal growth and assimilation through internalisation of behaviour in to the self (Ryan & Deci, 2002). The process of internalisation can lead to autonomous regulation of behaviour, where behaviour is fully integrated in the self, or more controlled forms of motivational regulation, where behaviour is only partially integrated in to the self (Hodgins & Knee, 2002). Within this theory, more autonomous motivational regulation is posited to lead to better psychological adjustment and well-being, whereas more controlled regulation is associated with poorer psychological adjustment and ill-being. This assertion has been supported in a number of empirical studies (see Ryan & Deci, 2007 for review). This theory has recently been used to explain the development of athlete burnout (e.g., Cresswell & Eklund, 2005; Hodge, Lonsdale, & Ng, 2008; Lemyre, Treasure & Roberts, 2006). From this perspective athlete burnout is a state of ill-being that is characterised by a distinct pattern of motivational regulation (Cresswell & Eklund, 2005).

Within self-determination theory multiple forms of motivation are differentiated. Intrinsic regulation is the most autonomous form of motivation and entails participating in for the inherent knowledge, enjoyment and stimulation it offers (Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995). Extrinsic motivation, on the other hand, includes four forms of regulation that differ in the extent to which the behaviour is internalised in to the self. External regulation can either be more controlled, when based

on external controls (extrinsic regulation) or internal contingencies (introjected regulation), or more autonomous, when underpinned by instrumental value (identified regulation) or personal values (integrated regulation). The model also includes amotivation which reflects a lack of motivation and is indicative of helplessness. Based on this approach to understanding behaviour in sport, a number of theorists (e.g., Cresswell & Eklund, 2005; Lemyre et al., 2006) have suggested that athlete burnout may have a motivational 'signature' characterised by lower levels of intrinsic regulation and higher levels of amotivation or, when considered across the entire spectrum, lower levels of autonomous motivation (intrinsic, integrated, and identified regulation) and higher levels of controlled motivation (introjected and external regulation) (Lonsdale et al., 2009).

Research has found support for this approach to describing athlete burnout. In particular, lower intrinsic regulation and higher amotivation appear to be the motivational regulations most strongly related to burnout symptoms (e.g., Cresswell & Eklund, 2005; Raedeke & Smith, 2001). More recent research suggests that other regulations also appear to predict burnout symptoms but to a lesser degree (Lonsdale et al., 2009). Further support for this approach is also provided by research which has utilised a weighted combination of motivation regulations to create a relative autonomy index. Although this approach has a number of limitations (see Koestner & Losier, 2002), the use of the index has consistently supported the notion that more autonomous motivation is negatively associated with burnout in athletes (Lemyre et al., 2007; Lonsdale et al., 2009). Furthermore, shifts from high autonomous motivation to more controlled motivation assessed using the index has been found to be positively associated with athlete burnout during the competitive season (Lemyre et al., 2006). Collectively, this research suggests that burnout is more likely when athletes report less autonomous and more controlled motivation for their participation in sport. However, a

key question that remains to be answered is what underpins the pattern of controlled regulation which represents burnout. Perfectionism may be a key factor

The role of motivational regulation

From a self-determination theory perspective, the association between perfectionistic strivings and perfectionistic concerns with motivational regulation (i.e., lower autonomous motivation and higher controlled motivation) offers an explanation of their possible relationships with athlete burnout. Perfectionistic concerns include sub-dimensions that are theoretically closely related to controlled motivation. For instance, pursuit of socially prescribed standards in order to obtain recognition or reinforcement reflects controlled forms of regulation such as introjected and external regulation. Direct support for this possibility has been provided by Gaudreau and Antl (2008) in their research with athletes. They found that perfectionistic concerns predicted higher levels of a non-self-determined (i.e., more controlled) motivation composite (extrinsic regulation and amotivation) but was not associated with a self-determined (i.e., more autonomous) motivation composite (intrinsic regulation and identified regulation). In addition, there is evidence that the individual intrapersonal (i.e. concern over mistakes and doubts about action) and interpersonal (i.e. socially prescribed perfectionism) sub-dimensions of perfectionistic concerns are positively associated with controlled motivation and unrelated to autonomous motivation in sport and education (McArdle & Duda, 2004; Mouratidis & Michou, 2011; Stoeber, Feast & Hayward, 2009).

In comparison to perfectionistic concerns, perfectionistic strivings appears to be more motivationally complex. On one hand, its sub-dimensions are likely to be associated with a greater sense of personal control and choice that is likely to contribute to more autonomous motivation in sport (Dunkley et al., 2000). On the other hand, a number of researchers have identified the potential for perfectionistic strivings to be underpinned by more controlling factors, such as the fulfilment of contingencies of self-

worth (DiBartolo, Frost, Chang, LaSota & Grills, 2004; Hill, Hall, & Appleton, 2011). Consequently, perfectionistic strivings may be associated with higher levels of both autonomous motivation and controlled motivation in sport. This possibility is again supported by Gaudreau and Antl (2008) who found that athletes' perfectionistic strivings were positively correlated with a composite of self-determined motivation and, to a lesser degree, a composite of non-self-determined motivation. This pattern of relationships has also been found in research that has examined the association between personal standards and self-oriented perfectionism sub-dimensions with composites of autonomous motivation (intrinsic, integrated, and identified regulation) versus controlled motivation (introjected and external regulation), as well as the regulations individually (McArdle & Duda, 2004; Mouratidis & Michou, 2011; Stoeber, et al., 2009).

In further support of the notion that autonomous and controlled motivation may mediate the perfectionism-burnout relationship, research suggests that the association between perfectionism and other outcomes are typically indirect. For example, Dunkley et al. (2000) found that the association between perfectionistic concerns and distress was mediated by hassles, avoidant coping and perceived social support. This is also the case in terms of the perfectionism-athlete burnout relationship with multiple indirect pathways being identified that include different achievement motives (validation versus growth-seeking) and coping tendencies (Hill et al., 2010a; Hill, Hall, Appleton, & Murray, 2010). The pattern of motivation associated with athletes' perfectionism is an especially likely additional pathway. Not only because of the theoretical and empirical links between motivation and athlete burnout (Cresswell & Eklund, 2005; Lemyre et al., 2006) but also because recent research suggests that controlled and autonomous motivation may mediate the relationship between perfectionism and other outcomes. In particular, Mouratidis & Michou (2011) recently found that controlled and autonomous

motivation mediated the associations between sub-dimensions of perfectionism and several coping skills in adolescent athletes. Similarly, Gaudreau and Antl (2008) found that s non-self-determined (i.e., more controlled) motivation and self-determined (i.e. more autonomous) motivation mediated the association between the broader perfectionism dimensions and situational coping. Consequently, it appears that autonomous motivation and controlled motivation represent key mechanisms through which perfectionistic concerns and perfectionistic strivings may influence athlete burnout.

The present study

In summary, the purpose of the first study of the thesis was to examine the relationship between perfectionistic strivings and perfectionistic concerns with athlete burnout, and whether these relationships were partially mediated by autonomous motivation and controlled motivation. Based on the preceding argument, it was hypothesised that perfectionistic concerns would be positively associated with athlete burnout and that the perfectionistic concerns-burnout relationship would be partially mediated by a positive association with controlled motivation. In contrast, it was hypothesised that perfectionistic strivings would be inversely associated with athlete burnout and that the perfectionistic strivings-burnout relationship would be partially mediated by a positive association with both autonomous motivation and controlled motivation (Fig. 2.1). Partial mediation rather than full mediation was hypothesised due to evidence of multiple mediators of the perfectionism-athlete burnout relationship (Gaudreau & Antl, 2008; Hill et al., 2010a; Hill, Hall, Appleton, & Murray, 2010; Mouratidis & Michou, 2011).

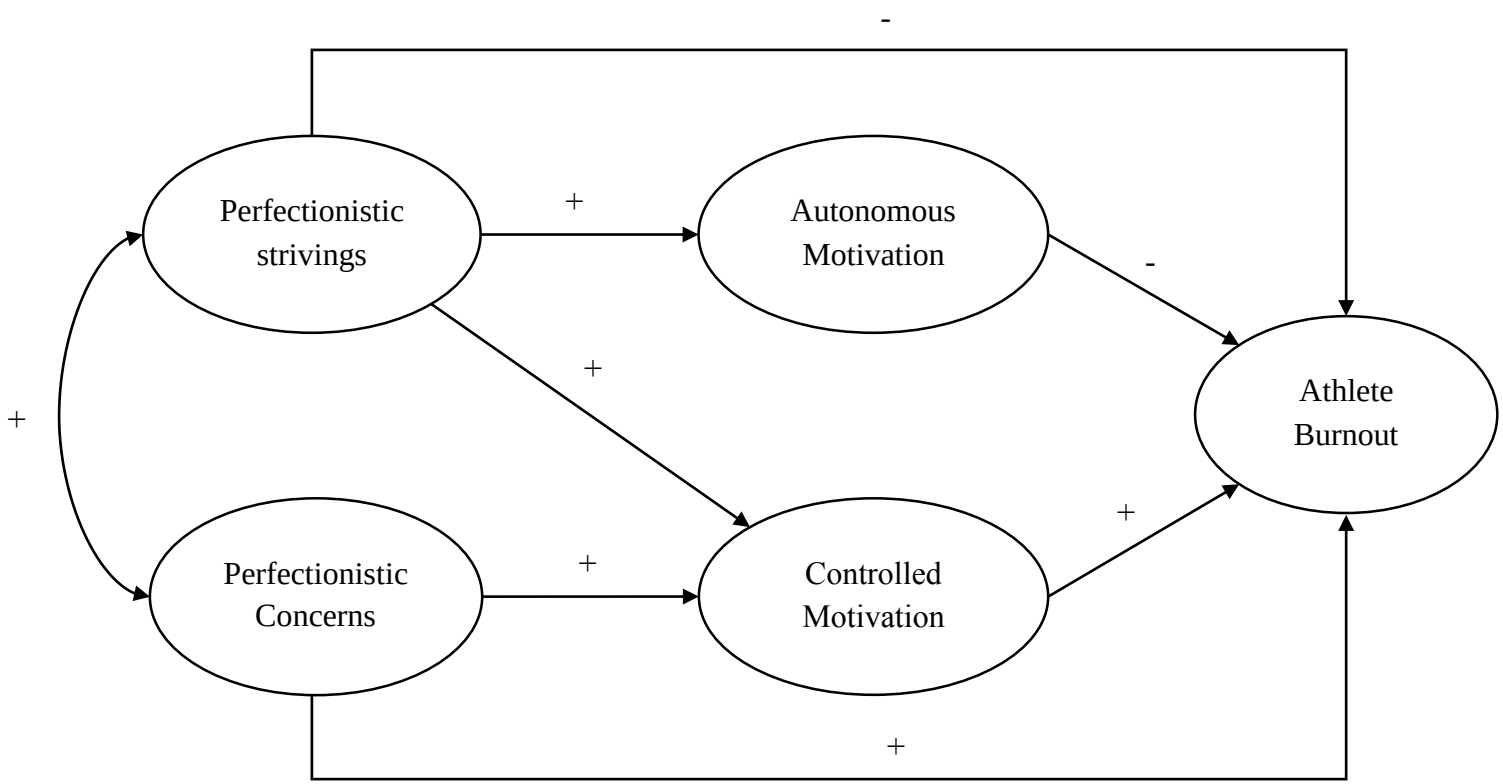

Fig. 2.1. Hypothesised model of the associations between broad dimensions of perfectionism, autonomous motivation, controlled motivation and athlete burnout

Method

Participants and procedure

Participants were 211 junior athletes from sports clubs and organisations across Northern England. This included 161 males and 50 females whose mean age was 15.61 years (*SD* = 1.73 years). They competed in their sport at club (*n* = 45), academy (*n* = 120) or regional (*n* = 46) level. Sports included football (*n* = 105), cricket (*n* = 39), netball (*n* = 38), and swimming (*n* = 29). On average participants trained and competed for 12.28 hours per week (*SD* = 7.47 hours).

Following approval by the University Research Ethics Committee (Appendix A.1), coaches from potential sports clubs and organisations were contacted via telephone and e-mail to enquire about whether their team/organisation would be interested in taking part in the study. If they approved, participant consent forms (Appendix B.1) and parental consent forms (Appendix B.2) were sent athletes and parents, hard copy or e-mail, via the coach. Participants were then verbally invited to complete the study questionnaire either prior to or following a training/practice session. This verbal invitation re-emphasised the participants' voluntary participation and their right to withdraw at any time without prejudice along with the steps taken to only report group data. The study questionnaire took approximately 20 minutes to complete.

Instruments

Athlete Burnout. The Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) was used in the current study to assess athlete burnout. The ABQ is a 15-item inventory made up of three 5-item subscales: reduced sense of accomplishment (e.g. 'I am not achieving much in sport'), perceived emotional and physical exhaustion (e.g. 'I feel so tired from my training that I have trouble finding the energy to do other things');

and athlete's devaluation oftheir sport (e.g. 'The effort I spend in sport would be better spent doing other things'). The subscales were measured on a 5 point Likert (1 = almost never to 5 = almost always). Evidence has been provided to support the validity and the reliability of the subscales. This includes factor structure, internal consistency ($\alpha \geq .85$), and test-retest reliability ($r \geq .86$) (see Raedeke & Smith, 2001). In the current study athlete burnout was represented as a latent variable indicated by its three observed subscales. Composite reliability estimates in previous studies ($\rho_c \geq .75$; Hill et al., 2010a, 2010b) support the utility of this approach.

Sport Multidimensional Perfectionism. The Sport Multidimensional Perfectionism Scale (SMPS-2; Gotwals & Dunn, 2009) is an adapted, sport specific version of Frost et al. (1990) multidimensional perfectionism scale. The current study utilised the S-MPS-2 7-item personal standards subscale (e.g. “I hate being less than the best at things in my sport”), the 8-item concern over mistakes subscale (e.g. “If I fail in competition I feel like a failure as a person”) and the 6-item doubts about actions subscale (e.g. “I usually feel unsure about the adequacy of my pre-competition practices”). All three subscales were measured on a 5 point Likert scale (1 = strongly disagree to 5 = strongly agree). Evidence has been provided to support the validity and reliability of the scale. This includes factor structure (via multiple exploratory factor analyses) and internal consistency ($\alpha \geq .74$) (see Gotwals & Dunn, 2009; Gotwals, Dunn, Causgrove Dunn, & Gamache, 2010).

Multidimensional Perfectionism. The Cox et al. (2002) shortened version of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale (H-MPS) was used to assess self-oriented perfectionism, (e.g., “One of my goals is to be perfect in everything I do.”) and socially prescribed perfectionism (e.g., “People expect nothing less than perfection from me.”). The instructions (“The following items are statements concerning personal characteristics that some people demonstrate when they are training

or playing their sport") and the stem of the instrument were modified ("In my sport…") in order to account for the potential domain specificity of perfectionism (see Dunn, Gotwals, & Causgrove Dunn, 2005). Each subscale of the shortened H-MPS contains 5-items measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Reliability analyses have supported the internal consistency of the subscales ($\alpha \geq .79$). Confirmatory factor analyses have supported the factor structure of the shortened scales and correlations between the shortened H-MPS and original H-MPS subscales are extremely high ($rs \geq .94$) (Cox et al., 2002)

Motivational Regulation. The Behavioural Regulation in Sport Questionnaire (BRSQ; Lonsdale et al., 2008) was used to assess motivational regulation. The BRSQ includes the stem: "I participate in my sport…", and is made up of six 4-item subscales measured on a 7 point Likert scale (1 = strongly disagree to 7 = strongly agree). The subscales including intrinsic motivation (e.g. "because I enjoy it"), integrated regulation (e.g. "because it's part of who I am"), identified regulation (e.g. "because the benefits of sport are important to me"), introjected regulation (e.g. "because I would feel ashamed if I quit"), external regulation (e.g. "because if I don't other people will not be pleased with me"), and amotivation (e.g. "but I wonder what's the point"). Evidence has been provided to support the validity of the measure, as well as the reliability of the subscales, in the form of internal consistency ($\alpha \geq .76$), and test-retest reliability ($r \geq .73$) (Lonsdale et al, 2008).

Results

Preliminary analyses

Following the procedure outlined by Tabachnick and Fidell (2007), participants with more than 5% missing data ($n = 13$) were removed from the analysis. The remaining sample consisted of118 complete cases and 80 incomplete cases. These

incomplete cases displayed a very small amount of missing items (M = 1.71, SD = 0.87, range = 1 – 4). Due to the small amount of missing data, these remaining missing values were replaced using the mean of the non-missing items from the relevant subscale in each individual case (see Graham, Cumsille, & Elek-Fisk, 2003). The univariate and multivariate distribution of data was analysed following procedures outlined by Tabachnick and Fidell (2007). Five univariate outliers, outside the standardized z score range (+/- 3.29, $p < .001$), were identified and removed. Similarly, 2 multivariate outliers, with Mahalanobis distance above $\chi^2_{(16)} = 39.25$ ($p < .001$), were identified and removed. Subsequently, the data were considered approximately univariate normal (absolute skewness M = 0.43, SD = 0.31, SE = 0.18, absolute kurtosis M = 0.37, SD = 0.20, SE = 0.35) and multivariate normal (Mardia's normalized coefficient = 2.74). Reliability analyses assessing internal consistency of the subscales supported use of the individual subscales ($\alpha \geq .68$). Results are displayed in Table 2.1.

Table 2.1 - Descriptive statistics and reliability estimates

	Range	*M*	*SD*	α
Athlete burnout				
Reduced sense of accomplishment	1-5	2.20	0.63	.68
Emotional and physical exhaustion	1-5	2.41	0.80	.84
Sport devaluation	1-5	1.79	0.78	.82
Global burnout	1-5	2.13	0.32	.83
Perfectionistic strivings				
Personal standards	1-5	3.70	0.65	.80
Self-oriented perfectionism	1-7	5.61	0.88	.80
Perfectionistic Concerns				
Concern over mistakes	1-5	3.10	0.71	.80
Doubts about actions	1-5	2.70	0.74	.78
Socially prescribed perfectionism	1-7	3.59	1.10	.75
Autonomous motivation				
Intrinsic motivation	1-7	6.06	0.88	.76
Integrated regulation	1-7	5.63	0.95	.75
Identified regulation	1-7	5.53	1.00	.72
Controlled motivation				
Introjected regulation	1-7	3.95	1.65	.81
External regulation	1-7	3.26	1.57	.84

Descriptive analyses

Means and standard deviations are displayed in Table 2.1. They indicate that the athletes demonstrated moderate-to-high scores on the sub-dimensions of perfectionistic strivings and moderate-to-low scores on the sub-dimensions of perfectionistic concerns. These findings are consistent with Gaudreau and Antl (2008) in demonstrating generally higher levels of perfectionistic strivings than perfectionistic concerns. In addition the athletes' scores generally reflected a more autonomous pattern of motivational regulation because athletes reported high levels of intrinsic motivation, slightly lower levels of integrated regulation and identified regulation, moderate-low levels of introjected regulation and external regulation, and low levels of amotivation. Consistent with previous research with junior athlete samples (e.g. Raedeke & Smith, 2001), the athletes in the current study also displayed moderate-to-low levels of athlete burnout symptoms.

Structural equation modelling

Measurement model: Following the two step procedure outlined by Anderson and Gerbing (1988), confirmatory factor analysis using AMOS 18.0 (Arbuckle, 2009) with maximum likelihood estimation (ML) was employed to test the measurement model prior to testing the structural relationships. ML has advantages over other methods of parameter estimation. For example, ML has demonstrated less biased parameter estimates than asymptotic distribution-free estimation, better theoretical fit than weighted least squares and generalised least squares, and is relatively robust to deviations from normality (Finch, West, & MacKinnon, 1997; Olsson, Foss, Troye, & Howell, 2000; Yuan & Bentler, 1997). The measurement model consisted of 5 inter-related latent variables including perfectionistic strivings, perfectionistic concerns, autonomous motivation, controlled motivation, and athlete burnout. The same approach to modelling perfectionistic strivings and perfectionistic concerns utilised by Dunkley et

al (2000) was adopted here. Specifically, personal standards and self-oriented perfectionism were used as indicators of perfectionistic strivings, and concern over mistakes, doubts about actions and socially prescribed perfectionism were indicators of perfectionistic concerns. Autonomous and controlled motivation were modelled in the same manner as Mouratidis and Michou (2011). Intrinsic regulation, integrated, and identified regulation were used as indicators of autonomous motivation, and introjected regulation and external regulation were indicators of controlled motivation. Reduced sense of accomplishment, sport devaluation, and physical and emotional exhaustion were used as indicators of athlete burnout.

Consistent with the recommendation of Byrne (2001), the fit of the measurement model and structural model were assessed using a combination of absolute and incremental fit indices. These included the incremental fit index (IFI), the comparative fit index (CFI), the standardised root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). However, the assessment of model fit is a source of considerable debate (Marsh, Hau, & Wen, 2004; Vernon & Eysenck, 2007) with some researchers suggesting that stringent cut-off criteria may be unsuitable (e.g., Marsh et al., 2004). In accord, criteria were used in the current study that acknowledged the potential for acceptable (χ^2/df ratio < 3.00, IFI and CFI > .90, SRMR < .10, RMSEA < .08) and excellent fit (χ^2/df ratio < 2.00, IFI and CFI > .95, SRMR < .08, RMSEA < .06; Marsh et al., 2004; Schermelleh-Engel, Moosbrugger, & Müller, 2003).

The results of this analysis indicated that the measurement model provided a poor fit to the data (χ2/df ratio = 3.45, IFI = .87, CFI = .86, SRMR = .10, RMSEA = .11, 90% CI = .10 - .13). Examination of the measurement model revealed autonomous and controlled motivation to be the main source of ill-fit in the model. Consequently, a revised model was formulated using an approach adopted by Gaudreau and Antl (2008) to model autonomous motivation and controlled motivation. This was an item-level

modelling approach that entailed creating four composite indicators of autonomous motivation and controlled motivation where each composite was formed by summing the first items from each of the relevant motivational regulation subscales. This procedure was repeated using items two, three, and four from each subscale to account for every item. This revised measurement model provided acceptable-to-excellent fit to the observed data (χ^2/df ratio = 2.03, IFI = .94, CFI = .94, SRMR = .07, RMSEA = .07, 90% CI = .06 to .09). Standardised factor loadings from indicator variables to relevant latent variables were all significant (personal standards =.83 and self-oriented perfectionism =.77; concern over mistakes = .78, doubts about action = .47, and socially prescribed perfectionism .71; autonomous motivation indicators = .83, .84, .82, and .77; controlled motivation indicators = .81, .89, .73, and .84; reduced sense of accomplishment = .79, emotional and physical exhaustion = .52, and sport devaluation .82). In addition, composite reliabilities were calculated and supported the revised measurement model. These are reported in Table 2.2 along with the error-free correlations.

Table 2.2. Composite reliabilities and error free correlations between the latent variables in the measurement model

	ρ_c	1.	2.	3.	4.	5.
1. Perfectionistic concerns	.69	-				
2. Perfectionistic strivings	.78	.58***	-			
3. Controlled motivation	.80	.61***	.25**	-		
4. Autonomous motivation	.81	.18	.54***	.17*	-	
5. Athlete burnout	.76	.44***	-.19*	-.42***	.41***	-

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

Structural model: Structural equation modelling using maximum likelihood estimation was conducted to test the proposed structural relationships between perfectionism, autonomous motivation, controlled motivation and athlete burnout. Support for the hypothesised model was found as the fit indices exceeded those indicative of acceptable fit (χ^2/df ratio = 2.05, IFI = .94, CFI = .93, SRMR = .07, RMSEA = .07, 90% CI = .059 to .089). Path coefficients are shown in Fig. 2.2 Perfectionistic concerns and perfectionistic strivings accounted for 30% of the variance in autonomous motivation. Perfectionistic concerns and perfectionistic strivings accounted for 37% of the variance in controlled motivation. The combination of perfectionism and the two motivations accounted for 58% of the variance in athlete burnout.

Full versus partial mediation: To test the hypothesis that motivation would partially mediate the perfectionism-athlete burnout relationship, a full mediation model and partial mediation model were compared using a chi-square difference test. The full mediation model includes indirect pathways only. In contrast the partial mediation model includes both indirect pathways and direct pathways. The results of this comparison indicated that while both models provided adequate fit (full mediation model: χ^2/df ratio = 2.17, IFI = .93, CFI = .92, SRMR = .08, RMSEA = .08, 90% CI = .06 to .09; AIC = 320.65; partial mediation model: χ^2/df ratio = 2.05, IFI = .94, CFI = .93, SRMR = .07, RMSEA = .07, 90% CI = .06 to .09; AIC = 308.34), the chi-square difference test indicated that the inclusion of direct paths significantly improved fit ($\Delta\chi^2_{(2)} = 16.31$, $p < .01$. Consequently, the partial mediation model was supported. The final model is displayed in Fig. 2.2.

Assessment of mediation: In a separate analysis, the size and statistical significance of the specific indirect effects of dimensions of perfectionism on athlete burnout via motivation were assessed. To do so, indirect effects were calculated along

with their 95% confidence intervals using a distribution of products method in the *PRODCLIN* programme (MacKinnon, Fritz, Williams & Lockwood, 2007). The specific indirect effect of perfectionistic concerns on athlete burnout via controlled motivation excluded zero and was therefore significant (*ab* = .15, 95% CI = .05 to .26, *SE* = .06); however, via autonomous motivation included zero and was therefore non-significant **(***ab* = .05, 95% CI = -.01 to .13, *SE* = .03). The specific indirect effect of perfectionistic strivings on athlete burnout via autonomous motivation also excluded zero and was therefore significant (*ab* = -.22, 95% CI = -.36 to -.11, *SE* = .06); however, via controlled motivation included zero and was therefore non-significant (ab = -.02, 95% CI = -.12 to .07, *SE* = .05). Consequently, the association between perfectionistic concerns and athlete burnout can be considered to be partially mediated by controlled motivation; whereas, the association between perfectionistic strivings and athlete burnout can be considered to be partially mediated by autonomous motivation.

Assessment of suppression

Comparison between the error-free correlations (Table 2.2) and the parameter estimates in the final structural model suggested the presence of suppression. Suppression is evident when an association between a predictor and an outcome is substantially increased or changes direction when another predictor is added to the model (Cohen, Cohen, Aiken, & West, 2003). In the current study, when perfectionistic concerns were controlled for (i.e., included as a predictor of controlled motivation), the significant positive association between perfectionistic strivings and controlled motivation became non-significant and negative. In addition, when perfectionistic strivings were controlled for (i.e., included as a predictor of autonomous motivation), the non-significant positive association between perfectionistic concerns and autonomous motivation changed in direction. Whether this suppression was significant was assessed using the Sobel (1986) test. This indicated that perfectionistic concerns

suppressed the effect of perfectionistic strivings on controlled motivation ($z = 2.40$, $SE = .16$, $p < .05$), and that perfectionistic strivings suppressed the effect of perfectionistic concerns on autonomous motivation ($z = 3.95$, $SE = .09$, $p < .001$). The implications of this suppression for interpretation of the findings are explained in the discussion.

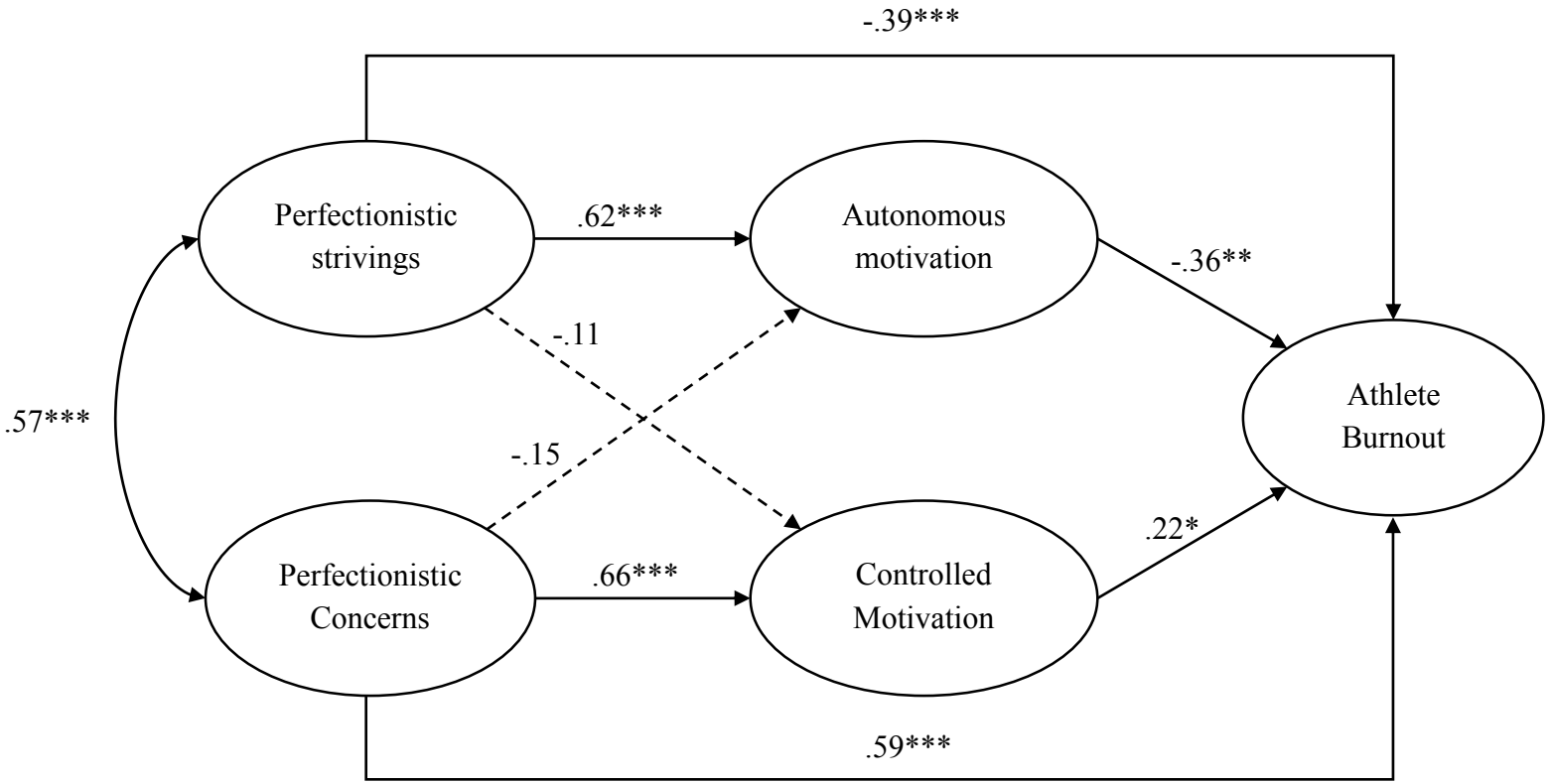

Fig. 2.2. Final structural equation model: The partial mediating influence of autonomous motivation and controlled motivation on the relationships between broad dimensions of perfectionism and athlete burnout

Note. All pathways are standardized, $n = 191$, Dashed line *ns*, *$p < .05$, $p < .01$**, $p < .001$***.

Discussion

The first study of the thesis had two purposes. The first purpose was to examine the relationships between perfectionistic concerns and perfectionistic strivings with athlete burnout. The second purpose was to examine whether autonomous motivation and controlled motivation partially mediated these relationships. It was predicted that perfectionistic concerns would be positively related to athlete burnout. In contrast, it was predicted that perfectionistic strivings would be negatively related to athlete burnout. It was also expected that the perfectionistic concerns-burnout relationship would be partially mediated by a positive association with controlled motivation only. In contrast, it was expected that the perfectionistic strivings-burnout relationship would be partially mediated by a positive association with both autonomous motivation and controlled motivation (Fig 2.1). The final model generally provided support for the hypotheses. The only exception was that the perfectionistic strivings-burnout relationship was not mediated by controlled motivation. The final model accounted for 30% of the variance in autonomous motivation, 37% of the variance in controlled motivation, and 58% of the variance in athlete burnout. These effects are comparable to previous studies investigating other mediators of the perfectionism-athlete burnout relationship (Hill et al., 2010a; Hill, Hall, Appleton, & Murray, 2010).

Dimensions of perfectionism and athlete burnout.

Perfectionistic concerns and perfectionistic strivings were expected to have a divergent relationship with athlete burnout. This was in part expected because these broad dimensions encompass sub-dimensions that are theoretically and empirically related to burnout in an opposing manner (Gotwals, 2011; Hill et al., 2008; Lemyre et al., 2008). By identifying that these findings generalise to broad dimensions, the findings both support and extend previous research examining the perfectionism-

burnout relationship. The findings also provide support more broadly for the general proposition that perfectionistic concerns may have considerable psychological costs for athletes, while perfectionistic strivings are less problematic (Stoeber & Otto, 2006). Elsewhere, this has been found in relation to other outcomes in sport such as life satisfaction, coping, and achievement goals (Gaudreau & Antl, 2008; Kaye et al., 2008; Zarghmi et al., 2010). The current research suggests that this may also be the case for athlete burnout.

The mediating roles of autonomous and controlled motivation

The findings provided support for the mediating roles of autonomous motivation and controlled motivation in the perfectionism-burnout relationship. The relationship between perfectionistic concerns and athlete burnout was partly explained by the prominence of controlled motivation. As was expected, the findings suggest that perfectionistic concerns is primarily characterised by motivation that is only partially internalised in to the self (introjected and external regulation). This is consistent with research that has found a similar pattern of relationships amongst perfectionistic concerns and its sub-dimensions with motivation regulation and burnout (e.g., Appleton & Hill, 2012; Gaudreau & Antl, 2008; Lemyre et al., 2006; Lonsdale et al., 2009). Perfectionistic concerns appear to promote participation that is largely energised by a sense of coercion, external pressure, and internal contingencies. Within self-determination theory, this is likely to contribute to sub-optimal functioning and ill-being that includes burnout.

As expected, the relationship between perfectionistic strivings and athlete burnout was partially mediated by higher levels of autonomous motivation. This suggests that perfectionistic strivings may facilitate a greater degree of integration of sport participation in to the self (Gaudreau & Thompson, 2010). At least in the case of the current sample, relative to perfectionistic concerns, the reasons for sport

participation are more adaptive and include enjoyment and personal affinity to sport. Within self-determination theory, this pattern of motivation is thought to contribute to more optimal functioning and well-being, which is the antithesis of burnout**.** This again supports the wider literature in this area which has typically highlighted the potential for perfectionistic strivings to be unproblematic, and even adaptive, when controlling for perfectionistic concerns (Stoeber, 2011).

Unexpectedly, the relationship between perfectionistic strivings and athlete burnout was not mediated by a positive association with controlled motivation. Instead, the pathway from perfectionistic strivings to controlled motivation was non-significant and the indirect effect was non-significant. Partial mediation via the two motivational pathways was initially hypothesised because the sub-dimensions of perfectionistic strivings have been suggested to elicit a mixed pattern of motivation that includes controlled motivation (DiBartolo et al., 2004; Hill et al., 2011). Moreover, there is also some empirical evidence that suggests that this is the case (e.g., Gaudreau & Antl, 2008; McArdle & Duda, 2004; Mouratidis & Michou, 2011). It is possible that the current finding may be indicative of suppression. Specifically, the error-free correlation between perfectionistic strivings and controlled motivation was small-to-moderate, positive and significant. However, following the inclusion of perfectionistic concerns as a predictor in this model, the path coefficient became small, negative and non-significant. A similar effect was evident when comparing the association between perfectionistic concerns and autonomous motivation. These findings highlight the necessity to consider both the overall (unpartialled) and unique (partialled) contributions of perfectionism dimensions. With this in mind, the findings suggest that ‘pure perfectionistic strivings’ (i.e. perfectionistic strivings independent of perfectionistic concerns) may be inversely related to controlled motivation, whereas

perfectionistic strivings when considered as part of the overarching perfectionism disposition may be more complex (DiBartolo et al., 2004).

Practical implications

The findings from the current study have important implications for understanding youth sport experiences. In particular, in order to avoid disaffection, practitioners should seek to reduce perfectionistic concerns among junior athletes. The current findings suggest that doing so will help to reduce the sense of coercion and pressure that characterises the motivation associated with burnout. A self-determination theory perspective also highlights the possibility of addressing feelings of contingent self-worth at the heart of perfectionism via basic psychological need satisfaction (c.f. Hall, et al., 2012). Basic psychological needs are considered central to the development of athlete burnout and autonomous motivation (see Lonsdale et al., 2009; Quested & Duda, 2011; Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011). Consequently, encouraging coaches and parents to adopt strategies that support these needs, such as the provision of choice, offering rationales for decisions, acknowledging and valuing athletes' feelings (see Mageau & Vallerand, 2003), holds the potential to impact each part of the process modelled in the current study and safeguard junior participants from burnout. Examination of whether the psychological climates created by parents and coaches, have an impact on the influence of perfectionistic concerns therefore poses an important direction for further research.

Limitations and further directions for future research

The first study of the thesis has a number of limitations that should be considered. The approach to modelling the broad dimensions of perfectionism in this study replicated Dunkley et al (2000). However, other researchers have included additional sub-dimensions when modelling broad factors (e.g. Gaudreau & Thompson,

2010; Mallinson & Hill, 2011). Notably, the approach here focuses largely on intrapersonal dimensions. This should be considered when the findings of this study and the findings of others are compared.

In addition, in order to build directly on previous research, the approach to modelling motivation was based on recent work in this area which has combined individual regulations to indicate autonomous and controlled motivation (Mouratidis & Michou, 2011). However, autonomous motivation and controlled motivation only represent two indicators of motivational quality. Recent research has indicated clear links between perfectionism and other indicators of motivational quality within self-determination theory; for example, basic psychological need thwarting (e.g. Mallinson & Hill, 2011). Consequently, further research is required in order to provide a more comprehensive picture about how motivational quality explains the associations that perfectionistic concerns and perfectionistic strivings share with athlete burnout.

Another limitation is the reliance on self-report measures. This mono-method bias (or common-method variance) is likely to inflate the relationship among variables and partly explain the large observed effects. Consequently, future research could consider adopting other sources of measurement (e.g., behavioural and observer sources) to assess these relationships. Another limitation is the inability of the cross-sectional design employed to capture the developmental aspects of the modelled relationships. This is important because it has been argued that the proposed motivational deterioration associated with burnout will be best observed overtime (Cresswell & Eklund, 2006). Only one study to date has examined the relationship between perfectionism and burnout longitudinally (Chen, Kee, & Tsai, 2009). This study failed to find support for perfectionism dimensions predicting athlete burnout longitudinally. However, Chen et al. (2009) conducted their study during the off-season. This means their findings fail to account for the influence of perfectionism on

motivational deterioration and subsequent burnout during intense periods of competition. As Pines (1993) suggested, in order to burnout, athletes must first be on fire, and this is unlikely to occur during the off-season when athletes encounter reduced training regimens and minimal competition. Consequently, further research is required that uncovers the influence of perfectionistic concerns and perfectionistic strivings during intense periods of competition.

A final noteworthy limitation is that the current study focuses on the associations that the broad dimensions of perfectionism share with a debilitating ill-being outcome, namely athlete burnout. The study therefore, neglects the potential associations that perfectionistic concerns and perfectionistic strivings may share with well-being. While burnout may be antithetical to adaptive well-being outcomes e.g. engagement, it is theorized to be independent of these outcomes (Schaufeli & Bakker, 2004). Consequently, low levels of burnout do not necessarily indicate high levels of well-being. As such further research is required to examine whether the divergent perfectionistic concerns-burnout and perfectionistic strivings-burnout associations extend to adaptive well-being outcomes such as athlete engagement.

Conclusions

The current study adds to the increasing body of research that highlights the role of perfectionism in the development of athlete burnout. It suggests that when considered as broad factors, perfectionistic strivings and perfectionistic concerns have opposing relationships with athlete burnout in a similar manner to when key sub-dimensions are assessed. In addition, the current findings indicate that divergent pathways of motivational quality considered in the context of self-determination theory can in part explain these relationships. When their unique effects are considered, perfectionistic concerns appear to encompass a pattern of low quality controlled motivational regulation which contributes to the occurrence of athlete burnout. In contrast,

perfectionistic strivings encompass a pattern of high quality autonomous motivational regulation inversely associated with athlete burnout.

Chapter 3 - Perfectionism, Engagement, and Burnout: The Mediating Role of Basic Psychological Needs

"Practice does not make perfect. Only perfect practice makes perfect."

Vince Lombardi

From the first study in the thesis it is clear that some key questions remain regarding the influence of perfectionism in youth sport. In particular, further understanding is required regarding whether the divergent perfectionistic concerns-burnout and perfectionistic strivings-burnout associations extend to well-being outcomes. In addition, researchers have begun to establish empirical links between the broad dimensions of perfectionism and other indicators of motivational quality in the context of self-determination theory (e.g. basic psychological need thwarting, Mallinson & Hill, 2011). According to self-determination theory, athletes' motivational quality will be determined by the extent to which their basic psychological needs are satisfied or thwarted (Deci & Ryan, 2000). However, it remains unknown whether such indicators can help to explain the associations between perfectionism and psychological outcomes in youth sport. Consequently, the second study has two main purposes. The first purpose is to examine the perfectionism-engagement as well as the perfectionism-burnout associations. The second purpose is to examine whether basic psychological needs satisfaction and basic psychological thwarting mediate the perfectionism-engagement and perfectionism-burnout associations.

The importance of engagement

Not only must youth athletes commit significant physical resources to deliberate practice if they wish to become experts, they must also maintain psychological

engagement (Ericsson, Krampe, & Tesch-Römer, 1993). As Mallett and Hanrahan (2004) suggested, these individuals need to build a "fire that burns" brightly for their sport. This, however, poses many challenges. Youth athletes must learn to pursue goals which are beyond their current ability, maintain effort following failure, and be flexible when evaluating their achievements. Those who overcome these challenges are likely to maintain their psychological engagement and develop a strong self-belief and a clear athletic identity personified by those competing at an elite level (Mallett & Hanrahan, 2004). However, for others whose goals are continually thwarted, this intense investment may become rigid, lead to a sense of entrapment, increase the risk of athlete burnout and ultimately lead to sport withdrawal (Gustafsson, Hassmén, Kenttä, & Johansson, 2008).

As suggested in Chapter 1, engagement is the conceptual antithesis to burnout (Schaufeli & Bakker, 2004). Unlike those athletes who experience burnout, engaged athletes are characterised by their sense of energy and their effective psychological connections with their sport (c.f. Schaufeli, Bakker, & Salanova, 2006). Athlete engagement has been defined as a relatively stable experiential state, consisting of confidence, dedication, vigour, and enthusiasm (Lonsdale, et al., 2007). Engagement, therefore, reflects an adaptive pattern of cognition and affect that signifies well-being (Hodge et al., 2009). In addition, it can be argued that the dimensions of engagement reflect both quantity motivation and quality motivation (i.e. dedication, vigour and enthusiasm brought about by a sense of confidence in achieving goals).

Given that engagement is antithetical to burnout but an independent construct (Schaufeli & Bakker, 2004), it represents a potentially useful counterpoint to athlete burnout in assessing the associations between perfectionism and well-being in youth sport. Furthermore, due to its focus on affect, reductions in engagement – measured using the Athlete Engagement Questionnaire (AEQ) – could provide an early indicator

of psychological disaffection that may not be picked up by the Athlete Burnout Questionnaire (ABQ), due to the ABQ being less sensitive to change in affective responses. Therefore, including engagement as well as burnout in study two represents an important progression from the first study in the thesis and one that will extend existing literature examining perfectionism in youth sport.

Broad dimensions of perfectionism, athlete engagement, and athlete Burnout

As demonstrated in Chapter 1 and Chapter 2 of the thesis, perfectionistic concerns include the perception of harsh criticism, and personal fear about performance inadequacies. Together these components of perfectionism may lead to the sporting domain being appraised as highly threatening (Flett & Hewitt, 2005), and increase the risk of debilitation in the form of athlete burnout (Appleton & Hill, 2012). In contrast, perfectionistic strivings include the pursuit of exacting self-set standards accompanied by harsh self-criticism when standards aren't met. These components of perfectionism may energise sustained achievement striving (Stoeber & Otto, 2006). When this striving is positively reinforced through perceived success, feelings of accomplishment are likely to induce the confidence, dedication, vigour, and enthusiasm components of athlete engagement. However, the same components may represent a vulnerability factor for rigid engagement and increased burnout when exacting standards aren't met. Under such conditions the sporting environment will likely be appraised as threatening (Flett & Hewitt, 2005), which may diminish confidence, dedication, vigour and enthusiasm and provoke debilitation in the form of athlete burnout.

The findings presented in study one of the thesis and in other recent studies (e.g. Appleton & Hill, 2012) provide support for the opposing hypothesized associations between perfectionistic concerns and athlete burnout, and perfectionistic strivings and athlete burnout. This research also demonstrates the importance of motivational quality in explaining the associations between perfectionism and athlete burnout. Specifically,

it appears that low quality controlled motivation in part explains the perfectionistic concerns-burnout association. In contrast, high quality autonomous motivation in part explains the perfectionistic strivings-burnout association. However, less is known about how other indicators or antecedents of motivational quality might explain the perfectionism-burnout associations. Furthermore, even less is known about potential self-determination theory mechanisms which could help to explain the associations that perfectionistic concerns and perfectionistic strivings may share with athlete engagement.

The role of basic psychological need satisfaction and thwarting

Based on the tenets of self-determination theory, if perfectionistic athletes' motivational regulation is of high quality, it is more likely that their basic psychological needs will be satisfied rather than thwarted. In contrast, if perfectionistic athletes' motivational quality is low, it is more likely that their basic psychological needs will be thwarted rather than satisfied. Consequently basic psychological needs are a prominent correlate of motivational quality that have the potential to further explain the influence of perfectionistic concerns and perfectionistic strivings in the context of self-determination theory. According to self-determination theory (Ryan & Deci, 2002), humans have innate psychological needs for autonomy, competence, and relatedness. Autonomy reflects feelings of choice and that one is the origin of one's own behaviour; competence, reflects having assurance in one's ability and feeling that there are sufficient opportunities to demonstrate that ability; and relatedness reflects a sense of belonging and being valued by others. When these basic psychological needs are perceived to be satisfied well-being in the form of athlete engagement is more likely. In contrast, when these needs are perceived to be thwarted ill-being in the form of athlete burnout is more likely (Cresswell & Eklund, 2005; Lonsdale et al., 2009).

Recent findings in sport support the central role of motivational quality and basic psychological needs satisfaction in the occurrence of athlete burnout and athlete engagement. Specifically, researchers have found evidence for the hypothesised positive associations between low levels of basic psychological needs satisfaction, controlled motivation and athlete burnout (Hodge et al., 2008; Lonsdale et al., 2009). Furthermore, researchers have found evidence to suggest that basic psychological needs satisfaction is an important antecedent of athlete engagement (Hodge et al., 2009). However, this research could be extended by demonstrating the role of basic psychological need thwarting as well as basic psychological needs satisfaction. As Bartholomew et al. (2011) have argued, low levels of basic psychological needs satisfaction do not adequately represent the opposing but independent construct of basic psychological need thwarting. This is because low levels of basic psychological need satisfaction do not fully capture the intensity of need thwarting. For example, in the case of relatedness, there is a clear difference between a youth male cricketer feeling lonely due to finding it difficult associate with new teammates (low levels of need satisfaction), compared to being actively rejected by his new teammates (high levels of need thwarting). Consequently, the inclusion of both basic psychological need satisfaction and basic psychological need thwarting is important when trying to capture the associations that basic psychological needs share with athlete engagement and burnout.

Perfectionism and basic psychological needs

Perfectionistic strivings and perfectionistic concerns are likely to influence athlete engagement and burnout via basic psychological need satisfaction and thwarting because of the way in which they shape athletes' perceptions of their sport environment. Perfectionistic concerns are likely to undermine basic psychological need satisfaction and increase basic psychological need thwarting. This is because perfectionistic concerns involve dysfunctional perceptions including feeling limited control over the

setting and pursuit of standards, chronic doubt stemming from performance inadequacies, and the fear of being ostracized when the exacting standards imposed by others aren't met (Mallinson & Hill, 2011). Mallinson and Hill (2011) have recently found evidence in youth sport which highlights a positive association between perfectionistic concerns and basic psychological need thwarting.

In contrast, perfectionistic strivings may predict basic psychological need satisfaction, as well as basic psychological need thwarting. This is because perfectionistic strivings involve some potentially functional perceptions along with some dysfunctional perceptions. Specifically, perfectionistic strivings involve higher levels of personal control over the setting and pursuit of exacting standards, and are relatively benign regarding interpersonal adjustment (Mallinson & Hill, 2011). However, perfectionistic strivings also involve harsh self-criticism which may negatively impact perceived ability, particularly when goals are continually thwarted (Hall, 2006). Mallinson and Hill (2011) found partial support for the positive association between perfectionistic strivings and basic psychological need thwarting.

The present study

In summary, based upon the conceptual rationale presented, and building on study one, the second study of this thesis had two purposes. The first purpose was to investigate the perfectionism-engagement and perfectionism-burnout relationships by adopting a multifaceted perfectionism approach. The second purpose was to examine whether basic psychological need satisfaction and thwarting mediated these relationships. Given the theoretical and empirical associations outlined above, it was hypothesised that perfectionistic concerns would be positively associated with athlete burnout and inversely associated with athlete engagement. It was predicted that these associations would be mediated via a negative association between perfectionistic concerns and basic psychological need satisfaction, and via a positive association

between perfectionistic concerns and basic psychological need thwarting. In addition, it was hypothesised that perfectionistic strivings would be positively associated with athlete engagement, negatively associated with athlete burnout, and that these associations would be mediated via positive associations with both basic psychological need satisfaction and basic psychological need thwarting. These hypothesised relationships are summarised in Fig. 3.1.

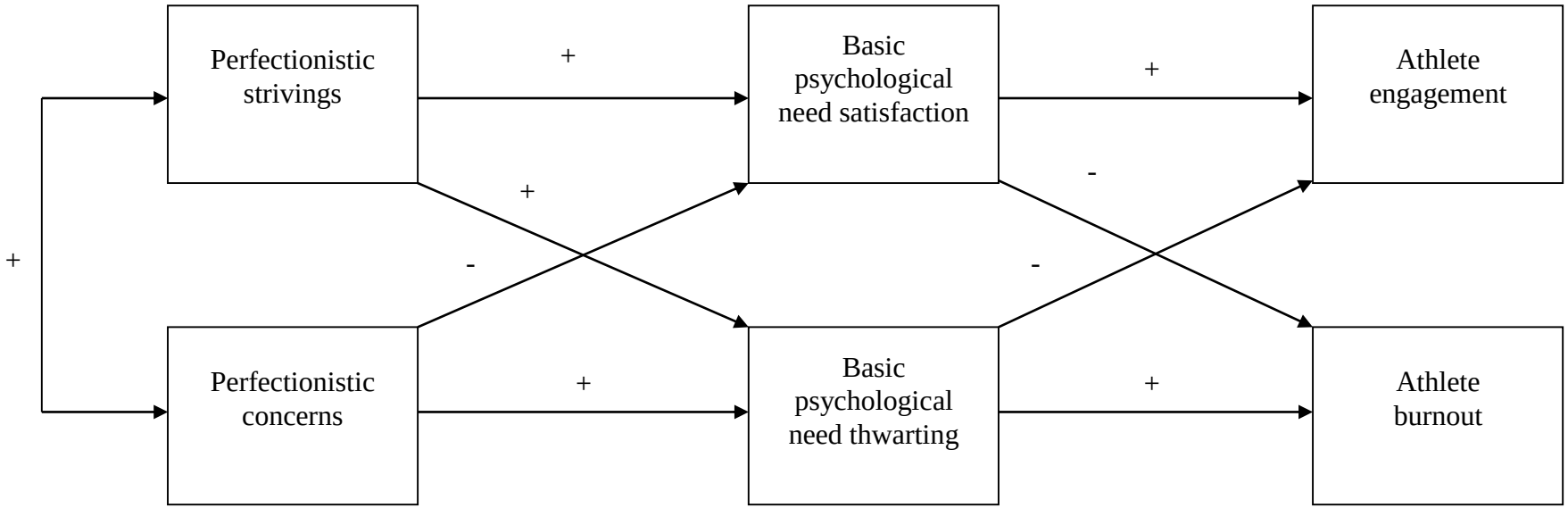

Fig. 3.1. Hypothesised path model 1 (H1) - The associations between higher factors of perfectionism, composite basic psychological need satisfaction and thwarting, athlete engagement, and athlete burnout

Method

Participants and procedure

Participants were 267 junior athletes from sports clubs and organisations across Northern England. They included 135 males and 132 females whose mean age was 16.42 years (*s* = 2.85 years). They competed in sport at club (n = 121), academy (n = 10), county (n = 52), regional (n = 47), national (n = 28), or international (n = 6) levels (3 non-respondents). Sports included football (n = 72), rugby (n = 77) cricket (n = 17), swimming (n = 65), synchronised swimming (n = 20), and diving (n = 14) (2 non respondents). On average, participants trained and competed for 9.72 hours per week (*s* = 4.47 hours), had been competing for 7.61 years (*s* = 3.81 years), and rated their participation in sport as very important in comparison to other activities in their lives (*M* = 6.32, *s* = .82: 1 = not at all important to 7 = extremely important).

Following approval by the University Research Ethics Committee (Appendix A.2), coaches from potential sports clubs and organisations were contacted via telephone and e-mail to enquire about whether their team/organisation would be interested in taking part in the study. If they approved, participant consent forms (Appendix B.3) and parental consent forms (Appendix B.4) were sent to athletes and parents, hard copy or e-mail, via the coach. Participants were then verbally invited to complete the study questionnaire either prior to or following a training/practice session. This verbal invitation re-emphasised the participants' voluntary participation and their right to withdraw at any time without prejudice along with the steps taken to only report group data. The study questionnaire took approximately 20 minutes to complete.

Instruments

Athlete Engagement. The Athlete Engagement Questionnaire (AEQ; Lonsdale, et al., 2007) was utilised in the current study. The AEQ includes the stem 'When I participate in sport…' and is a 16 item inventory consisting of four 4-item subscales: confidence (e.g. 'I am confident in my abilities'), dedication (e.g. 'I am dedicated to achieving my goals'), vigour (e.g. 'I feel really alive'), and enthusiasm (e.g. 'I am enthusiastic'). The subscales were measured on a 5-point Likert scale (1 = almost never to 5 = almost always). Evidence has been provided which supports the validity and reliability of the scale (Hodge et al., 2009; Lonsdale et al., 2007). This includes support for the factor structure of the scale via confirmatory factor analysis, and internal consistency ($\alpha \geq .84$). Based on the study by Hodge et al. (2009), a global engagement score also calculated by averaging scores from the four subscales.

Athlete Burnout. The athlete burnout questionnaire (ABQ; Raedeke & Smith, 2001) was used in the current study to assess athlete burnout. The ABQ is a 15-item inventory made up of three 5-item subscales: reduced sense of accomplishment (e.g. 'I am not achieving much in sport'), perceived emotional and physical exhaustion (e.g. 'I feel so tired from my training that I have trouble finding the energy to do other things'); and athlete's devaluation of their sport (e.g. 'The effort I spend in sport would be better spent doing other things'). The subscales were measured on a 5 point Likert (1 = almost never to 5 = almost always). Evidence has been provided to support the validity and the reliability of the scale. This includes factor structure, internal consistency ($\alpha \geq .85$), and test-retest reliability ($r \geq .86$) (see Raedeke & Smith, 2001). Based on previous studies (e.g. Lemyre et al., 2008; Lonsdale et al., 2009), global burnout score was calculated by averaging scores from the three subscales.

Sport Multidimensional Perfectionism. The Sport Multidimensional Perfectionism Scale (SMPS-2; Gotwals & Dunn, 2009) is an adapted, sport specific

version of Frost et al. (1990) multidimensional perfectionism scale. The current study utilised the S-MPS-2 7-item personal standards subscale (e.g. “I hate being less than the best at things in my sport”), the 8-item concern over mistakes subscale (e.g. “If I fail in competition I feel like a failure as a person”) and the 6-item doubts about actions subscale (e.g. “I usually feel unsure about the adequacy of my pre-competition practices”). All three subscales were measured on a 5 point Likert scale (1 = strongly disagree to 7 = strongly agree) Evidence has been provided to support the factor structure (via multiple exploratory factor analyses) and internal consistency ($\alpha \geq .74$) of the scale (see Gotwals & Dunn, 2009; Gotwals, et al., 2010).

Multidimensional Perfectionism. The Cox et al. (2002) shortened version of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale (H-MPS) was used to assess self-oriented perfectionism, (e.g., “One of my goals is to be perfect in everything I do.”), socially prescribed perfectionism (e.g., “People expect nothing less than perfection from me)”. The instructions (“The following items are statements concerning personal characteristics that some people demonstrate when they are training or playing their sport”) and the stem of the instrument were modified (“In my sport…”) in order to account for the potential domain specificity of perfectionism (see Dunn et al., 2005). Each subscale of the shortened H-MPS contains 5-items measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Reliability analyses have supported the internal consistency of the subscales ($\alpha \geq .79$). Confirmatory factor analyses have supported the factor structure of the shortened scales and correlations between the shortened H-MPS and original H-MPS subscales are extremely high ($rs \geq .94$) (see Cox et al., 2002).

Higher order factors of perfectionism. Following the recommendations of Colman, Norris, and Preston (1997) scores from the SMPS-2 and H-MPS subscales were converted to z scores to account for the respective 5-point and 7-point scales.

Perfectionistic strivings were then calculated by averaging the personal standards and self-oriented perfectionism z scores. Perfectionistic concerns were calculated by averaging the doubts about actions, concern over mistakes, and socially prescribed perfectionism z scores. The selection of sub-dimensions is largely consistent with that of previous studies which have examined the higher order factors of perfectionism (e.g., Dunkley, et al., 2000).

Basic Psychological Need Satisfaction. The Basic Need Satisfaction in Sport Scale (BNSSS; Ng, Lonsdale, & Hodge, 2011) was used to measure basic psychological need satisfaction. The BNSSS is a 20 item inventory and was used to assess general autonomy satisfaction (10 items e.g. "In my sport, I get opportunities to make choices."), competence satisfaction (5 items e.g. "I am skilled at my sport."), and relatedness satisfaction (5 items e.g. "In my sport, I feel close to other people."). All subscales were measured on a 7 point Likert scale (1 = not true at all to 7 = very true). The initial validation study by Ng et al. (2011) supported the internal consistency ($\alpha \geq .80$), and the factor structure (via confirmatory factor analysis) of the scale.

Basic Psychological Need Thwarting. The Psychological Need Thwarting Scale (PNTS; Bartholomew et al., 2011) was used to measure basic psychological need thwarting. The PNTS is a 12 item inventory made up of three 4 item subscales, measured on a 7 point Likert scale (1 = strongly disagree to 7 strongly disagree). The subscales include autonomy thwarting (e.g. "I feel pushed to behave in certain ways in my sport."), competence thwarting (e.g. "There are situations in my sport where I am made to feel inadequate."), and relatedness thwarting (e.g. "I feel I am rejected by those around me in my sport.").

Results

Preliminary analysis

Prior to the main analyses a missing value analysis was carried out. Little's missing completely at random (MCAR) test suggested that missing values in the sample were missing completely at random ($\chi^2 = 524.04$, $df = 498$, $p > .05$). Consequently, in line with the procedure outlined by Tabachnick and Fidell (2007) participants with more than 5% missing data were removed from the analysis ($n = 44$). . Out of a possible 100 items, the remaining participants had very small amounts of missing data (*M* number of missing items = 0.81, *SD* = 1.21, range 0-4). Remaining missing values were replaced using the mean of the non-missing items from the relevant subscale in each individual case (see Graham et al., 2003). The data were screened for univariate and multivariate outliers. Eight cases with values outside the standardized z score range (+/- 3.29 $p <$ .001) were removed from the analysis. Mahalanobis Distance $\chi^2_{(6)} = 20.52$ ($p < .001$) revealed no multivariate outliers. Subsequently, the remaining sample ($n = 214$) were considered approximately, univariate (absolute skewness *M* = 0.25, *SD* = 0.16, *SE* = 0.07, absolute kurtosis *M* = 0.35, *SD* = 0.16, *SE* = 0.07) and multivariate normal (Mardia's normalized coefficient = 1.36). Reliability analyses are displayed in Table 3.1 (Cronbach's $\alpha \geq .75$).

Descriptive statistics and bivariate correlations

The means and standard deviations displayed in Table 3.1 revealed several noteworthy findings. Firstly, similar to study one of the thesis, on average, junior athletes tended to display moderate-to-low perfectionistic concerns and moderate-to-high perfectionistic strivings. Secondly, a similar pattern was found for basic psychological need with athletes demonstrating high levels of need satisfaction and moderate-to-low levels of need thwarting. Finally, the athletes also tended to display

high levels of engagement and, consistent with study one of the thesis, moderate-to-low levels of athlete burnout. These findings are also consistent with research which has investigated higher order factors of perfectionism and basic psychological need (e.g. Mallinson & Hill, 2011), basic psychological need and athlete burnout (Lonsdale et al., 2009; Quested & Duda, 2011), and basic psychological need and athlete engagement (Hodge et al., 2009).

The Pearson correlations (Table 3.1) revealed that perfectionistic concerns were positively associated with need thwarting, and athlete burnout. In contrast perfectionistic strivings were positively associated with need satisfaction and athlete engagement, and inversely associated with need thwarting, and athlete burnout. Need thwarting was positively associated with athlete burnout, and inversely associated with need satisfaction, and athlete engagement. In contrast need satisfaction was positively associated with athlete engagement, and inversely associated with athlete burnout. As predicted athlete engagement shared a strong inverse association with athlete burnout. However, contrary to the hypotheses, no significant association was shared between perfectionistic concerns and need satisfaction, or between perfectionistic concerns and athlete engagement.

Table 3.1. Descriptive statistics, bivariate correlations, and reliability estimates

	M	*SD*	α	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Perfectionistic strivings	4.92	0.70	.75	-										
2. Perfectionistic Concerns	3.68	0.77	.81	.20**	-									
3. Need Satisfaction	5.59	0.67	.89	.40**	-.06	-								
4. Autonomy satisfaction	5.45	0.84	.84	.32**	-.03	.85**	-							
5. Competence satisfaction	5.55	0.84	.84	.39**	-.04	.87**	.70**	-						
6. Relatedness satisfaction	5.76	0.81	.77	26**	-.07	.72**	.36**	.41**	-					
7. Need Thwarting	3.04	1.11	.89	-.15*	.42**	-.36**	-.34**	-.31**	-.23**	-				
8. Autonomy thwarting	3.48	1.26	.76	-.05	.30**	-.21**	-.31**	-.20**	.00	.82**	-			

9. Competence thwarting	3.01	1.32	.83	-.18**	.41**	-.39**	-.35**	-.36**	-.24**	.93**	.66**	-		
10. Relatedness thwarting	2.62	1.23	.80	-.17*	.39**	-.34**	-.22**	-.23**	-.38**	.86**	.48**	.77**	-	
11. Athlete Engagement	4.07	0.58	.93	.36**	-.07	.68**	.64**	.66**	.34**	-.36**	-.27**	-.41**	-.25**	-
12. Athlete Burnout	2.21	0.63	.88	-.23**	.36**	-.42**	-.44**	-.41**	-.16**	.52**	.39**	.53**	.43**	-.54**

$p < .01$**, $p < .05$*

Assessment of the hypothesised model

Path analysis using AMOS 20.0 (Arbuckle, 2011) with maximum likelihood estimation was employed to assess the hypothesised model displayed in Fig. 3.1. This method is limited in comparison to structural equation modelling as the measurement error is not modelled. However, it was deemed an appropriate strategy in the context of the current sample due to the requirement for a minimum participant to estimated parameter ratio (5:1; Bentler, 1995).

Following the recommendation of Hoyle and Panter (1995), a combination of absolute (i.e. χ^2, χ^2/df, standardised root mean square residual, SRMR, root mean square error of approximation, RMSEA) and incremental (i.e. comparative fit index, CFI; and incremental fit index; IFI) indices were used to assess the fit of the model to the data. The interpretation of model fit is a currently contentious issue (Marsh et al., 2004). Consequently, the cut off criteria adopted in the current study serve to outline the potential for adequate (χ^2/df ratio < 3.00, CFI and IFI > .90, SRMR < .08, RMSEA < .08) and excellent fit (χ^2/df ratio < 2.00, IFI and CFI > .95, SRMR < .06; RMSEA < .06), rather than definitive model fit (Marsh et al., 2004).

The path model (Fig. 3.2.) examined the mediating role of composite need satisfaction and thwarting. This model showed an excellent fit to the data with the exception of χ^2/df and RMSEA ($\chi^2_{(4)}$= 21.44, p < .001; χ^2/df = 5.36, CFI = .96, IFI = .95, SRMR = .04, RMSEA = .14, 90% CI = .09 to .21). As a precaution, standardised residual covariances were inspected to identify any potential areas of significant misfit in the model; however, all residual values were below the cut-off point >2.58 (Joreskog, 1993). Consequently, further interpretation of the model proceeded. The path coefficients are shown in Fig. 3.2. Perfectionistic concerns and perfectionistic strivings accounted for 18% of variance in composite need satisfaction, and 23% of variance in composite need thwarting. The combination of higher order factors of perfectionism and

composite need satisfaction and thwarting accounted for 47% of variance in athlete engagement, and 33% in athlete burnout.

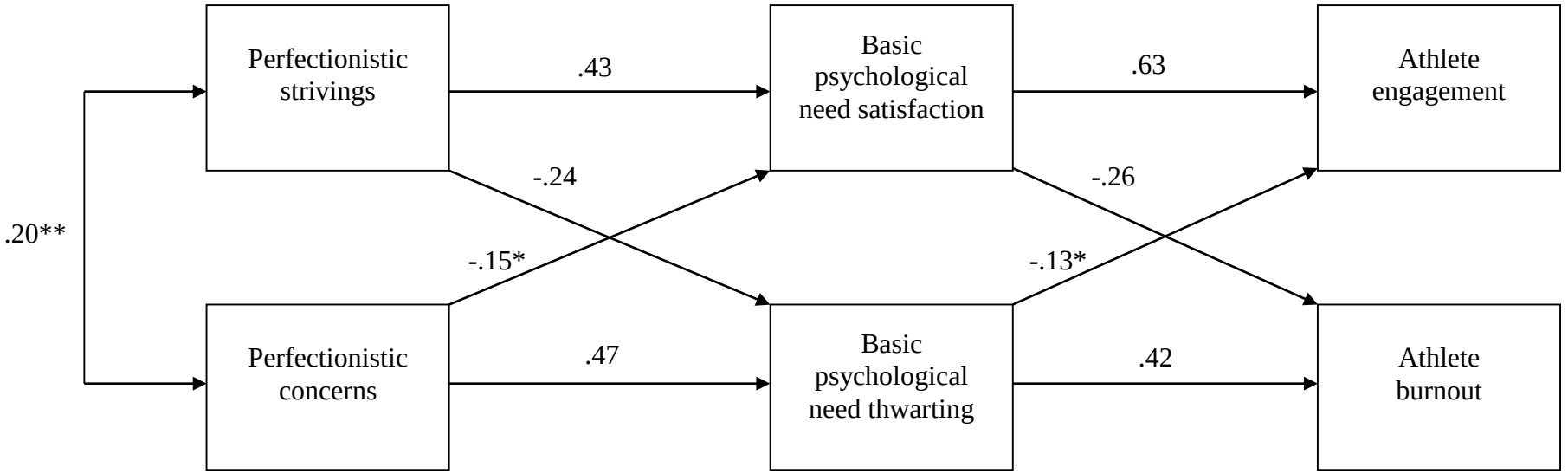

Fig. 3.2. Final path model. The associations between higher factors of perfectionism, composite basic psychological need satisfaction and thwarting, athlete engagement, and athlete burnout

Note: Basic psychological need satisfaction and basic psychological need thwarting error terms were correlated as were error terms for athlete engagement and athlete burnout. $n = 214$, Paths significant at $p < .001$, unless $p < .01$**, $p < .05$*.

Assessment of mediation

Following the assessment of model fit, the size and significance of specific indirect effects were calculated with their 95% confidence intervals in the *PRODCLIN* programme (Mackinnon et al., 2007). Significant indirect effects are evident when their 95% confidence intervals exclude '0'. In the final path model displayed in Fig. 3.2, the confidence intervals for the specific indirect effects of perfectionistic strivings on athlete engagement via basic psychological need satisfaction (ab = .27, 95% CI = .19 to .36, *SE* = .04), and thwarting (ab = .03, 95% CI = .01 to .06, *SE* = .01) were significant, as were the specific indirect effects of perfectionistic strivings on athlete burnout via basic psychological need satisfaction (ab = -.11, 95% CI = -.17 to -.06, *SE* = .03), and thwarting (ab = -.10, 95% CI = -.18 to -.02, *SE* = .04). In addition, the specific indirect effects of perfectionistic concerns on athlete engagement via basic psychological need satisfaction (ab = -0.09, 95% CI = -.17 to -.02, *SE* = .04), and thwarting (ab = -.06, 95% CI = -.10 to -.03, *SE* = .02) were significant, as were the specific indirect effects of perfectionistic concerns on athlete burnout via basic psychological need satisfaction (ab = .04, 95% CI = .01 to .08, *SE* = .02), and thwarting (ab = .20, 95% CI = .12 to .28, *SE* = .04).

In sum, the perfectionistic strivings-engagement and perfectionistic concerns-engagement associations appear to be mediated by basic psychological need satisfaction and thwarting. Furthermore, the perfectionistic concerns-burnout and perfectionistic strivings-burnout associations appear to be to be mediated by basic psychological need satisfaction and thwarting.

Discussion

The current study had two purposes. The first purpose was to examine the perfectionism-engagement, and perfectionism-burnout associations. The second was to examine whether these associations were mediated by basic psychological need satisfaction and thwarting. It was predicted that perfectionistic concerns would be positively associated with athlete burnout and inversely associated with athlete engagement and that these relationships would be mediated via a negative association with basic psychological need satisfaction, and a positive association with basic psychological need thwarting. In contrast, it was predicted that perfectionistic strivings would be inversely associated with athlete burnout and positively associated with athlete engagement. It was expected that these relationships would be mediated via positive associations with basic psychological need satisfaction and thwarting.

The final path model supported these hypotheses with one notable exception. Contrary to expectations, the perfectionistic strivings-burnout and the perfectionistic strivings-engagement associations were mediated by a negative (rather than positive) association with basic psychological need thwarting. However, this was not entirely surprising, particularly in light of the findings from study one of this thesis that demonstrate a similar pattern of indirect effects of perfectionistic strivings on athlete burnout via motivational regulation. The effect sizes of perfectionism and basic psychological needs on athlete engagement and athlete burnout were large and thus comparable to other recent studies which have examined mediators of the perfectionism-burnout relationship (e.g. Hill, Hall, Appleton& Murray, 2010).

Dimensions of perfectionism, athlete engagement, and athlete burnout

Perfectionistic strivings and perfectionistic concerns were expected to share opposing relationships with athlete engagement and burnout. This was due to the maladaptive profile of perfectionistic concerns, and the relatively less problematic

profile of perfectionistic strivings (Stoeber & Otto, 2006). The current study provides partial support for Stoeber and Otto (2006) by highlighting the opposing perfectionistic strivings-burnout and perfectionistic concerns-burnout relationships, and it builds on their work by demonstrating that the associations between perfectionistic strivings and positive outcomes extend to athlete engagement.

The mediating role of basic psychological needs

The findings also provided support for the mediating roles of basic psychological need satisfaction and thwarting. The perfectionistic concerns-engagement and the perfectionistic concerns-burnout relationships were explained by the prominence of basic psychological need thwarting, and an absence of basic psychological need satisfaction. In turn, this process increased the risk of burnout and low quality engagement. This is consistent with previous work investigating perfectionism and basic psychological need thwarting (Mallinson & Hill, 2011) and with research that has examined the association between basic psychological needs and athlete burnout (Lonsdale et al., 2009). Close inspection of the bivariate correlations suggests that positive associations occur between perfectionistic concerns, autonomy thwarting, competence thwarting, and relatedness thwarting. This reflects the importance of intrapersonal and interpersonal dimensions of perfectionistic concerns by suggesting that perfectionistic concerns may lead to more frequent rumination about lack of perceived control, personal inadequacies as well as a lack of belonging in the athletes' social environment.

As expected the perfectionistic strivings-engagement and perfectionistic strivings-burnout relationships were explained by the presence of basic psychological need satisfaction. The combination of perfectionistic strivings and need satisfaction appears to be beneficial for athletes' well-being in the form of engagement, and in reducing their risk of ill-being in the form of burnout. These findings support previous

self-determination theory research which has examined need satisfaction and engagement (Hodge et al., 2009). The findings also extend research in sport by demonstrating the association between perfectionism and engagement, previously only shown in an organisational context (Childs & Stoeber, 2010). The positive effect on athlete engagement may have occurred because perfectionistic strivings and basic psychological needs both appear to underpin autonomous motivation, as demonstrated in study two of the thesis and in recent sport research (e.g. Lonsdale et al., 2009). The presence of autonomous motivation suggests that the athletes' participation in sport, their setting of goals and their appraisal of performance outcomes are more internalised to the self. Therefore, the athlete feels a stronger identity within their sport and experiences more adaptive outcomes, such as athlete engagement.

Contrary to expectation, the perfectionistic strivings-burnout and perfectionistic strivings-engagement relationships were explained by the lack, rather than prominence, of basic psychological need thwarting. This was surprising given that previous findings have suggested a positive association between perfectionistic strivings and need thwarting (Mallinson & Hill, 2011). However, these contrasting findings mirror the unpredictable and complex associations found between perfectionistic strivings and motivation (DiBartolo, et al., 2004; Gaudreau & Antl, 2008). It may be the case that the pursuit of high standards has led the athletes in the current study to achieve relatively high levels of performance, which impart a sense of competence. Previous research has demonstrated a link between perfectionistic strivings dimensions and sport performance (Stoeber, Uphill, & Hotham, 2009). The athletes' accomplishments may be equally revered by significant others leading to improved interpersonal relationships and lower relatedness thwarting.

Limitations and future directions

The second study of the thesis should be considered in light of its limitations. In particular, the study is limited somewhat by its cross sectional design, specifically, the inability to examine temporal precedence. This is indicative of the majority of previous research highlighting the associations between perfectionism and burnout (e.g. Appleton et al., 2009; Hill et al., 2008; Hill et al., 2010a). However, establishing the influence of perfectionism in sport over time remains an important future direction. Researchers outside of sport have identified that perfectionism may have a longitudinal impact on psychological outcomes over time. For example, a study with secondary school students by Soenens et al. (2008) suggests that perfectionistic concerns (FMPS; concern over mistakes and doubts about actions) and parental psychological control at baseline predict higher levels of depressive symptoms 2 years later.

In addition to establishing the long term influence of perfectionism, a related direction for longitudinal research is to examine the influence of perfectionism on cognitive, affective and behavioural during specific periods of time. This is likely to particularly valuable in a sport context because of the intense demands of competition. Previous research in sport has demonstrated this as an important consideration (e.g. Hall et al., 1998). However, this line of research has been slow to develop and it would be enlightening to examine whether perfectionistic athletes are particularly at vulnerable to debilitating outcomes during intense periods of competition.

Another limitation of the current study is that several participants (n = 44) were excluded from the analysis due to large amounts of missing data (>5%). This is clearly problematic as it is leads to a reduction of power in the model due to the unused partial data (Graham, 2009). The findings of Little's MCAR test indicated that missing data in the current study were missing completely at random. This suggests that listwise deletion of the participants with large amounts of missing data would not lead to

substantial bias in subsequent analyses. However, where missing data occurs, even when it appears to be missing completely at random, there is usually a systematic reason for missing data (Enders, 2012).

There are a multitude of potential reasons for why missing data may have occurred in this instance. For example, some participants may have run out of time while completing the questionnaire, others may have become bored and skipped questions, while some may have missed a page or several items due to being distracted. Such reasons – while based on the lead researcher's experiences during data collection – are largely speculative but there is longstanding evidence in behavioural research that certain characteristics make individuals more likely to volunteer and complete their participation in research (Rosenthal & Rosnow 2008). For example, participants are typically more sociable, well-educated and have higher intelligence and higher need for approval than non-participants or individuals who agree to participate but then do not complete the research (Rosenthal & Rosnow, 2008).

Such differences highlight a need to include more detailed demographic information in future studies which may help to provide a fuller account of the potential reasons for missing data. Where demographic differences occur between participants with missing data and complete cases, these factors can be included as covariates in subsequent analyses (Graham, 2009). Adopting this strategy can reduce the risk of bias parameter estimates especially in multiple regression models (Graham & Donaldson, 1993). Notwithstanding, the current study highlights the truism that the best way of dealing with missing data is not to have any. However, missing data are ubiquitous in research (Enders, 2012). Therefore, future research should employ rigorous checking mechanisms. While these may not eliminate the occurrence of missing data they may reduce the risk considerably. For example, scanning questionnaires on initial completion by both participant and researcher to check for missing items and ensuring

sufficient time is allocated where at all possible for questionnaire completion are two easily implemented practical strategies which should negate missing data occurrence. It should be noted that these strategies were adopted in the study outlined in Chapter 5 of this thesis and led to a substantial reduction, relative to the current study, in terms of missing data.

Conclusions

The second study of the thesis adds to the growing body of research examining perfectionism and athlete burnout, and builds on study one by providing initial evidence of the link between perfectionism and athlete engagement. The study findings suggest that perfectionistic strivings and perfectionistic concerns share opposing relationships with athlete burnout, and that perfectionistic strivings may underpin athletes' psychological engagement in sport. The study also represents a progression from study one by establishing that basic psychological needs satisfaction and thwarting are valuable in explaining the associations that perfectionistic concerns and perfectionistic strivings share with ill-being and well-being in youth sport.

Chapter 4 - Perfectionism, self-conscious emotions, athlete burnout and engagement on a junior summer cricket tour.

"And my heart was seared deep with a raw burn
At the thought that I'd foozled that catch"

P.G. Wodehouse

Framed in the context of self-determination theory, the first and second studies of this thesis help to explain why perfectionistic concerns are positively associated with burnout, while perfectionistic strivings are negatively associated with burnout and positively associated with engagement. By highlighting the mediating roles motivational regulation and basic psychological needs, these studies provide an extension to the existing perfectionism-engagement and perfectionism-burnout research in sport. However, the studies are limited somewhat by their cross-sectional designs. In particular, they are unable to demonstrate how perfectionism manifests on a day-to-day basis. It is important that this daily impact is understood because it could help athletes and coaches to recognise and manage the consequences of perfectionism dimensions. This recognition may provide a platform for intervention aimed at enhancing adaptive engagement and negating the risk of burnout. One way in which perfectionism may manifest is via emotion. Consequently, study three had two main purposes. The first purpose was to examine the daily impact of perfectionism by investigating whether it predicts the levels and fluctuations of self-conscious emotions (pride, shame and guilt) across a five day junior cricket tour. The second purpose was to examine how the levels and fluctuation of these self-conscious emotions related to engagement and burnout.

A brief history of self-conscious emotions

For centuries, pride, shame and guilt have fascinated scholars attempting to understand the complexity of human emotions. This is perhaps unsurprising given the central role that these self-conscious emotions play in psychological functioning – as Cooley (1902) suggested: "[we are] virtually always in a state of pride or shame." However, until relatively recently these self-conscious emotions have suffered from a lack of empirical attention (Tracy & Robins, 2007). Instead, psychologists have chosen to focus on the basic emotions such as joy, sadness, anger, fear, disgust, and surprise (e.g. Ekman, 1992; Izard, 1971). This may be because the basic emotions are recognisable via unique facial expressions, and are relatively easier to capture empirically (Tracy & Robins, 2007). However, while pride, shame and guilt are perhaps less conducive to experimentation, they hold gravitas in understanding what it means to be human and thus should not be ignored.

The importance of self-conscious emotions was clearly recognised by Aristotle in his writing on pride. In Nicomachean Ethics (c. 350 B.C.) he listed pride as a noble emotion, involving self-reflection leading to the virtue of respecting oneself and distinguished pride from undesirable characteristics such as self-aggrandisement or arrogance (Brown, 2009). Fast forward several centuries, however, and pride was viewed as an immoral and destructive emotion. Dante (1308-1321/1937), for instance, described pride as the deadliest of the seven deadly sins. He argued that pride encapsulated an over-inflated self-evaluation, which underpinned selfishness and contempt for others. Later Biblical references warn that this form of pride often precedes a fall (1611, Book of Proverbs, 16:18).

This historical dichotomy between adaptive and maladaptive pride can also be recognised in contemporary definitions of this emotion. Specifically, Tracy and Robins (2004, 2007) have distinguished between authentic pride and hubristic pride. They

suggest that authentic pride involves evaluation that is directed predominantly towards behaviour (e.g. I played well because I practiced). In contrast, hubristic pride involves evaluation that is directed predominantly towards the self (e.g. I played well because I'm great). In line with these definitions authentic pride has been associated with relatively adaptive constructs such as self-esteem, extraversion, agreeableness, conscientiousness; whereas, hubristic pride shares negative associations with these same constructs (see Tracy & Robins, 2007 for a review).

Like Aristotle and Dante, Charles Darwin was also intrigued by self-conscious emotions but his focus was on shame rather than pride. Darwin (1872) highlighted shame as a vital emotion in social interaction across cultures. This was due to shame involving a negative self-evaluation based on one's perception of what others think of us (Scheff, 1988). As eminent social psychologist William McDougall (1926, p. 152) put it: "…though [shame] comes from others, it is occasioned by our own conduct." In other words when individuals behave in a way that provokes social disapproval, this causes them to experience shame.

In contrast to shame being the historical preserve of evolutionists and social psychologists, guilt traditionally received predominant attention in the field of psychoanalysis. In particular, Freud (1923/1961) referred to guilt as a key determinant of neurosis. He suggested that guilt manifests when impulses and behaviour of the id and the ego conflict with the moral standards of an overarching superego (Tangney & Dearing, 2003). Consequently, the individual harbours an unconscious sense of guilt which can underpin wide ranging psychopathology. However, researchers have argued that Freud's use of the term guilt was too broad and may well have also encapsulated shame (e.g. Lewis, 1971; Tangney & Dearing, 2003). They contend that failure to make the distinction between shame and guilt led Freud to attribute certain experiences to guilt when attributing them to shame would have been more appropriate.

Blurred understanding of shame and guilt, however, has certainly not been exclusive to Freud. These emotions are often commonly confused by lay persons, academics and practitioners alike that tend to use the terms shame and guilt interchangeably (Tangney & Dearing, 2003). However, there are differences between shame and guilt and several researchers have attempted to identify the specific features which make these two self-conscious emotions distinct. For example, anthropologists have argued that shame is a public emotion, whereas guilt is a private emotion (Benedict, 1946). Shame from the anthropological perspective involves a painful affective response based on a negative social interaction. In contrast, guilt involves an internalised reaction to failing to meet one's own personal standards (Tangney, Miller, Flicker, Barlow, 1996). Although quite widely adopted, the public-private distinction has been somewhat refuted empirically (Tangney & Dearing, 2003). For example, a study by Tangney, Marschall, Rosenberg, Barlow and Wagner (1994) found no difference in the extent to which individuals experienced shame and guilt in private. In some cases shame experiences have even been found to occur more frequently in private than guilt experiences (Tangney et al., 1996).

Another shame-guilt distinction proposed by Helen Block-Lewis (1971) has received greater empirical support. Lewis suggested that the primary distinguishing feature between shame and guilt is the extent to which evaluation is focussed on the self or the behaviour. From this perspective shame is a negative evaluation which focuses primarily on the self, while guilt is a negative evaluation which focuses primarily on the behaviour. This means that shame is captured in a sense of shrinking, and feelings of worthlessness and powerlessness. In contrast, while guilt is encapsulated in feelings of tension, regret and remorse about the behaviour, it does not have the same destructive impact that shame has on the self (Tangney & Dearing, 2003). Support for this distinction originally came from extensive phenomenological interviews conducted by

Lewis with her patients (Lewis, 1971). Further empirical support is evident in recent studies that have found that individuals rate their shame experiences as more painful, long lasting, and associate them with a greater sense of being inferior, relative to guilt experiences (Tangney et al., 1994; Tangney et al., 1996).

The role of self-conscious emotions in motivation

Pride, shame and guilt are implicit in the motivation of almost all thoughts, feelings and behaviours. Individuals seek out opportunities that will result in self and social approval, and subsequent pride. In contrast, individuals seek to avoid scenarios that will result in self and social disapproval, and subsequent shame and guilt (Goffman, 1955; Tracy, Robins, & Tangney, 2007). These processes of motivational regulation are powerful because, as (Cooley, 1902) suggested, individuals' social interactions help to form a sense of self. Specifically, Cooley's looking-glass self suggests that individuals imagine how they appear to others, imagine the judgement of that appearance, feel pride, shame or guilt based on that imagined judgement, and develop their sense of self through the judgments of others.

This social psychological account of how pride, shame and guilt motivate behaviour shares some similarity with the concept of introjected regulation in self-determination theory. Introjected regulation also emphasises the pursuit of pride, and the avoidance of shame and guilt as important in the motivation of behaviour, and the formation of the self (Ryan & Deci, 2000). Specifically, from a self-determination theory perspective, the pride, shame and guilt implicit in introjected regulation represent a potential first step in the internalisation of behaviour and the alignment of behaviour with the self (Deci, Eghrari, Patrick, & Leone, 1994). When this occurs, introjected regulation may lead to, or combine with, more autonomous forms of regulation such as identified regulation, integrated regulation, and intrinsic motivation. Such combinations are likely to be associated with positive psychological outcomes (Ryan & Deci, 2000).

There is, however, no guarantee that introjected regulation will combine with more autonomous motivation. Moreover, when considered independently, introjected regulation represents a controlling form of motivation in which behaviour is only partially internalised to the self (Deci & Ryan, 2000). Under these conditions, the maintenance of self-worth becomes contingent on participation in the behaviour (Koestner & Losier, 2002). As Crocker and Knight (2005) have argued, when self-worth becomes contingent it represents a potential source of psychological vulnerability.

Recent findings provide support for the opposing outcomes of motivation regulated by pride, shame and guilt. Specifically, the discrepancy appears to lie between behavioural and psychological outcomes. For instance, findings suggest a link between introjected regulation and positive behavioural outcomes. These include elevated effort in elementary school children (Ryan & Connell, 1989) and positive behavioural change in eating disorder patients (Vansteenkiste, Soenens, & Vandereycken, 2005). In contrast, introjected regulation has been linked to poor psychological outcomes. These include increased anxiety and maladaptive coping (Ryan & Connell, 1989).

In sport and exercise the findings demonstrate a similar behavioural/psychological outcomes discrepancy. Researchers have found positive associations between introjected regulation and elevated adolescent physical activity (Gillison, Osborn, Standage, & Skevington, 2009; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003), short-term exercise intentions and effort in undergraduate students (Wilson, Rodgers, Fraser, & Murray, 2004), as well as short-to-medium term behavioural persistence in Canadian competitive youth swimmers (Pelletier, Fortier, Vallerand, & Briere, 2001). However, it appears that the positive association between introjected regulation and persistence does not continue over the longer term (Pelletier et al., 2001). Having motivation that is regulated by the pursuit of pride and the

avoidance of shame and guilt also appears to underpin psychological costs in sport and exercise. For instance, recent findings suggest that introjected regulation is associated with higher athlete burnout in recreational sports participants and elite athletes (Lonsdale, et al., 2008, 2009), and higher negative affect and lower self-esteem in youth dancers (Gagné et al., 2003).

Together, the findings from sport and exercise and other domains suggest that engaging in behaviour to pursue pride and avoid shame and guilt may underpin persistence and effort, at least in the short term. However, motivation regulated in this manner is also likely to leave individuals vulnerable to psychological difficulties. Given the central role that pride, shame and guilt play in motivation and subsequent behavioural and psychological outcomes, there's a need to examine factors which underpin the onset of these self-conscious emotions.

Perfectionism and pride, shame and guilt

Perfectionism is an important determinant of pride, shame and guilt. As (Stoeber, Kempe, & Keogh, 2008) suggest, traditional views argue that perfectionists are prone to shame and guilt, and are unable to experience pride (e.g. Sorotzkin, 1985). From this perspective, perfectionists aim to achieve extremely high standards in order to experience pride and maintain self-worth but they consistently fall short of expectations and instead encounter shame and guilt. However, researchers have suggested that this traditional view ignores the multidimensional and multifaceted structure of perfectionism (e.g. Stoeber, Harris, & Moon, 2007; Stoeber et al., 2008). Stoeber et al. contend that different types of perfectionists (e.g. healthy perfectionists vs. unhealthy perfectionists) and different dimensions of perfectionism (i.e. perfectionistic strivings and perfectionistic concerns) may predict pride, shame and guilt to varying degrees. Specifically, it seems reasonable to suggest that relative to perfectionistic strivings, perfectionistic concerns are more likely to predict shame and guilt and less likely to

predict pride. This is because perfectionistic concerns include dimensions which are synonymous with negative self-evaluation. These include socially prescribed perfectionism, doubts about actions and concern over mistakes. In contrast, while perfectionistic strivings includes an element of harsh self-criticism that may undermine pride and elicit shame and guilt, the pursuit of exceedingly high standards may energise achievement striving and elevate performance which will bring about more positive self-evaluation.

Support for the association between perfectionistic concerns and a more negative profile of self-conscious emotions is evident in recent studies with undergraduate students. For instance, Fedewa, Burns, and Gomez (2005) found that 'negative perfectionism' – a potential indicator of perfectionistic concerns – was positively associated with shame and guilt. (Stoeber et al., 2007) found that 'unhealthy perfectionists' (i.e. those high in perfectionistic concerns and low in perfectionistic strivings) reported higher levels of state shame and guilt and lower levels of state pride than 'healthy perfectionists' (i.e. those low in perfectionistic concerns and high in perfectionistic strivings) or 'non-perfectionists' (i.e. those low in perfectionistic concerns and low in perfectionistic strivings). The socially prescribed perfectionism dimension of perfectionistic concerns has demonstrated consistent positive associations with shame and guilt (Klibert, Langhinrichsen-Rohling, & Saito, 2005; Lutwak & Ferrari, 1996; Stoeber et al., 2008; Tangney, 2002), but appears to share no significant association with pride (Tangney, 2002). In sport, the concern over mistakes dimension of perfectionistic concerns positively predicted the fear of experiencing shame in university athletes (Sagar & Stoeber, 2009).

The findings regarding the associations between perfectionistic strivings and self-conscious emotions are more equivocal. Fedewa et al. (2005) found that 'positive perfectionism'- a potential indicator of perfectionistic strivings was positively

associated with pride and inversely associated with shame. Perfectionistic strivings have also been associated with pride but only when perfect outcomes are encountered (Stoeber & Yang, 2010). In contrast, the self-oriented perfectionism dimension of perfectionistic strivings has been positively associated (Hewitt & Flett, 1991; Lutwak & Ferrari, 1996; Tangney, 2002) or has demonstrated no significant association with shame and guilt (Klibert et al., 2005). In sport, the personal standards dimensions of perfectionistic strivings has been shown to negatively predict the fear of experiencing shame (Sagar & Stoeber, 2009).

The importance of stability in self-conscious emotions

Researchers have tended to focus on levels of state pride, shame and guilt but have generally ignored the stability of these emotions. However, state pride, shame and guilt are transitory affective states that may be susceptible to change over time (Kugler & Jones, 1992). This is important because emotional stability appears to be indicative of well-being, whereas emotional fluctuation appears to be indicative of ill-being (Judge & Bono, 2001). This is evident in self-esteem research. For instance**,** Kernis et al. (e.g. Kernis, Cornell, Sun, Berry, & Harlow, 1993; Kernis, Lakey, & Heppner, 2008) have found that while high levels of self-esteem can reflect well-being, they may only do this reliably when the level of self-esteem remains stable over time. Unstable self-esteem has been associated with several detrimental outcomes including depression, overgeneralization of failure, feelings of tension and pressure in pursuit of goals, low self-determination, perceived parental criticism, and poor functioning in close relationships (see Kernis, 2005 for a review). In contrast, Kernis' review also demonstrates that stable self-esteem is associated with diverse positive outcomes.

This wide ranging influence of emotional stability vs. fluctuation might extend to athlete engagement and athlete burnout. Specifically, stable self-conscious emotions are likely to be associated with the relatively stable, positive, cognitive-affective

experience which captures athlete engagement (Lonsdale, et al., 2007). Particularly, when levels of pride are high, and levels of shame and guilt are low, stability seems likely to be indicative of confidence, dedication, vigour, and enthusiasm. In contrast, fluctuating self-conscious emotions are likely to be tiring for the individual. Consequently, they may represent an early indicator of the emotional exhaustion component of athlete burnout.

Individual differences in perfectionistic concerns and perfectionistic strivings may explain the extent to which self-esteem remains stable or fluctuates over time (Suls, 2013). Recent research suggests perfectionism may be particularly important. For example, in their study with university students (Dunkley, Berg, & Zuroff, 2012) found that while only perfectionistic concerns were associated with low aggregate scores of self-esteem, both perfectionistic concerns and perfectionistic strivings were associated with fluctuations in self-esteem over time. Consequently, it might also be the case that perfectionistic concerns and perfectionistic strivings underpin emotional instability regarding pride, shame and guilt.

Capturing perfectionism, stability in self-conscious emotions and engagement and burnout

In order to capture the psychological processes outlined above it would be necessary to focus on an environment conducive to perfectionism and susceptible to short-term emotional fluctuation. English junior county cricket represents the pinnacle of the sport for youth cricketers. Here there is an inevitable expectation of high personal and interpersonal standards, often accompanied by harsh criticism when these standards aren’t met. Consequently, junior county cricket is a domain which is particularly conducive to perfectionism. This has led researchers to select junior county cricketers in recent studies examining perfectionism in sport (e.g. Hill et al., 2010b).

One particularly challenging period for these junior county cricketers is the summer county cricket tour. Good performance on tour may secure a place in the squad for the winter training period, while poor performance could lead to being dropped from the squad. Summer tours require young cricketers to travel away from home, face challenging opponents, and perform consistently for long hours on consecutive days. Consequently, such tours represent demanding environments where junior cricketers will encounter the emotional "highs and lows" of sport described by (Jones & Uphill, 2011).

The present study

In summary, researchers have found that perfectionistic concerns and perfectionistic strivings predict trait and state levels of pride, shame and guilt. However, little is known about extent to which pride, shame and guilt fluctuate over short but intense periods of sport competition. Furthermore, little is known about whether perfectionism predicts fluctuations in pride, shame and guilt or whether fluctuations and levels of pride, shame and guilt predict well-being and ill-being. The third study of the thesis seeks to address these shortcomings. Based on the conceptual rationale outlined above, and in order to build on the first two studies of the thesis, study three has three purposes. The first purpose is to examine the extent to which fluctuations occur in pride, shame and guilt in junior cricketers while on a 5-day tour. The second purpose is to examine whether perfectionistic concerns and perfectionistic strivings predict levels of and fluctuations in pride, shame and guilt. The third purpose is to examine whether levels of and fluctuations in pride, shame and guilt predicted athlete engagement and athlete burnout. The hypotheses are as follows:

Hypothesis 1: Junior cricketers will experience fluctuations in pride, shame and guilt during their 5 day cricket tour.

Hypothesis 2: Perfectionistic concerns and perfectionistic strivings will positively predict fluctuations in pride, shame and guilt.

Hypothesis 3: Perfectionistic concerns will negatively predict levels of pride and positively predict levels of shame and guilt; whereas, perfectionistic strivings will positively predict levels of pride and negatively predict levels of shame and guilt.

Hypothesis 4: Fluctuations in pride, shame and guilt will negatively predict athlete engagement and positively predict athlete burnout.

Hypothesis 5: Levels of pride will positively predict athlete engagement and negatively predict athlete burnout, whereas levels of shame and guilt will negatively predict athlete engagement and positively predict athlete burnout.

Method

Participants and procedure

Junior cricket players (n = 66, M_{age} = 13.85 years, SD = .72) were recruited from a county cricket club in the North of England. The cricketers considered their participation in cricket to be extremely important in comparison to other activities on a 7 point Likert scale (M = 6.78, SD = .42). They spent large amounts of time training and competing each week (M = 22.25 hours, SD = 7.89), and they'd been playing cricket for several years (M = 7.02, SD = 1.58).

The study was granted approval by the University Research Ethics Committee (Appendix A.3). Coaches were contacted and once they had granted permission the researcher attended team matches and distributed parental opt-out consent forms (Appendix B.5). These forms informed parents about the requirements of the study, the voluntary nature of their child's participation, and their right to withdraw their child from the study at any time without prejudice. Participants were informed about the general purpose and requirements of the study and were asked if they'd like to take part.

An initial package of questionnaires which included perfectionism, engagement, burnout measures was completed by 51 cricketers either on or before the first day of their summer tour. While on tour, daily diary measures were distributed as part of team meetings which usually took place approximately 2 hours after each day's play. In total 55 cricketers completed at least one of the daily diary measures (M = 2.74, SD = 1.49).

The relatively low completion rate was due to two main factors. The first related to team meetings. On some days the meetings did not take place, in particular, after the fifth day when the cricketers travelled home but also when they were replaced by social activities or when the cricket had been cancelled for the day due to poor weather. To mitigate the lack of a fifth day meeting, the researcher asked the cricketers to fill in the daily diary measure and provided a stamped addressed envelope for them to return their completed questionnaire. However, response rates for postal questionnaires are notoriously poor and can be as low of 5% (Gratton & Jones, 2009, p. 118). While a marked improvement on this figure, only 14 of 55 (25.5%) cricketers completed the fifth day measures. The second factor which had a negative impact on the response rate was the squad structure of the touring teams. Each squad consisted of 14-15 cricketers but only 12 of these cricketers (11 players plus one substitute fielder) were involved in playing cricket on any one day. As the daily diary measures relied on cricketers playing during the day, this meant the potential responses of 2-3 cricketers were missed each day.

Instruments

Initial questionnaire package

Athlete Engagement. The athlete engagement questionnaire (AEQ; Lonsdale, et al., 2007) was utilised in the current study. The AEQ includes the stem 'When I participate in sport…' and is a 16 item inventory consisting of four 4-item subscales: confidence (e.g. 'I am confident in my abilities'), dedication (e.g. 'I am dedicated to

achieving my goals'), vigour (e.g. 'I feel really alive'), and enthusiasm (e.g. 'I am enthusiastic'). The subscales were measured on a 5-point Likert scale (1 = almost never to 5 = almost always). Evidence has been provided which supports the validity and reliability of the scale (Hodge et al., 2009; Lonsdale et al., 2007). This includes support for the factor structure of the scale via confirmatory factor analysis, and internal consistency ($\alpha \geq .84$). Based on the study by Hodge et al. (2009), a global engagement score also calculated by averaging scores from the four subscales.

Athlete Burnout. The athlete burnout questionnaire (ABQ; Raedeke & Smith, 2001) was used in the current study to assess athlete burnout. The ABQ is a 15-item inventory made up of three 5-item subscales: reduced sense of accomplishment (e.g. 'I am not achieving much in sport'), perceived emotional and physical exhaustion (e.g. 'I feel so tired from my training that I have trouble finding the energy to do other things'); and athlete's devaluation of their sport (e.g. 'The effort I spend in sport would be better spent doing other things'). The subscales were measured on a 5 point Likert (1 = almost never to 5 = almost always). Evidence has been provided to support the validity and the reliability of the scale. This includes factor structure, internal consistency ($\alpha \geq .85$), and test-retest reliability ($r \geq .86$) (see Raedeke & Smith, 2001). Based on previous studies (e.g. Lemyre et al., 2008; Lonsdale et al., 2009), global burnout score was calculated by averaging scores from the three subscales.

Sport Multidimensional Perfectionism. The Sport Multidimensional Perfectionism Scale (SMPS-2; Gotwals & Dunn, 2009) is an adapted, sport specific version of Frost et al. (1990) multidimensional perfectionism scale. The current study utilised the S-MPS-2 7-item personal standards subscale (e.g. "I hate being less than the best at things in my sport"), the 8-item concern over mistakes subscale (e.g. "If I fail in competition I feel like a failure as a person") and the 6-item doubts about actions subscale (e.g. "I usually feel unsure about the adequacy of my pre-competition

practices"). All three subscales were measured on a 5 point Likert scale (1 = strongly disagree to 7 = strongly agree) Evidence has been provided to support the factor structure (via multiple exploratory factor analyses) and internal consistency ($\alpha \geq .74$) of the scale (see Gotwals & Dunn, 2009; Gotwals, et al., 2010).

Multidimensional Perfectionism. The Cox et al. (2002) shortened version of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (H-MPS) was used to assess self-oriented perfectionism, (e.g., "One of my goals is to be perfect in everything I do."), socially prescribed perfectionism (e.g., "People expect nothing less than perfection from me)". The instructions ("The following items are statements concerning personal characteristics that some people demonstrate when they are training or playing their sport") and the stem of the instrument were modified ("In my sport…") in order to account for the potential domain specificity of perfectionism(see Dunn et al., 2005). Each subscale of the shortened H-MPS contains 5-items measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Reliability analyses have supported the internal consistency of the subscales ($\alpha \geq .79$). Confirmatory factor analyses have supported the factor structure of the shortened scales and correlations between the shortened H-MPS and original H-MPS subscales are extremely high ($rs \geq .94$) (see Cox et al., 2002).

Daily diary measures

Daily Self-Conscious Emotions. The State Shame and Guilt Scale (SSGS; Marschall, Sanftner, & Tangney, 1994) was used to assess the levels of pride, shame and guilt across the tour. The SSGS consists of three 5-item subscales measured on a 5 point Likert scale (1 = *Not feeling this way at all* to 5 = *Feeling very strongly this way*). The subscales include pride (e.g. "I felt proud"), shame ("I wanted to sink to the floor and disappear"), and guilt ("I felt remorse, regret"). Previously researchers have found

support for the reliability of the scales in the form of internal consistency ($\alpha \geq .88$) (Stoeber et al., 2008).

Instability in self-conscious emotions. Instability in pride, shame and guilt was assessed by utilising the procedure outlined for self-esteem by Kernis et al. (1993). For each participant indexes of instability for pride, shame and guilt were calculated using the average within-subject standard deviations across the daily assessments. Higher scores indicated more unstable pride, shame and guilt.

Primary analytical strategy

The analysis was initially carried out in three stages. First, preliminary analyses were conducted to identify any univariate and multivariate outliers, and to establish the internal consistency of the study measures. Second, descriptive and correlation analyses were conducted. Third, as the daily reports were nested within individuals, multilevel analyses were required. These were conducted using the mixed models procedure in IBM SPSS Statistics v. 20. Multi-level modelling was favoured to general linear model approaches because of the greater flexibility it offers when examining models with missing data, varying occasions of measurement and more complex error structures (Heck, Thomas, & Tabata, 2010).

Following the procedure outlined by Heck et al. (2010), the data were restructured prior to multi-level analyses with time-related observations organised vertically as is appropriate when working with longitudinal multi-level data in SPSS. The five tour days were coded 0 = day 1, 1 = day 2, 2 = day 3, 3 = day 4, 4 = day 5. This coding pattern allowed the intercept to be identified as the initial level of pride, shame or guilt depending on the model specified.

In order test *Hypothesis 1* Intercept only models for pride, shame and guilt were conducted in order to calculate intraclass correlations (ICC). The ICCs indicated the ratio of between person variance (i.e. levels of pride, shame or guilt) to within person

variance (i.e. intra-individual fluctuations) (Tabachnick & Fidell, 2007). If substantial intra-individual fluctuation in pride, shame or guilt was evident, between person predictors (i.e. perfectionistic strivings and perfectionistic concerns) would be entered into the multilevel models. If no significant intra-individual fluctuation was evident, the analyses would proceed as single level between person analyses (i.e. multiple linear regressions with perfectionistic strivings and perfectionistic concerns predicting levels of pride, shame or guilt).

Results

Preliminary analysis

Following the procedure outlined by Tabachnick and Fidell (2007), the data were screened for univariate outliers. This led to the removal of one participant based on standardised values for aggregate shame and aggregate guilt outside the *z* score range (+/- 3.29). Multivariate normality was also assessed and revealed no multivariate outliers based on Mahalanobis distance $\chi^2_{(17)} = 40.79$ ($p < .001$). Subsequently, the data were considered approximately univariate normal (absolute skewness $M = 0.88$, $SD = 0.47$, $SE = 0.37$; absolute kurtosis $M = 0.74$, $SD = 1.27$, $SE = 0.72$). Reliability analyses assessing internal consistency are presented in Table 4.1.

Descriptive analyses and bivariate correlations

The means, standard deviations and bivariate correlations are presented in Table 4.1. They indicate that the cricketers scored moderate-to-high on perfectionistic strivings and moderately on perfectionistic concerns. The higher scores on perfectionistic strivings compared to perfectionistic concerns was consistent with other junior athletes sampled in this thesis and with previous research which has examined the broad dimensions of perfectionism in junior sport (e.g. Gaudreau & Antl, 2008). A similar pattern emerged regarding the self-conscious emotions with the cricketers

reporting moderate-to-high levels of the relatively adaptive emotion of pride, and low levels of shame and moderate-to-low levels of guilt. In addition, the cricketers scored moderate-to-low on the three sub-dimensions of athlete burnout, and scored high on the sub-dimensions of engagement.

The hypothesised relationships between perfectionism, self-conscious emotions, athlete burnout, and athlete engagement were first examined using bivariate correlations. Perfectionistic concerns shared negative associations with aggregate scores of pride and with confidence, vigour, enthusiasm and total engagement. In addition, perfectionistic concerns shared positive associations with aggregate shame, aggregate guilt, and emotional instability in the form of fluctuations in pride, shame and guilt, as well as reduced accomplishment, devaluation and total burnout. In contrast, perfectionistic strivings shared no significant relationships with self-conscious emotions, athlete burnout or athlete engagement.

Aggregate scores of pride shared negative associations with a reduced sense of accomplishment and devaluation. In contrast, aggregate scores of shame shared positive associations with a reduced sense of accomplishment, devaluation and total burnout. Similarly, aggregate scores of guilt shared a negative association with enthusiasm and a positive association with a reduced sense of accomplishment.

Instability in pride shared positive associations with aggregate scores of shame and guilt, instability in shame and guilt, devaluation and total burnout as well as sharing a negative association with confidence. Instability in shame shared positive associations with aggregate scores of guilt, instability in guilt, a reduced sense of accomplishment, devaluation and total burnout. In addition instability in shame shared negative associations with confidence, vigour, enthusiasm and total engagement. Instability in guilt shared a positive association with a reduced sense of accomplishment, and negative associations with confidence and enthusiasm.

Table 4.1. Bivariate correlations between perfectionism, aggregated and instability of pride, shame, and guilt, and burnout and engagement

Variables	1	2	3	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. PS	-																
2. PC	.58[b]	-															
3. Pride agg.	.04	-.45[b]	-														
4. Pride ins.	.29	.39[a]	-.30[a]	-													
5. Shame agg.	.27	.55[b]	-.60[b]	.30[a]	-												
6. Shame ins.	.17	.52[b]	-.40[b]	.46[b]	.71[c]	-											
7. Guilt agg.	.27	.53[b]	-.41[b]	.29[a]	.81[c]	.62[c]	-										
8. Guilt ins.	.17	.57[b]	-.19	.35[a]	.56[c]	.75c	.73[c]	-									
9. Confidence	.04	-.39[a]	.29	-.37[a]	-.28	-.51[b]	-.29	-.40[a]	-								
10. Dedication	.23	-.14	.08	-.11	-.07	-.21	-.03	-.05	.69[c]	-							
11. Vigour	-.02	-.47[b]	.23	-.17	-.23	-.37[a]	-.24	-.26	.72[c]	.71[c]	-						
12. Enthusiasm	-.10	-.42[b]	.24	-.27	-.30	-.46[b]	-.32[a]	-.36[a]	.82[c]	.68[c]	.80[c]	-					
13. Total eng.	.01	-.44[a]	.24	-.26	-.25	-.44[b]	-.26	-.31	.90[c]	.84[c]	.92[c]	.92[c]	-				
14. Red. acc.	.16	.38[a]	-.45[b]	.32	.52[b]	.47[b]	.47[b]	.33a	-.55[c]	-.28	-.35[a]	-.48[b]	-.46[b]	-			

Table cont.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
15. Exhaustion	.06	.32	-.07	.20	.17	.23	.20	.12	-.63[c]	-.68[c]	-.65[c]	-.63[c]	-.71[c]	.40[a]	-		
16. Deval.	.02	.42[a]	-.42[b]	.42[b]	.38[a]	.48[b]	.32	.31	-.80[c]	-.67[c]	-.66[c]	-.73[c]	-.78[c]	.58[c]	.75[c]	-	
17. Total burn.	.05	.40[a]	-.29	.37[a]	.34[a]	.43[a]	.32	.26	-.80[c]	-.70[c]	-.72[c]	.75[c]	-.82[c]	.70[c]	.90[c]	.92[c]	-
M	5.32	3.68	3.49	0.62	1.43	0.46	1.76	0.60	1.87	2.24	1.64	1.92	4.29	4.48	4.08	4.49	4.32
SD	0.89	0.78	0.75	0.46	0.53	0.49	0.67	0.50	0.53	1.01	0.68	0.64	0.65	0.54	0.84	0.64	0.60
α	.81	.74	.91	-	.81	-	.90	-	.67	.92	.79	.90	.81	.64	.91	.82	.95

Note. PS = Perfectionistic strivings; PC = Perfectionistic concerns; Red. acc. = Reduced sense of accomplishment; Deval. = Sport devaluation; Total eng. = Total engagement; Total burn. = Total burnout; agg = aggregated; ins = instability. $p < .05$*, $p < .01$**, $p < .001$***

Multi-level analyses

Intraclass correlations (ICC) were calculated for pride (ICC = 43.60%), shame (ICC = 47.55%) and guilt (ICC = 25.52%). These suggested that there was substantial variability on a day-to-day basis, with 56.40% of variance in pride, 52.45% of the variance in shame, and 74.48% of the variance in guilt being situated at the within person level. However, interpretation of the ICCs was problematic because each of the intercept only models failed to converge. Multi-level models were computed for pride, shame and guilt, in which perfectionistic strivings and perfectionistic concerns were entered as between person predictors. The addition of perfectionistic concerns and perfectionistic strivings appeared to significantly improve the fit of the shame and guilt models relative to the intercept only models (shame, $\chi^2(8)$ 398.11 - 221.59 = 176.52, $p <$ .001; guilt, $\chi^2(8)$ 465.55 - 266.84 = 198.71, $p < .001$). While there was also a change in the pride model, this did not represent improved fit ($\chi^2(8)$ = 441.89 - -5653.38 = 6095.27, $p < .001$). The parameter estimates for the intercept only models and the multilevel models are presented in Table 4.2. Again the validity of these estimates is questionable as the models failed to converge.

Table 4.2. Daily pride, shame and guilt as a function of perfectionistic strivings and perfectionistic concerns

Parameter	Pride		Shame		Guilt	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
			Fixed effects			
Intercept	3.33 (0.13)***	26.21 (0.75)***	1.57 (0.13)***	-0.11 (1.41)	1.93 (0.12)***	0.00 (1.01)
Day	0.06 (0.05)	-1.32 (0.22)***	-0.04 (0.04)	-0.34 (0.48)	-0.06 (0.05)	-0.27 (0.31)
PS	-	7.77 (0.19)***	-	0.12 (0.39)	-	0.17 (0.25)
PC	-	-28.81 (0.22)***	-	0.41 (0.44)	-	0.37 (0.28)
			Random effects			
Intercept	0.41 (0.16)*	0.13 (0.00)[a]	0.40 (0.17)*	0.67 (0.38)	0.21 (0.00)[a]	0.40 (0.26)

Note: PS = Perfectionistic strivings, PC = Perfectionistic concerns. [a]Covariance parameter redundant. $p < .05$*, $p < .01$**, $p < .001$***

The revised analytical strategy

The lack of convergence in the intercept only models and the multi-level models necessitated a revised analytical strategy. The type of covariance structure specified can impact whether or not a model converges (Heck et al., 2010). Consequently, the first revised strategy was to re-specify the models using a different covariance structure at level 1 (within-person). An autoregressive covariance structure was chosen because this accounts for correlations which exist between measurement occasions (Heck et al., 2010). Given that the same measures of pride, shame and guilt were used each day it seemed likely that such correlations may have existed in the current data. However, these revised models also failed to converge. This suggested that the type of covariance structure specified was not necessarily the problem underlying the lack of convergence in the models.

The large amounts of missing data were another potential cause of the lack of convergence. Multi-level modelling is reasonably robust to missing data (Quené & Van den Bergh, 2004). However, numerous patterns of missing data in multi-level analyses can be problematic for the estimation of variances and covariances (Wu, West, & Taylor, 2009). Therefore, the large amounts and numerous patterns of missing data in the current study may have caused the lack of convergence in the models. This seems particularly likely in light of the three types of longitudinal data outlined by Raudenbush (2001) and summarised in Wu et al. (2009). Specifically, the current data was *type 3* longitudinal data, whereby multiple patterns of missing data lead to an unbalanced heterogeneous design, and problems with parameter estimation. Imputation (e.g. mean substitution) was one potential remedy for this situation, but this was not conducted in order to avoid reduced standard errors and biased parameter estimates. Subsequently, the multi-level strategy was abandoned. Instead, multiple regression

analyses were conducted to examine whether perfectionistic strivings and perfectionistic concerns predicted levels of and instability in pride, shame, and guilt.

Multiple regression: Perfectionism predicting levels of and instability in pride shame and guilt

Table 4.3 displays the standardised regression coefficients between the variables. *R* was significantly different from zero in all regression models examining perfectionism and levels of pride, shame and guilt. Perfectionistic concerns negatively predicted levels of pride, and positively predicted levels of shame and guilt. In contrast, perfectionistic strivings did not significantly predict levels of pride, shame or guilt. The adjusted R^2 values indicated that in combination perfectionistic strivings and perfectionistic concerns accounted for approximately a fifth of the variance in levels of pride, shame, and guilt.

R was significantly different from zero in the models examining perfectionism and instability in shame and guilt, but non-significant in the model examining perfectionism and instability in pride. Perfectionistic concerns positively predicted instability in shame and guilt. Conversely, perfectionistic strivings did not significantly predict instability in pride, shame or guilt. The adjusted R^2 values indicated that perfectionistic strivings and perfectionistic concerns accounted for approximately a quarter of the variance in instability in shame, and a third of the variance in instability in guilt.

Table 4.3. Multiple regressions for perfectionism predicting levels and instability of pride, shame and guilt

	Levels			Instability		
Predictor	Pride	Shame	Guilt	Pride	Shame	Guilt
Perfectionistic concerns	-.59**	.55*	.49*	.21	.63**	.69**
Perfectionistic strivings	.29	-.03	.04	.23	-.24	-.18
R^2	.24	.28	.27	.15	.29	.37
Adjusted R^2	.18	.22	.22	.08	.24	.32
F	4.17*	5.04*	5.02*	2.33	5.30*	7.82**

Note: Standardised coefficients. *$p < .05$, **$p < .01$

Multiple regressions: Pride, shame and guilt predicting athlete engagement and athlete burnout

Table 4.4 displays the standardized regression coefficients between the levels of and instability in self-conscious emotions, and athlete engagement and burnout. *R* was significantly different from zero in the models examining levels of self-conscious emotions and confidence and enthusiasm, but non-significant in the other models examining levels of self-conscious emotions and athlete engagement and athlete burnout dimensions. There were large negative effects of level of shame on confidence and enthusiasm but these were non-significant. There were small positive effects of level of pride and small negative effects of level of guilt on confidence and enthusiasm but these were non-significant.

R was significantly different from zero in the models examining instability in self-conscious emotions and confidence and enthusiasm, as well as the models examining self-conscious emotions and reduced accomplishment and devaluation. There were large negative effects of shame instability, and small to moderate negative effects of pride and guilt instability on confidence and enthusiasm but these were non-significant. In addition, there large positive effects of shame instability, and moderate positive effects of pride instability on reduced sense of accomplishment and devaluation, as well as moderate negative effects of guilt instability on reduced accomplishment and devaluation. Again none of these effects were significant.

Table 4.4. Multiple regressions for levels and instability in self-conscious emotions predicting athlete engagement and athlete burnout

Predictor	Con	Ded	Vig	Ent	AE	RA	Ex	Dev	AB
Pride agg.	.13	.00	.10	.02	.08	-.16	.07	-.23	-.12
Shame agg.	-.35	-.35	-.33	-.40	-.38	.22	.07	.33	.16
Guilt agg.	-.06	.22	-.05	-.08	-.02	.05	.17	-.10	.13
R^2	.24	.05	.19	.23	.20	.17	.04	.19	.13
Adjusted R^2	.18	-.04	.12	.16	.13	.10	-.05	.12	.04
F	3.62*	.51	2.62	3.28*	2.73	2.32	0.46	2.53	1.51
Pride ins.	-.09	.06	.09	-.03	.01	.13	.15	.22	.20
Shame ins.	-.36	-.37	-.43	-.43	-.44	.49	.25	.41	.41
Guilt ins.	-.14	.18	.00	-.04	-.01	-.12	-.11	-.09	-.11
R^2	.28	.05	.15	.23	.19	.24	.08	.25	.22
Adjusted R^2	.21	-.04	.07	.15	.12	.16	-.01	.18	.15
F	4.05*	0.61	1.84	3.10*	2.57	3.20*	0.91	3.48*	2.87

Note: Standardised coefficients. *$p < .05$, **$p < .01$

Discussion

The study had three purposes. The first purpose was to examine whether fluctuations occurred in pride, shame and guilt in junior cricketers while on a 5-day tour. The second purpose was to examine whether perfectionistic concerns and perfectionistic strivings predicted levels of and fluctuations in pride, shame and guilt. The third purpose was to examine whether levels of and fluctuations in pride, shame and guilt predicted athlete engagement and athlete burnout.

It was hypothesised that junior cricketers' would experience fluctuations in their levels of pride, shame and guilt each day on tour. It was hypothesised that perfectionistic concerns and perfectionistic strivings would positively predict fluctuations in pride, shame and guilt. It was also hypothesised that perfectionistic concerns would positively predict levels of shame and guilt and negatively predict levels of pride. In contrast, it was hypothesised that perfectionistic strivings would negatively predict levels of shame and guilt, and positively predict levels of pride. It was hypothesised that fluctuations in pride, shame and guilt would negatively predict athlete engagement and positively predict athlete burnout. In addition, it was hypothesised that levels of pride would positively predict athlete engagement and negatively predict athlete burnout. In contrast it was hypothesised that levels of shame and guilt would negatively predict athlete engagement and positively predict athlete burnout.

While the multi-level models failed to converge, the findings still provided some support for the hypotheses with two notable exceptions. Contrary to expectations, perfectionistic strivings did not significantly predict either levels of pride, shame and guilt or stability in these self-conscious emotions. In addition, levels of and fluctuations in pride, shame and guilt did not significantly predict athlete engagement or athlete burnout and their dimensions.

Fluctuations in pride, shame and guilt

The findings provided support for fluctuations in pride, shame and guilt each day on tour. The lack of convergence in the intercept only models that demonstrated within person fluctuation hampered interpretation. Nonetheless, the proportion of within person variance in pride, shame and guilt within these models was substantial. In addition, the case for fluctuation was also supported by the instability indexes of pride, shame and guilt. These findings are consistent with research that demonstrated similar short term fluctuations in self-esteem (Kernis et al., 2005). It appears that junior summer tour cricket is an environment in which cricketers experience self-conscious emotional highs and lows.

Dimensions of perfectionism and fluctuations in pride, shame and guilt

As expected, perfectionistic concerns positively predicted fluctuations in shame and guilt. This suggests that perfectionistic concerns are likely to underpin more extreme daily highs and lows in shame and guilt while on tour. These findings are consistent with Dunkley et al. (2012) who found that perfectionistic concerns predicted greater emotionality in the form of fluctuations in self-esteem. However, perfectionistic concerns did not significantly predict fluctuations in pride. Instead in line with Sorotzkin (1985) it appears that those high in perfectionistic concerns are unable to experience pride. These findings hint at the fragile sense of self that stems from pursuing perfect standards imposed by others. As such athletes high in perfectionistic concerns may encounter fleeting reductions in shame and guilt when they perform well only to receive perceived harsh criticism, and consequently encounter increased shame and guilt when they've once again failed to make the grade.

In contrast, perfectionistic strivings did not significantly predict fluctuations in pride, shame and guilt. This suggests that relative to perfectionistic concerns, perfectionistic strivings are associated with greater emotional stability. This finding is

not consistent with Dunkley et al. (2012) who found that perfectionistic strivings predicted fluctuations in self-esteem. However, it is not entirely unexpected. As Stoeber and Yang (2010) and Stoeber et al. (2008) have found previously, when perfectionistic strivings are accompanied by successful or perfect performance they are associated with higher levels of pride, and lower levels of shame and guilt. It appears that this buffering effect may extend to emotional stability. It may have been the case that the cricketers high in perfectionistic strivings performed to high standards while on tour and thus encountered relatively stable self-conscious emotions. Another potential explanation relates to motivational quality. Specifically, as demonstrated in study one of the thesis and in previous studies, perfectionistic strivings have been associated with higher quality motivation, relative to perfectionistic concerns (Gaudreau & Antl., 2008 Mouratidis & Michou, 2010). It may, therefore, be the case that pursuing cricket for more autonomous reasons imparts an assurance in oneself that buffers against potential emotionality.

Dimensions of perfectionism and levels of pride, shame and guilt

In line with the hypotheses, perfectionistic concerns were negatively associated with levels of pride and positively associated with levels of shame and guilt. This suggests that perfectionistic concerns underpin a maladaptive profile of self-conscious emotions. This finding provides partial support for previous research which has demonstrated negative associations between sub-dimensions of perfectionistic concerns and pride, and positive associations between sub-dimensions of perfectionistic concerns and shame and guilt (Stoeber et al., 2008).

As expected perfectionistic strivings were positively associated with pride and negatively associated with shame and guilt. This suggests that perfectionistic strivings underpin a relatively more adaptive profile of self-conscious emotions at least at the state level. This finding provides partial support for previous research which has

demonstrated the positive associations between sub-dimensions of perfectionistic strivings and pride, and negative associations between sub-dimensions of perfectionistic strivings and shame and guilt (Fedewa et al., 2005). Perfectionistic strivings may have underpinned this more adaptive self-conscious emotion profile in this study because the cricketers high in perfectionistic strivings considered their performance to be successful. While individual performance data was not collected, the four tour teams finished either 1st or 2nd in each of the tournaments, which meant several players performed to such a high standard that meant they may either have met or exceeded their own expectations.

Levels of and fluctuations in pride, shame and guilt predicting athlete engagement and burnout

Unexpectedly fluctuations in pride, shame and guilt did not significantly predict athlete engagement, athlete burnout or their respective sub-dimensions. Similarly the effects of levels of pride, shame and guilt on athlete engagement and athlete burnout were non-significant. However, the bivariate correlations provide some evidence that self-conscious emotions are linked to engagement and burnout. Specifically, they suggest that elevated pride is inversely associated with burnout, while shame and guilt and emotional instability are positively associated with burnout and inversely associated with engagement. In addition, observation of the standardized parameters suggests that some moderate to large effects were evident. In particular, the negative parameters from levels of shame to the dimensions of athlete engagement were all moderate to large, as were the positive parameters from levels of shame to the reduced sense of accomplishment and devaluation dimensions of athlete burnout. Similarly, the negative parameters from fluctuations in shame to the dimensions of athlete engagement and the positive parameters from fluctuations in shame to athlete burnout were all moderate to large.

This highlights one of the disadvantages of using multiple regression analyses as opposed to multi-level modelling i.e. a loss of power in the model. Multi-level modelling is able to simultaneously model all observations taken over measurement occasions nested within individuals. However, multiple regression only makes use of individual level data. In the current study this led to a x5 reduction in power, which explains why moderate and large effects were non-significant. Consequently, it appears as though levels of and fluctuations in pride, shame and guilt may well be important considerations in the occurrence of athlete engagement and burnout but it is inappropriate to guarantee this assertion from the current study due to the lack of power in the regression models.

Limitations and future research directions

The third study of the thesis must be considered in light of its limitations. In particular, the large volume and numerous patterns of missing data negated valid interpretation of the multi-level structure. This is problematic because examining the associations at the between persons level, rather than at the within person level and between person level leads to a x5 reduction in power, due to the number of micro level units i.e. five days on tour. This reduction in power increases the risk of Type II error; however (Snijders & Bosker, 2012). Consequently, further multilevel longitudinal studies are required in order to understand the day-to-day associations between perfectionism and self-conscious emotions. However, this study highlights some of the potential difficulties in orchestrating such designs. Specifically, utilising designs which include self-report measures in the ever changeable context of the intense competitive sport environment can lead to large amounts of missing data. In future when carrying out designs similar to the current study a more strategic approach to missing data could be taken. Specifically, a planned missingness design could be employed whereby efforts are made to try and ensure that any missing data arises between the first and last time

points. Adopting such an approach means that missing data has a smaller impact on the power of the study (Graham, Taylor, Olchowski, & Cumsille, 2006).

Another strategy may be to employ a qualitative approach. This would allow researchers to explore athletes' individual perspectives regarding the way in which their perfectionism influences their self-conscious emotions during intense competition. This could be carried out retrospectively as in previous qualitative investigations examining burnout (e.g. Gustafsson et al., 2008), therefore allowing more structured management of the data collection process.

Another potential future research direction relates to the conceptualisation of perfectionism within a situational context. Consistent with the model of perfectionism employed throughout the thesis, in the third study perfectionism was conceptualized as the broad perfectionistic concerns and perfectionistic strivings dimensions. This demonstrated the associations between dispositional perfectionism and daily self-conscious emotions while on tour. However, it may be useful for researchers to also establish the role of perfectionism cognitions (Flett, Hewitt, Blankstein, & Gray, 1998). This perfectionism component is more susceptible to change over time than the broad dimensions. Consequently, perfectionism cognitions provide a more proximal account of how perfectionism manifests on a daily basis and this may be useful in establishing how perfectionism influences emotional outcomes during intense periods of competition.

Conclusions

The third study of the thesis builds on the findings of study one and study two by establishing the relationships that perfectionistic concerns and perfectionistic strivings share with emotional well-being and ill-being on a day-to-day basis. As such study three provides an extension to previous studies in the thesis by indicating how the broad dimensions of perfectionism manifest emotionally over time. Specifically, it

appears that perfectionistic concerns manifest in a negative pattern of self-conscious emotions that includes low levels of pride, elevated shame and guilt, and increased emotionality while on tour. In contrast, perfectionistic strivings appear to be relatively more emotionally benign. The study findings also suggest that daily self-conscious emotions and the extent to which these emotions fluctuate are potentially important considerations in the onset of burnout and engagement.

Chapter 5 – Perfectionism burnout and engagement in dance: The moderating roles of perceived autonomy support and conditional regard.

"It is not a matter of having a perfect body, but of dancing in such a way as to look perfect."

Wilheim Burmann

Study three provided insight into the associations that perfectionistic concerns and perfectionistic strivings share with day-to-day self-conscious emotions in athletes encountering relatively short and intense periods of competition. This built on previous research by demonstrating the acute detrimental associations that perfectionistic concerns share with self-conscious emotions over time. Study three also outlined the negative influence that emotional instability can have on well-being by examining the associations that instability in pride, shame and guilt share with athlete engagement and athlete burnout. The findings suggested that emotional instability in pride, shame and guilt may be associated with higher levels of burnout and lower levels of engagement. Therefore, the emotional day-to-day impact of perfectionistic concerns may have detrimental consequences for youth athlete well-being.

Given that perfectionism is associated with emotional as well as motivational well-being, an important next step is to establish further understanding about the factors that moderate these associations. As demonstrated in study one, two and three of the thesis, and elsewhere (e.g. Gaudreau & Antl, 2008; Kaye et al., 2008) perfectionistic concerns appear to be motivationally, cognitively and affectively debilitating for athletes. Therefore, understanding is required about the factors which either buffer against or exacerbate this influence. Moreover, as discussed in Chapter 1 of this thesis, researchers have proposed that the ambiguous pattern of associations between

perfectionistic strivings and psychological outcomes may be accounted for by the presence or absence of perfectionistic concerns (Gotwals et al., 2012). This contention suggests that perfectionistic concerns moderate the associations between perfectionistic strivings and psychological outcomes. However, the inconsistent nature of perfectionistic strivings may be accounted for by other factors as well as perfectionistic concerns. Consequently, it is important to examine factors which may buffer against potentially negative components of perfectionistic strivings and enhance potentially positive components of this broad dimension. Within the context of self-determination theory, the psychological climates created by significant others are theorized to have a strong impact on the extent to which individuals will experience high or low quality motivation, via basic psychological needs (Ryan & Deci, 2002). The findings from study one and two in the thesis, which demonstrate that the perfectionism-burnout and perfectionism-engagement associations are explained via motivational quality, suggest that psychological climates could moderate the influence of perfectionistic concerns and perfectionistic strivings. Consequently, the fourth study of the thesis seeks to examine whether the psychological climates created by teachers and parents moderate the associations that perfectionistic concerns and perfectionistic strivings share with engagement and burnout. The study focuses on how such relationships manifest in the context of youth dance.

Engagement in youth dance

Youth dancers share many similarities with youth athletes. For example, in youth dance there is a heavy emphasis placed on high levels of performance and the volume of training and practice is comparable to that encountered in youth sport. Similarly, the corresponding physical demands of dance and sport have long been recognized. This has led some researchers to describe dancers as ‘performing athletes’

due to the physical skills and dexterity that both disciplines require (e.g. Koutedakis & Jamurtas, 2004).

The notion of dancers as performing athletes can also be used in reflection on the psychological similarities between dance and sport. It can, for instance, be argued that the importance of psychological engagement in youth dance is equivalent to that in youth sport. Youth dancers, like youth athletes, must engage psychologically as well as physically in quality practice throughout their formative years in order to develop expertise (Ericsson et al., 1993; Hamilton, 1997). Such focused engagement is paramount because the number of talented young dancers far outweighs the tiny number of professional performance positions available at the elite senior level (Bennett, 2009).

To date, researchers are yet to examine the concept of psychological engagement in dance. However, researchers have examined related motivational and affective concepts in a dance context. For example, early work by Bakker (1991) suggests that youth dancers tend to have lower self-esteem and display higher emotionality and quantity motivation (i.e. increased achievement striving) compared to non-dancers. More recently, Quested and Duda (2009) examined the associations between basic psychological needs satisfaction and indices of well-being in hip hop dancers. Quested and Duda's (2009) findings suggest that indicators of high quality motivation (i.e. satisfaction of the need for competence) are associated with increased positive affect and decreased negative affect. Further evidence is highlighted in another study by Quested and Duda (2011) with vocational dancers. Quested and Duda's (2011) findings suggest that dancers' perceptions of teacher autonomy support were positively associated with self-esteem, positively predicted high quality motivation (i.e. intrinsic motivation) and negatively predicted low quality motivation (i.e. amotivation). Together these studies suggest that affective and cognitive indicators of well-being emanate from

a pattern of high quantity and high quality motivation captured in the context of self-determination theory. Furthermore, in combination with recent findings in sport (e.g. Hodge et al., 2009) and those from study two of the thesis, it seems reasonable to suggest that dance engagement will be influenced by a similar pattern of quantity and quality motivation.

Burnout in youth dance

Not all youth dancers will encounter well-being in the form of psychological engagement. Recent findings suggest that dance is an environment that can induce chronic stress, and potentially lead to impaired health (Berndt, Strahler, Kirschbaum & Rohleder, 2012). For some dancers the physical and psychological demands of practice and performance may also lead to burnout (Hamilton, 1997; Quested & Duda, 2011; Taylor & Taylor, 1995).

Researchers have previously examined burnout in dance from a physiological perspective (see Koutedakis, 2000 for a review). However, there has been a relative dearth of research examining dance burnout from a psychological perspective. Recently, Balaguer, Castillo, Duda, Quested and Morales (2011) have attempted to address this by examining the role of perceived autonomy support, motivational regulation and burnout in dancers' intensions to continue their participation in dance. Specifically, in their study with vocational dancers, Balaguer et al. (2011) found that autonomy support positively predicted autonomous motivation, and negatively predicted burnout and controlled motivation. In addition, they found that amotivation positively predicted burnout. In turn, burnout negatively predicted dancers' intention to continue their participation.

Building on this work, Quested and Duda (2011) examined the antecedents of burnout in elite vocational dancers longitudinally. Specifically, their study focused on whether basic psychological needs satisfaction mediated the association between

perceived autonomy support and athlete burnout. Quested and Duda (2011) found that decreases in perceived autonomy support from dance teachers predicted decreases in basic psychological needs satisfaction, which in turn predicted increases in burnout. Together the findings from Balaguer et al. (2011) and Quested and Duda (2011) are consistent with those in study two of the thesis and others which have examined burnout from a self-determination theory perspective in sport (e.g. Lonsdale et al., 2009). Therefore, they suggest that burnout in dance may be predicted by low quantity motivation (i.e. amotivation) and low quality motivation (i.e. low levels of autonomy support and basic psychological needs satisfaction, and controlled motivation). Given that perfectionism is a key antecedent of motivational quality and subsequent engagement and burnout in sport, it may well underpin engagement and burnout in dance.

The influence of multidimensional perfectionism in dance

Anecdotal reports by dance professionals and recent empirical evidence suggest that perfectionism may be particularly prevalent within the youth dance domain (Mainwaring, 2009; Nordin-Bates, Cumming et al., 2011). Despite this, empirical research examining perfectionism in dance remains underdeveloped when compared to sport or wider psychological contexts (Hall & Hill, 2012). Perfectionism in dance is often cited as a desirable and even necessary characteristic (Mainwaring, 2009; Nordin-Bates, Cumming et al., 2011). Hamilton (1997) suggests that a pervasive cultural drive for perfectionism exists within vocational dance. This is endorsed by the rigid standards of dance teachers, choreographers, and parents. Consequently, many dancers hold perfectionistic tendencies and beliefs. Recent empirical evidence supports this position and suggests that the prevalence of perfectionism may be higher in dance than in sport (Kronvall-Parkinson, Hanrahan, Stanimirovic, & Sharp, 2007). Clearly, perfectionism represents a potentially influential personality characteristic in the dance domain. It

might therefore be expected that perfectionism within this context would be extensively researched and well-understood. However, this is not the case.

Despite the importance of perfectionism in dance, as Nordin-Bates, Cumming et al. (2011) have suggested, research on perfectionism in dance has been slow to develop when compared to research on perfectionism in sport. Nonetheless, researchers have conducted a handful of studies that help to highlight the influence of perfectionism in the dance context. For example, in a study with dancers and other professional performing artists, Mor, Day, Hewitt and Flett (1995) examined the associations between perfectionism dimensions from the Hewitt and Flett (1991) model. Mor et al (1995) found that the socially prescribed perfectionism indicator of perfectionistic concerns, as well as the self-oriented perfectionism indicator of perfectionistic strivings, were positively associated with trait anxiety, somatic anxiety and lower levels of goal satisfaction. The generalizability of the Mor et al. (1995) study is somewhat limited by its relatively small mixed sample of dancers and other performing artists but does highlight the potentially negative influence of perfectionistic strivings and perfectionistic concerns in dance.

Extending the work of Mor et al. (1995), Carr and Wyon (2003) investigated the associations between the motivational climate and psychological outcomes in dancers. As part of their study they included dimensions from the Frost et al. (1990) perfectionism model. In line with the research by Mor et al. (1995), Carr and Wyon's (2003) found that indicators of perfectionistic striving (i.e. personal standards) as well as perfectionistic concerns (i.e. concern over mistakes and doubts about actions) were associated with higher levels of anxiety.

More recently Nordin-Bates et al. (Nordin Bates, Cumming et al., 2011; Nordin Bates, Nordin-Bates, Quested, Redding, Walker, 2011) have adopted the Hill et al. (2004) model in order to examine the influence of perfectionism in dance. This model

includes dimensions which can be considered indicative of perfectionistic strivings and perfectionistic concerns. The research by Nordin-Bates et al. suggests that perfectionistic concerns are associated with lower self-esteem and self-confidence, higher anxiety and debilitative imagery, and poorer attitudes towards eating. Similarly, Nordin-Bates et al.'s findings suggest that perfectionistic strivings dimensions are linked to lower self-esteem and poor attitudes towards eating.

Taken together, the studies presented above suggest that perfectionistic concerns and perfectionistic strivings may both have a maladaptive influence in dance. However, another recent study by Cumming and Duda (2012) suggests that the negative influence of perfectionistic strivings may not extend to dance burnout. In their study with vocational dance students Cumming and Duda (2012) highlight the associations between the dimensions of perfectionism from the Frost et al. (1990) model and a range of psychological outcomes including the emotional and physical exhaustion dimension of burnout. Their findings suggest that concern over mistakes and doubts about action dimensions are positively associated with emotional and physical exhaustion, but the personal standards dimension shares no significant association with emotional and physical exhaustion.

Given that only one dimension of athlete burnout was included in the Cumming and Duda (2012) study, the fourth study in the thesis aims to build on the research by Cumming and Duda (2012). Specifically, an aim for study four is to establish whether the pattern of associations between perfectionism and dance burnout is consistent across other dimensions of burnout and the broad dimensions of perfectionism in youth dancers. In addition, study four aims to build on previous perfectionism research in dance by examining the relationships between the broad dimensions of perfectionism and dance engagement. Furthermore, given that previous studies have indicated that

perfectionism is potentially detrimental for dancers, it is important to establish factors which may buffer against the negative influence.

The moderating role of autonomy support vs. control

The situational cues provided by the coach are clearly important in shaping athletes' perceptions of their sport environment. As Reinboth and Duda (2006, p. 270) have suggested: "…coaches design practice sessions, group athletes, give recognition, evaluate performance, share their authority and shape the sport setting." Dance teachers adopt a similar role to the sports coach and are therefore central in shaping dancers' perceptions of their dance environment. As a result, the perceived situational cues emanating from dance teachers are likely to influence dancers' motivation and subsequent well-being. Recent findings have supported this assertion. Specifically, it appears that task-involving climates in dance facilitate basic psychological needs satisfaction and positive affect. In contrast, ego-involving climates in dance appear to undermine basic psychological needs, and increase the risk of burnout symptoms and negative affect (Quested & Duda, 2009).

From a self-determination theory perspective the climate created by dance teachers can be perceived as autonomy supportive or controlling (Mageau & Vallerand, 2003). Perceived autonomy support occurs when teachers encourage initiative and choice, share in performers' perspectives when solving problems or offering advice, and minimize pressure and the emphasis on demands (Black & Deci, 2000; Reeve, 1998; Mageau & Vallerand, 2003). In contrast, perceived control occurs when teachers fail to acknowledge the performer's perspective and place pressure on performers to think and behave in certain ways (Mageau et al., 2009). Therefore, dancers in an autonomy supportive climate are analogous with the queens on a chessboard – guided but given choice. Conversely, dancers in a controlling environment are analogous with the pawns on a chessboard – guided and restricted.

Research in dance suggests that perceived autonomy support predicts factors indicative of high quality motivation and psychological well-being. For example, the studies outlined above by Balaguer et al. (2011) and Quested and Duda (2010) demonstrated the benefits of perceived autonomy support provided by the dance teacher. Specifically they suggest that perceived autonomy support predicts heightened satisfaction of the basic psychological needs for autonomy and relatedness, more autonomous motivation, more adaptive affective outcomes and lower levels of burnout.

The adaptive influence of perceived autonomy support on motivational and affective outcomes is also well-established in sport. For example, in a study with athletes from team sports, Adie, Duda, and Ntoumanis (2008) found that perceived autonomy support provided by the coach positively predicted satisfaction of the basic psychological needs for autonomy, competence and relatedness. In turn, basic psychological needs satisfaction positively predicted subjective vitality. Extending this research Adie, Duda, and Ntoumanis (2012) examined the influence of perceived autonomy support on elite youth soccer players over two seasons. Adie et al. (2012) findings suggest that the positive associations between perceived autonomy support, basic psychological needs satisfaction and subjective vitality are robust over time.

As well as being linked to well-being, perceived autonomy support might also attenuate any negative influence of perfectionistic concerns or perfectionistic strivings. Perfectionistic individuals are more likely to be resilient to maladaptive well-being outcomes if they develop a sense of flexibility. In contrast they are likely to be more vulnerable to such outcomes when they rigidly focus on mistakes (Flett & Hewitt, 2005). It appears that the focus on initiative and problem solving and minimizing pressure and demands encapsulated in the autonomy supportive climate may help dancers' develop a sense of flexibility. Therefore, perceived autonomy support may buffer against the perfectionism-burnout associations and strengthen the perfectionism-

engagement associations. Conversely the rigidity of the controlling climate may discourage flexibility and heighten the focus on mistakes. Therefore, a controlling climate may exacerbate the perfectionism-burnout associations and weaken the perfectionism-engagement associations.

The moderating role of parental conditional regard

The situational cues emanating from parents may also be fundamental in shaping dancers' perceptions of their dance environment (cf. McArdle & Duda, 2004). Specifically, parental influence may be particularly important in regard to the mode of support given to children's participation and learning (Keegan, Harwood, Spray, & Lavallee, 2009). One way in which this can be captured is by assessing parenting style. A parenting style that appears to be particularly salient in child well-being is conditional regard (Assor, Roth, & Deci, 2004). Assor et al. (2004) define parental conditional regard as an approach to socialization where love and affection are given by the parent when a child displays a desirable behavior but withheld when they do not. While this may promote the enactment of certain behaviors it is likely to come at considerable affective cost for the child (Assor et al., 2004).

Assor, Kaplan, Kanat-Maymon, and Roth (2005) contend that parental conditional regard is problematic because it leads to an introjected internalization of the desired behavior on the part of the child. Recent findings which highlight the association between perceived parental conditional regard and introjection support this theoretical position (Roth, 2008). Furthermore, there is mounting evidence of the emotional, motivational and social costs associated with parental conditional regard. For instance, researchers have recently found that perceived parental conditional regard predicts self-aggrandizement following success but self-derogation and shame following failure (Assor & Tal, 2012). Perceived parental conditional regard also predicts feelings of resentment towards parents (Roth, Assor, Niemiec, Ryan, & Deci,

2009) and appears to be associated with self-oriented, as opposed to other oriented, helping behavior (Roth, 2008).

In sport, findings suggest that the costs of parental conditional regard extend to athlete burnout (Bartholomew et al., 2011). There is also evidence which suggests that parental conditional regard may accentuate perfectionistic concerns and the self-criticism component of perfectionistic strivings (e.g. McArdle & Duda, 2004). Consequently, parental conditional regard in dance may attenuate the perfectionistic strivings-engagement relationship, and exacerbate the perfectionistic concerns-burnout and perfectionistic strivings-burnout relationships.

The present study

In summary, despite perfectionism being a common, even socially desirable disposition in dance, relatively little research has examined perfectionism in this context (Nordin-Bates, Cumming et al. 2011). Consequently, little is known about the relationships that perfectionistic concerns and perfectionistic strivings share with dance burnout and dance engagement. However, based on recent research in sport it might be expected that the divergent that perfectionistic concerns and perfectionistic strivings share with athlete burnout and athlete engagement will also be reflected in the dance context. Based on the conceptual arguments outlined above and in order to build on the first three studies of the thesis, study four has two aims. The first aim of the study is to examine the relationships between perfectionistic concerns, perfectionistic strivings, burnout and engagement in youth dancers. The second aim of the study is to examine the moderating role of perceived teacher autonomy support and parental conditional regard on the perfectionism-burnout and perfectionism-engagement relationships. The hypotheses for study four are as follows:

Hypothesis 1: Perfectionistic concerns and perfectionistic strivings will share divergent associations with engagement and burnout. Specifically, perfectionistic concerns will

positively predict burnout and negatively predict engagement; whereas, perfectionistic strivings will positively predict engagement and negatively predict burnout.

Hypothesis 2: Perceived autonomy support will strengthen the perfectionism engagement relationships and buffer the perfectionism-burnout relationships.

Hypothesis 3: Parental conditional regard will buffer the perfectionism-engagement relationships and exacerbate the perfectionism-burnout relationships.

Method

Participants and procedure

Participants were 244 dancers from dance clubs and organizations across the North of England. These included 198 females and 46 males whose mean age was 15.00 years (*SD* = 2.90 years). On average, they took part in 8.11 (*SD* = 5.30) classes per week which constituted 15.41 (*SD* = 10.83) hours dancing per week. They described their main type of dance as ballet (*n* = 183), contemporary (*n* = 35), jazz (*n* = 6), street (*n* = 14), or tap (*n* = 2), with four non-respondents. They rated their involvement in dance as extremely important (*M* = 6.53, *SD* = .72, on a 7-point Likert scale) and demonstrated high levels of enjoyment regarding their participation in dance (*M* = 4.74, *SD* = .56 on a 5-point Likert scale).

Following approval by the University Research Ethics Committee (Appendix A.4), dance teachers were contacted and informed about the requirements of the study. If they agreed with the requirements, parental opt-out consent letters were administered approximately two weeks prior to the dancers participating in the study (Appendix B.5). Prior to taking part, participants were verbally informed of the purpose and requirements of the study, the voluntary nature of their participation, and their right to withdraw at any time. They were invited to participate and following their verbal assent

they completed the study instrument. The study instrument took approximately 15 minutes to complete.

Instruments

Dance Burnout. An adapted version of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) was used in the current study to assess dancers' burnout. As in previous studies in this thesis, 15 ABQ items were used to capture three 5-item subscales: reduced sense of accomplishment (e.g. 'I am not achieving much in dance'), perceived emotional and physical exhaustion (e.g. 'I feel so tired from my training that I have trouble finding the energy to do other things'); and dancers' devaluation of dance (e.g. 'The effort I spend in dance would be better spent doing other things'). The instructions ("The following items are concerned with how you feel at the moment about your dancing…") were adapted to reflect the dance context. The subscales were measured on a 5 point Likert (1 = "Almost never" to 5 = "Almost always"). Evidence has been provided to support the validity and the reliability of the subscales. This includes factor structure, internal consistency ($\alpha \geq .85$), and test-retest reliability ($r \geq .86$) (see Raedeke & Smith, 2001). Recent studies have supported the use of adapted ABQ in the dance context (e.g. Quested & Duda, 2011). In addition to the assessment of the individual subscales, total burnout was assessed by taking the mean score from the subscales.

Dance Engagement. An adapted version of the Athlete Engagement Questionnaire (AEQ; Lonsdale, et al.,, 2007) was used in the current study to assess dancers' psychological engagement in dance. As in previous studies in this thesis, 16 AEQ items were used to capture four 4-item subscales: confidence (e.g. 'I am confident in my abilities'), dedication (e.g. 'I am dedicated to achieving my goals'), vigour (e.g. 'I feel really alive'), and enthusiasm (e.g. 'I am enthusiastic'). The stem ("When I participate in dance…") was adapted to reflect the dance context. The subscales were

measured on a 5-point Likert scale (1 = almost never to 5 = almost always). Evidence has been provided which supports the validity and reliability of the scale. This includes support for the factor structure of the scale via confirmatory factor analysis, and internal consistency ($\alpha \geq .84$; Lonsdale, et al., 2007). In addition to the assessment of the individual subscales total engagement was assessed by taking the mean score from the subscales.

Sport Multidimensional Perfectionism. The Sport Multidimensional Perfectionism Scale (SMPS-2; Gotwals & Dunn, 2009) was used to assess dancers' dimensions of perfectionism. Subscales included the 7-item personal standards subscale (e.g. "I hate being less than the best at things in dance"), the 8-item concern over mistakes subscale (e.g. "If I fail in competition I feel like a failure as a person") and the 6-item doubts about actions subscale (e.g. "I usually feel unsure about the adequacy of my pre-performance practices"). The instructions ("Listed below are a number of statements that identify how dancers view certain aspects of their experiences in dance.") were adapted and appropriate amendments were made to certain items to reflect the dance context, for example the word 'sport' was changed to 'dance'. The subscales were measured on a 5-point Likert scale (1 = "Strongly disagree" to 5 = "Strongly agree"). Evidence has been provided to support the factor structure (via multiple exploratory factor analyses) and internal consistency ($\alpha \geq .74$) of the scale (see Gotwals & Dunn, 2009; Gotwals, et al., 2010).

Multidimensional Perfectionism. The Cox et al. (2002) shortened version of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (H-MPS) was used to assess self-oriented perfectionism, (e.g., "One of my goals is to be perfect in everything I do."), socially prescribed perfectionism (e.g., "People expect nothing less than perfection from me."). The instructions ("The following items are statements concerning personal characteristics that some people demonstrate when they are

participating in dance.") and the stem of the instrument were modified ("In dance…") in order to account for the potential domain specificity of perfectionism (see Dunn et al., 2005). Each subscale of the shortened H-MPS contains 5-items measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Reliability analyses have supported the internal consistency of the subscales ($\alpha \geq .79$). Confirmatory factor analyses have supported the factor structure of the shortened scales and correlations between the shortened H-MPS and original H-MPS subscales are extremely high ($rs \geq .94$) (see Cox et al., 2002).

Perceived Autonomy Support. An adapted version of The Sport Climate Questionnaire (SCQ; Deci, 2001) was used to assess dancers' perceived autonomy support as provided by dance teachers (e.g. 'I feel that my teacher provides me with choices and options). The instructions ("… Teachers have different styles in dealing with dancers, and we would like to know more about how you have felt about your encounters with your teacher…") were adapted to reflect the dance context. The SCQ contains 15 items measured on a 7-point Likert scale (1 = "Strongly disagree" to 7 = "Strongly agree"). Higher scores indicate a higher level of autonomy support. Evidence from recent studies supports the reliability of the scale. For instance, Jõesaar, Hein, and Hagger (2012) found sufficient internal consistency ($\alpha = .81$).

Parental Conditional Regard. An adapted version of the Perceived Parental Conditional Regard – Sport Domain Scale (PPCR-SD; Assor et al., 2004) was used to assess perceived mother's conditional regard (e.g. "I often feel that I will lose much of my mother's affection if I do poorly in dance.") and perceived father's conditional regard (e.g. "I often feel that my father's affection for me depends on my success in dance."). Each subscale of the PPCR-SD contains 3 items measured on a seven-point Likert scale (1 = strongly disagree to 7 strongly agree). In the current study, the subscales were combined to provide a total score for perceived parental conditional

regard. Evidence has been provided which supports the validity and reliability of the scale. For instance, exploratory factor analyses supported the structure and domain specificity of PPCR-SD, and internal consistency was found to be sufficient ($\alpha \geq .79$).

Results

Preliminary analyses and data screening

Following the procedure outlined by Tabachnick and Fidell (2007), participants with more than 5% missing data were removed from the analysis. This led to the removal of 3 participants. Out of a possible 87 items, the remaining participants had very small amounts of missing data (*M* number of missing items = 0.35, *SD* = 0.83, range 0-4). Consequently, remaining missing values were replaced using the mean of the non-missing items from the relevant subscale in each individual case (see Graham et al., 2003). The data were screened for univariate and multivariate outliers. Univariate analysis indicated 17 cases with values outside the standardized z score range (+/- 3.29 $p < .001$), which were removed from the analysis. The remaining sample were considered approximately univariate normal (absolute skewness *M* = 0.74, *SD* = 0.51, *SE* = 0.17, absolute kurtosis *M* = 0.56, *SD* = 0.83, *SE* = 0.33). Initial assessment and two follow-up assessments of Mahalanobis distance ($\chi^2_{13} = 34.53$ $p < .001$) indicated two multivariate outliers which were removed from the analysis. However, multivariate non-normality was still present following this removal (Mardia's normalized coefficient = 21.24). Consequently, analyses were conducted using bootstrapping with 1000 iterations (Hair, Black, Babin, & Anderson, 2010; Kline, 2010). Reliability analyses are displayed in Table 5.1 (Cronbach's $\alpha \geq .75$).

Descriptive analyses

The means and standard deviations displayed in Table 5.1 indicate that dancers reported moderate to high levels of perfectionistic strivings and moderate levels of

perfectionistic concerns. These findings are consistent with the study one and study two of the thesis which indicates that young performers typically score higher in perfectionistic strivings than perfectionistic concerns. The dancers reported high levels of perceived teacher autonomy support and low levels of parental conditional regard. They reported high levels of confidence, dedication, vigour and enthusiasm, low-to-moderate levels of reduced sense of accomplishment, moderate levels of exhaustion, and low levels of devaluation.

Correlational analyses

The bivariate relationships between the study variables are displayed in Table 5.1. Perfectionistic strivings were positively associated with parental conditional regard and all dimensions of engagement. In addition, perfectionistic strivings were negatively associated with devaluation. Perfectionistic concerns were also positively associated with parental conditional regard. However, in contrast to perfectionistic strivings, perfectionistic concerns were positively associated with all three burnout dimensions. Parental conditional regard shared no significant associations with the symptoms of burnout and total burnout, or with the dimensions of engagement and total engagement. Perceived teacher autonomy support was negatively associated with all three symptoms of burnout and total burnout, and positively associated with all four dimensions of engagement and total engagement.

Table 5.1. Descriptive statistics, reliability and bivariate correlations

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. PS	-												
2. PC	.40***	-											
3. PCR	.18**	.31***	-										
4. PAS	.12	-.12	-.04	-									
5. RA	-.12	.32***	.13	-.36***	-								
6. Exh	.06	.25***	.02	-.36***	.40***	-							
7. Dev.	-.26***	.14*	.03	-.34***	.54***	.34***	-						
8. TB.	-.11	.31***	.07	-.45***	.80***	.81***	.74***	-					
9. Con.	.18**	-.11	.00	.29***	-.58***	-.34***	-.37***	-.54***	-				
10. Ded.	.43***	-.09	-.03	.37***	-.49***	-.31***	-.53***	-.54***	.55***	-			
11. Vig	.21**	-.09	.07	.36***	-.45***	-.46***	-.43***	-.57***	.58***	.55***	-		
12. Ent	.23**	-.10	.02	.41***	-.53***	-.38***	-.59***	-.61***	.51***	.68***	.71***	-	
13. TE	.31***	-.12	.02	.42***	-.62***	-.44***	-.56***	-.67***	.82***	.82***	.86***	.85***	-
M	4.59	3.46	1.53	5.87	1.98	2.40	1.52	1.97	3.92	4.46	4.16	4.51	4.26
SD	.70	.68	.92	.84	.69	.90	.61	.59	.73	.55	.65	.52	.51
α	.76	.79	.91	.93	.75	.88	.74	.87	.82	.80	.83	.77	.91

Note. n = 222, PS = Perfectionistic strivings, PC = Perfectionistic concerns, PCR = Parental conditional regard, PAS = Perceived teacher autonomy support, RA = Reduced sense of accomplishment; Exh. = Exhaustion; Dev. = Devaluation; TB = Total burnout; Con. = Confidence; Ded. = Dedication; Vig. = Vigour; Ent. = Enthusiasm; TE = Total engagement. $p < .05$*, $p < .01$**, $p < .001$***

Moderated hierarchical regression analyses

Hierarchical regression analyses were conducted to examine the multivariate perfectionism-engagement and perfectionism-burnout associations, and the moderating roles of perceived autonomy support and parental conditional regard. To test for moderation, interaction terms were generated for perfectionism dimensions, perceived autonomy support and parental conditional regard and entered in 9 regression equations (one for each outcome variable). Following the recommendations of Cohen et al. (2003), interaction terms were generated by multiplying perfectionistic dimensions with perceived autonomy support, and perfectionism dimensions with parental conditional regard.

Variables were entered into the equation in the following order: At step 1, perfectionistic strivings, perfectionistic concerns, perceived autonomy support, parental conditional regard were entered. At step 2, interaction terms were entered. To demonstrate that perceived autonomy support and parental conditional regard moderated the perfectionism-engagement and perfectionism-burnout associations, interaction terms were required to be significant predictors over and above the variables entered at step 1. In line with Cohen et al. (2003) it was also examined whether the interaction terms represented enhancing, buffering or antagonistic effects. Cohen et al. (2003, pp. 285–286) indicate that moderator variables can have the following effects. Firstly moderators can be enhancing in which both the predictor and moderator affect the outcome variable in the same direction and together have a stronger than additive effect. Secondly moderators can be buffering in which the moderator variable weakens the effect of the predictor variable on the outcome. Finally moderators can be antagonistic in which the predictor and moderator have the same effect on the outcome but the interaction is in the opposite direction.

Perfectionism predicting burnout: The moderating role of parental conditional regard

In step 1 a linear combination of perfectionistic strivings, perfectionistic concerns and parental conditional regard explained 18% of the variance in a reduced sense of accomplishment, 8% of the variance in emotional and physical exhaustion, 13% of the variance in devaluation, and 16% of the variance in total burnout (see Table 5.2). Perfectionistic strivings was a significant negative predictor of a reduced sense of accomplishment, devaluation, and total burnout. In contrast, perfectionistic concerns was a significant positive predictor of a reduced sense of accomplishment, emotional and physical exhaustion, devaluation and total burnout. Parental conditional regard did not significantly predict any of the burnout symptoms or total burnout.

In step 2 additional variance was accounted for in a reduced sense of accomplishment (2%), emotional and physical exhaustion (2%), devaluation (3%) and total burnout (2%). However, the interaction between perfectionistic concerns and parental conditional regard was significant for emotional and physical exhaustion, as well as total burnout. The plotted interactions in Fig. 5.1 and Fig. 5.2 suggest that higher levels of emotional and physical exhaustion, and higher levels of total burnout are experienced when high perfectionistic concerns are accompanied by high parental conditional regard. Consequently, in line with Cohen et al. (2003), parental conditional regard has an enhancing effect on the perfectionistic concerns-emotional and physical exhaustion, and perfectionistic concerns-total burnout relationships.

Table 5.2. Moderated hierarchical regression analyses: Perfectionism and parental conditional regard predicting burnout

Criterion variable	*F*	R^2	ΔR^2	PS	PC	PCR	PS*PC	PS*PCR	PC*PCR
Reduced accomplishment									
Step 1	16.35***	.18		-.26** (.07)	.41** (.07)	.08 (.06)			
Step 2	8.89***	.20	.02	-.26** (.07)	.43** (.07)	.04 (.06)	-.13 (.08)	.02 (.09)	.11 (.08)
Exhaustion									
Step 1	5.97**	.08		-.02 (.09)	.36** (.10)	.03 (.07)			
Step 2	3.84**	.10	.02	-.01 (.09)	.37** (.10)	-.05 (.07)	.02 (.12)	-.10 (.12)	.22** (.09)
Devaluation									
Step 1	11.02***	.13		-.29** (.07)	.23*** (.06)	.06 (.05)			
Step 2	6.58***	.15	.03	-.29** (.07)	.24*** (.07)	.03 (.05)	-.12 (.07)	-.08 (.08)	.11 (.09)
Total burnout									
Step 1	13.66***	.16		-.19** (.06)	.34** (.06)	.06 (.05)			
Step 2	8.05***	.18	.02	-.19** (.06)	.35** (.06)	.01 (.05)	-.08 (.07)	-.05 (.07)	.15* (.06)

Note. n = 222. PS = perfectionistic strivings; PC = perfectionistic concerns; PCR = parental conditional regard. Unstandardized regression coefficients with standard errors in parentheses. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2. ***p < .001, **p < .01, *p < .05.

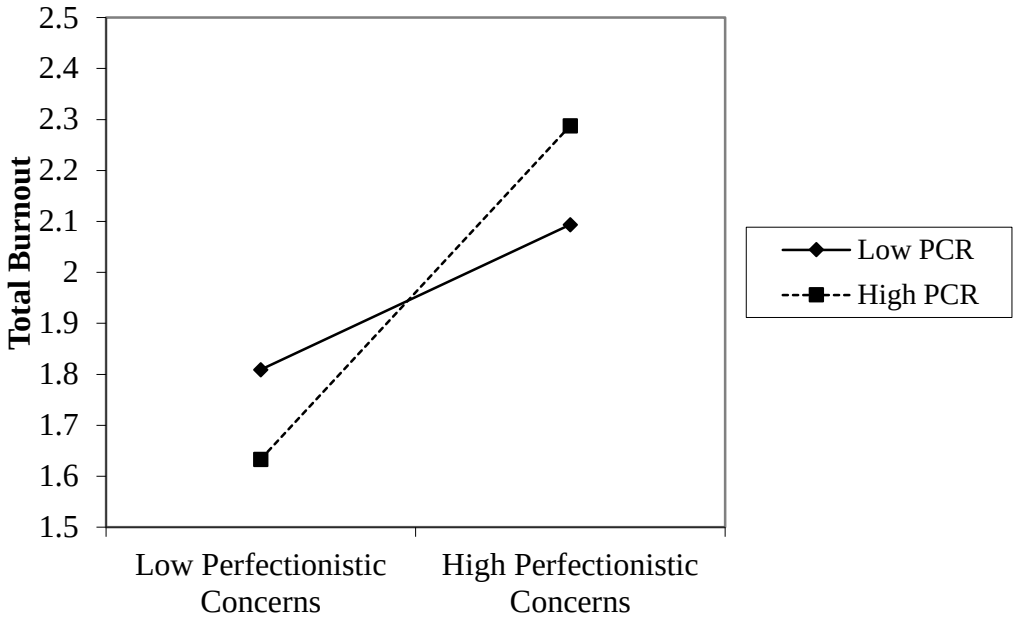

Fig. 5.1. The relationship between perfectionistic concerns and burnout as a function of parental conditional regard (PCR)

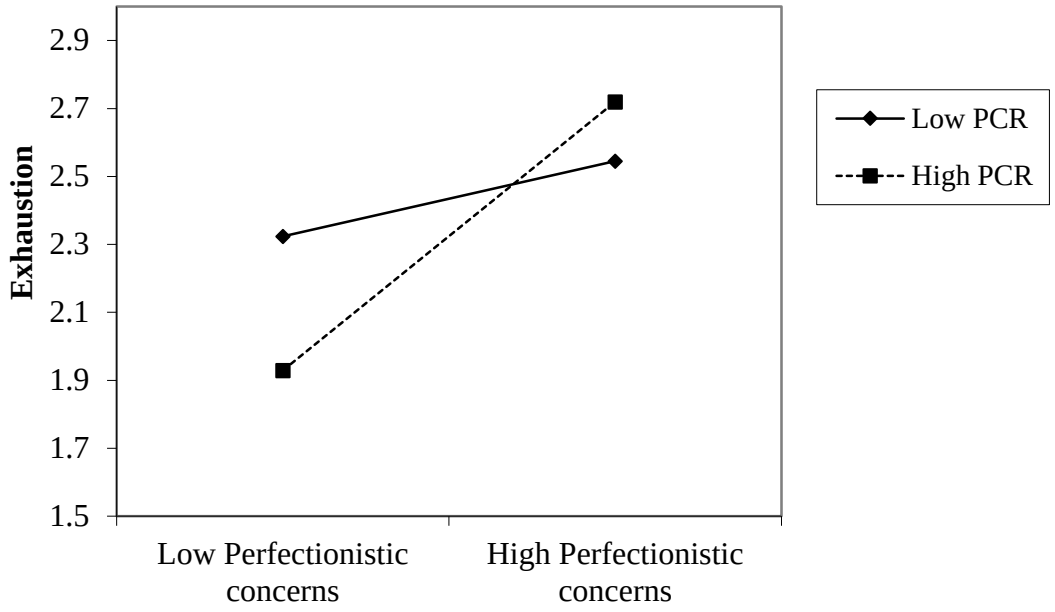

Fig. 5.2. The relationship between perfectionistic concerns and exhaustion as a function of parental conditional regard (PCR)

Perfectionism predicting engagement: The moderating role of parental conditional regard

In step 1 a linear combination of perfectionistic strivings, perfectionistic concerns, and parental conditional regard explained 9% of the variance in confidence, 27% of the variance in dedication, 8% of the variance in vigour, 11% of the variance in enthusiasm, and 17% of the variance in total engagement (see Table 5.3). Perfectionistic strivings was a significant positive predictor of confidence, dedication, vigour, enthusiasm, and total engagement. In contrast, perfectionistic concerns was a significant negative predictor of confidence, dedication, vigour, enthusiasm, and total engagement. Parental conditional regard did not significantly predict any engagement dimensions or total engagement.

In step 2 additional variance was accounted for in confidence (3%), dedication (2%), vigour (1%), enthusiasm (3%), and total engagement (2%). The interactions between perfectionistic strivings and perfectionistic concerns were significant for confidence and dedication. The plotted interactions in Fig. 5.3 and Fig. 5.4 suggest that higher levels of confidence and higher levels of dedication are experienced when low perfectionistic concerns are accompanied by high perfectionistic strivings. Consequently, in line with Cohen et al. (2003), perfectionistic concerns have a buffering effect on the perfectionistic strivings-confidence and the perfectionistic-strivings-dedication relationships.

Table 5.3 Moderated hierarchical regression analyses: Perfectionism and parental conditional regard predicting engagement

Criterion variable	*F*	R^2	ΔR^2	PS	PC	PCR	PS*PC	PS*PCR	PC*PCR
Confidence									
Step 1	7.35***	.09		.30** (.08)	-.25** (.08)	-.05 (.06)			
Step 2	4.78***	.12	.03	.31** (.08)	-.26** (.08)	-.06 (.07)	.20* (.10)	.05 (.10)	.03 (.11)
Dedication									
Step 1	26.69***	.27		.43** (.05)	-.22** (.05)	-.06 (.04)			
Step 2	14.41***	.27	.02	.44** (.05)	-.23** (.05)	-.06 (.04)	.13* (.05)	.04 (.05)	-.01 (.05)
Vigour									
Step 1	6.44***	.08		.26** (.07)	-.22** (.07)	.03 (.05)			
Step 2	3.46**	.09	.01	.26** (.07)	-.23** (.08)	.05 (.05)	.10 (.10)	.00 (.07)	-.04 (.08)
Enthusiasm									
Step 1	9.27***	.11		.25** (.06)	-.18** (.05)	-.03 (.05)			
Step 2	5.59***	.14	.03	.26** (.06)	-.19** (.05)	-.01 (.05)	.03 (.07)	.11 (.07)	-.07 (.06)
Total engagement									
Step 1	15.16***	.17		.31** (.05)	-.22** (.05)	-.03 (.04)			
Step 2	8.54***	.19	.02	.32** (.05)	-.23** (.05)	-.02 (.04)	.12 (.07)	.05 (.06)	-.02 (.07)

Note. n = 219. PS = perfectionistic strivings; PC = perfectionistic concerns; PCR = parental conditional regard. Unstandardized regression coefficients with standard errors in parentheses. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2. ***p < .001, **p < .01, *p < .05.

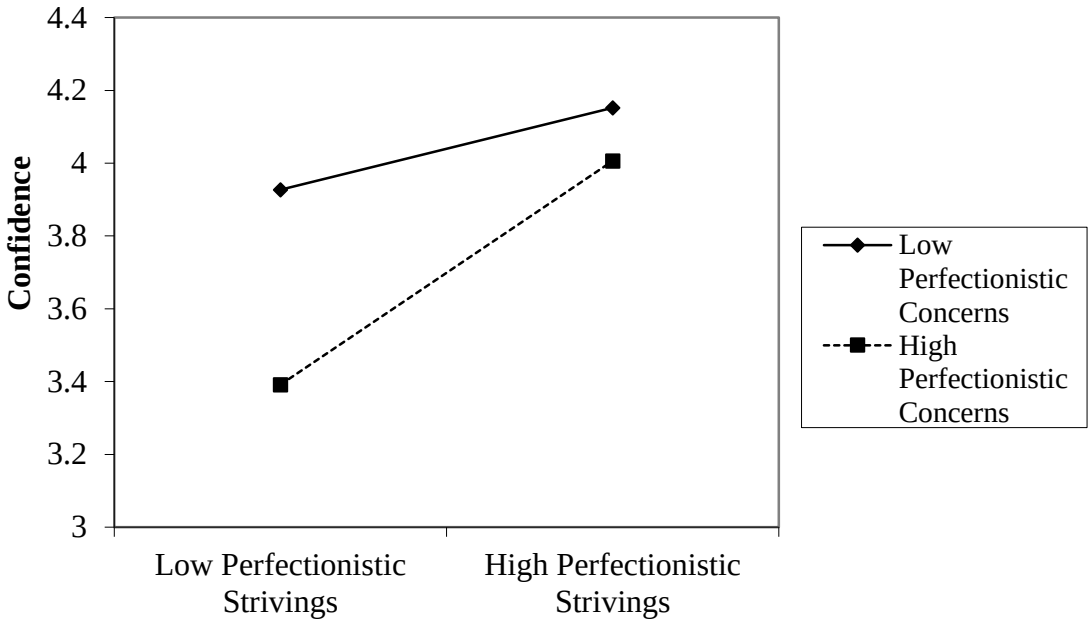

Fig. 5.3. The relationship between perfectionistic strivings and confidence as a function of perfectionistic concerns

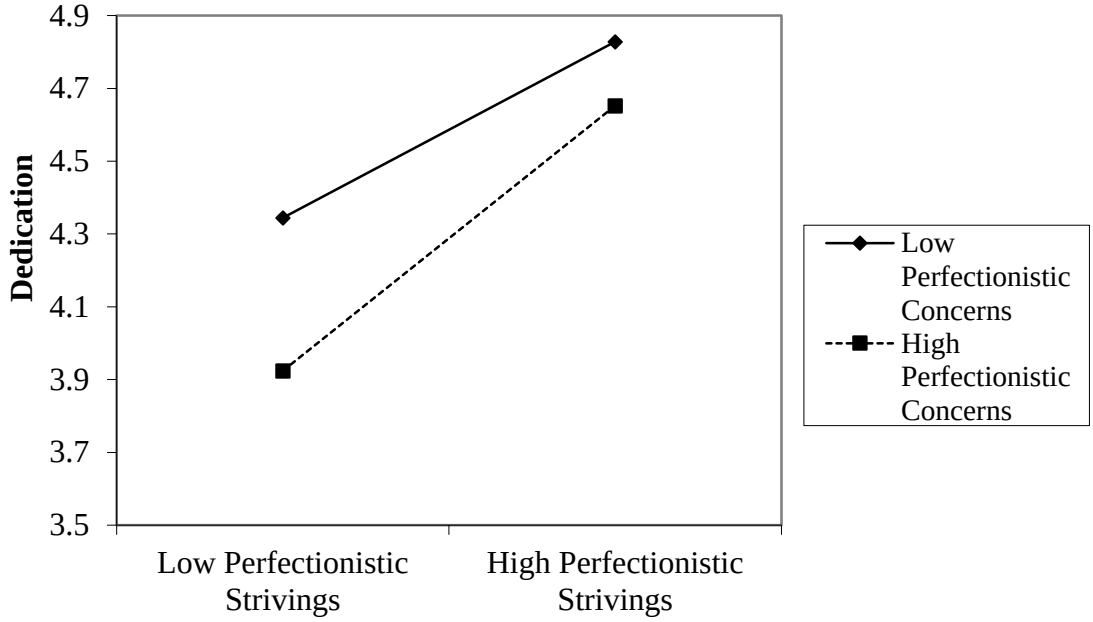

Fig. 5.4. The relationship between perfectionistic strivings and dedication as a function of perfectionistic concerns

Perfectionism predicting burnout: The moderating role of perceived teacher autonomy support

In step 1 a linear combination of perfectionistic strivings, perfectionistic concerns, and perceived teacher autonomy support explained 27% of the variance in a reduced sense of accomplishment, 19% of the variance in emotional and physical exhaustion, 20% of the variance in devaluation, and 31% in total burnout (see Table 5.4). Perfectionistic strivings was a significant negative predictor of a reduced sense of accomplishment, devaluation and total burnout. In contrast, perfectionistic concerns was a significant positive predictor of a reduced sense of accomplishment, emotional and physical exhaustion, devaluation and total burnout. Perceived autonomy support was a significant positive predictor of a reduced sense of accomplishment, emotional and physical exhaustion, devaluation and total burnout.

In step 2 additional variance was accounted for in a reduced sense of accomplishment (1%), emotional and physical exhaustion (1%), devaluation (3%) and total burnout (1%). However, none of the interaction terms between perfectionistic strivings, perfectionistic concerns, and perceived teacher autonomy support were significant.

Table 5.4. Moderated hierarchical regression analyses: Perfectionism and perceived teacher autonomy support predicting burnout

Criterion variable	*F*	R^2	ΔR^2	PS	PC	PAS	PS*PC	PS*PAS	PC*PAS
Reduced accomplishment									
Step 1	27.35***	.27		-.20** (.06)	.38** (.06)	-.27** (.05)			
Step 2	13.91***	.28	.01	-.20** (.07)	.38** (.06)	-.26** (.05)	-.07 (.08)	.02 (.09)	-.05 (.06)
Exhaustion									
Step 1	17.47***	.19		.07 (.09)	.27** (.09)	-.38** (.06)			
Step 2	8.71***	.20	.01	.07 (.09)	.26** (.09)	-.38** (.06)	.06 (.12)	-.01 (.11)	-.05 (.11)
Devaluation									
Step 1	18.31***	.20		-.24** (.07)	.20** (.06)	-.22** (.05)			
Step 2	10.42***	.23	.03	-.24** (.07)	.20** (.06)	-.21** (.05)	-.08 (.08)	.02 (.09)	-.13 (.09)
Total burnout									
Step 1	33.00***	.31		-.12* (.06)	.28** (.05)	-.29** (.05)			
Step 2	16.91***	.32	.01	-.12* (.06)	.28** (.05)	-.29** (.04)	-.03 (.07)	.01 (.08)	-.08 (.07)

Note. n = 219. PS = perfectionistic strivings; PC = perfectionistic concerns; PAS = perceived teacher autonomy support. Unstandardized regression coefficients with standard errors in parentheses. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2. ***$p < .001$, **$p < .01$, *$p < .05$.

Perfectionism predicting engagement: The moderating role of perceived teacher autonomy support

In step 1 a linear combination of perfectionistic strivings, perfectionistic concerns, and perceived teacher autonomy support explained 15% of the variance in confidence, 34% of the variance in dedication, 18% of the variance in vigour, 25% of the variance in enthusiasm, and 30% of the variance in total engagement (see Table 5.5). Perfectionistic strivings and perceived teacher autonomy support were significant positive predictors of confidence, dedication, vigour, enthusiasm, and total engagement. In contrast, perfectionistic concerns was a significant negative predictor of confidence, dedication, enthusiasm and total engagement.

In step 2 additional variance was explained in confidence (3%), dedication (3%), vigour (1%), enthusiasm (1%), and total engagement (2%). However, none of the interactions between perfectionistic strivings, perfectionistic concerns, and perceived teacher autonomy support were significant.

Table 5.5. Moderated hierarchical regression analyses: Perfectionism and perceived teacher autonomy support predicting engagement

Criterion variable	*F*	R^2	ΔR^2	PS	PC	PAS	PS*PC	PS*PAS	PC*PAS
Confidence									
Step 1	12.82***	.15		.25** (.08)	-.21** (.08)	.22** (.06)			
Step 2	7.86***	.18	.03	.24** (.08)	-.22** (.08)	.22** (.06)	.16 (.10)	.04 (.11)	.10 (.10)
Dedication									
Step 1	38.00***	.34		.38** (.05)	-.19** (.05)	.20** (.04)			
Step 2	20.67***	.37	.03	.39** (.05)	-.19** (.05)	.19** (.04)	.11 (.06)	-.07 (.06)	.09 (.06)
Vigour									
Step 1	16.03***	.18		.21** (.06)	-.14 (.07)	.25** (.06)			
Step 2	8.12***	.19	.01	.20** (.07)	-.14* (.07)	.25** (.06)	.06 (.10)	.03 (.10)	.01 (.08)
Enthusiasm									
Step 1	24.04***	.25		.19** (.05)	-.13* (.05)	.24** (.04)			
Step 2	12.59***	.26	.01	.20** (.06)	-.13* (.05)	.23** (.04)	.04 (07)	-.09 (.09)	.07 (.06)
Total engagement									
Step 1	31.26***	.30		.26** (.05)	-.17** (.05)	.23** (.04)			
Step 2	16.76***	.32	.02	.26** (.05)	-.17** (.05)	.22** (.04)	.09 (.07)	-.02 (.07)	.07 (.06)

Note. n = 222. PS = perfectionistic strivings; PC = perfectionistic concerns; PAS = perceived teacher autonomy support. Unstandardized regression coefficients with standard errors in parentheses. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2. ***$p < .001$, **$p < .01$, *$p < .001$

Discussion

The fourth study of the thesis had two purposes. The first purpose was to examine whether the perfectionism-burnout and perfectionism-engagement relationships in dance were equivalent to those demonstrated in study one and study two of the thesis and in recent sport research. The second purpose was to extend the existing perfectionism literature in sport and dance by examining potential moderators of the perfectionism-burnout and perfectionism-engagement relationships, namely perceived teacher autonomy support and parental conditional regard. It was hypothesized that perfectionistic concerns would positively predict burnout and negatively predict engagement. In contrast, it was hypothesized that perfectionistic strivings would positively predict engagement and negatively predict burnout. In addition, it was hypothesized that perceived autonomy support would enhance the perfectionism-engagement relationships and buffer the perfectionism-burnout relationships. In contrast, it was hypothesized that parental conditional regard would buffer the perfectionism-engagement relationships and enhance the perfectionism-burnout relationships.

The findings provided support for the hypotheses pertaining to the perfectionism-engagement and perfectionism-burnout relationships. Partial support was found for the maladaptive moderating role of parental conditional regard, specifically on the relationships between perfectionistic concerns and burnout. Contrary to expectations, while perceived autonomy support was a positive predictor of engagement and a negative predictor of burnout, the findings failed to support the moderating role of perceived autonomy support. An additional finding suggested that perfectionistic strivings may moderate the relationships between perfectionistic concerns and certain dimensions of engagement.

Multidimensional perfectionism predicting engagement and burnout in youth dance

As expected, perfectionistic concerns negatively predicted confidence, dedication, vigour and enthusiasm as well as total engagement, and positively predicted a reduced sense of accomplishment, emotional and physical exhaustion, and devaluation as well as total burnout. These findings are consistent with the previous studies outlined in this thesis which have examined the associations between the broad perfectionistic concerns dimension, athlete engagement and athlete burnout in youth sport. Similarly, the findings are also consistent with recent research in sport which has examined the relationships between individual dimensions of perfectionistic concerns and athlete burnout (e.g. Hill et al., 2008). Furthermore, they provide partial support to those studies conducted in dance which have found a link between individual dimensions of perfectionistic concerns and other maladaptive outcomes, such as anxiety, worry and reduced goal satisfaction (Carr & Wyon, 2003; Mor et al., 1995). Therefore, it appears that youth dancers as well as youth athletes who harbour dispositional perfectionistic concerns are vulnerable to a range of ill-being outcomes including the symptoms of burnout, as well as reduced well-being in the form of lower levels of engagement.

Also in line with expectations, perfectionistic strivings positively predicted all four engagement dimensions as well as total engagement, and negatively predicted total burnout as well as burnout dimensions, with the exception of emotional and physical exhaustion. These findings are consistent with the previous studies outlined in this thesis which have found similar patterns of associations between perfectionistic strivings, engagement and burnout in youth sport. Similarly the findings are consistent with previous studies which have found a negative direct association between individual dimensions of perfectionistic strivings and athlete burnout (e.g. Hill et al., 2008). Conversely, the current findings appear to contrast previous studies in dance which have found positive associations between individual dimensions of perfectionistic strivings

and maladaptive outcomes including anxiety, worry and low levels of goal satisfaction (Mor et al., 1995; Carr & Wyon, 2003). These contrasting findings might have been due in part to the different samples used in previous studies and the current study. For example, it may have been the case that in relation to the current dance student sample, the professional dancers in the Mor et al. (1995) study were exposed to a more rigid, perfection focused environment, similar to that described by Hamilton (1997) and Mainwaring (2009) which rendered dancers vulnerable to anxiety. However, this doesn't explain the contrast between the findings in the current study compared with those found in a similar sample by Carr and Wyon (2003). Alternatively perhaps the inconsistent findings support the notion of perfectionistic strivings as a vulnerability factor which only leads to negative outcomes under specific circumstances, for example, when goal progress is continually thwarted (Flett & Hewitt, 2005). This appears to be the case in the sport environment where perfectionistic strivings and individual sub-dimensions of perfectionistic strivings have shared ambiguous relationships with both adaptive and maladaptive outcomes (see Gotwals et al., 2012 for a review). Consequently, further research is required in order to fully understand the conditions in which perfectionistic strivings leads to positive and detrimental outcomes in dance.

The interactions between perfectionistic strivings and perfectionistic concerns

Significant interactions emerged between perfectionistic strivings and perfectionistic concerns for the confidence and dedication dimensions of engagement. These findings weren't initially hypothesised but are nonetheless intriguing. They suggest that dancers will experience the highest levels of confidence and dedication when high levels of perfectionistic strivings are accompanied by low levels of perfectionistic concerns. Consequently, the findings add support to the growing body of evidence which suggests that perfectionistic strivings are more problematic in

combination with perfectionistic concerns, but may be relatively more adaptive when considered independently from perfectionistic concerns (Gotwals et al., 2012; Stoeber & Otto, 2006).

The moderating role of parental conditional regard

There was a significant interaction between parental conditional regard and perfectionistic concerns in relation to emotional and physical exhaustion and total burnout. These interactions suggest that dancers experience the highest levels of emotional and physical exhaustion and total burnout when perfectionistic concerns are accompanied by parental conditional regard. In these circumstances it appears that when parents only provide recognition, love and affection when their child displays desirable behaviour, this heightens the child's perception that harsh criticism ensues when standards aren't met, and contributes to their perceived performance inadequacies and rigid focus on mistakes described by Flett and Hewitt (2005). Parental conditional regard is therefore likely to be particularly problematic for dancers with higher levels of perfectionistic concerns. Equally, the findings suggest that reducing levels of parental conditional regard offers a potential management strategy for controlling the association between perfectionistic concerns and burnout.

The negative combined influence of perfectionistic concerns and parental conditional regard appears to be particularly salient in terms of the psychological and physiological symptom of burnout, emotional and physical exhaustion, and perhaps less so in terms of reduced sense of accomplishment and devaluation. It might be speculated that struggling to meet the psychological and physical demands of practice and performance represents an early manifestation of the wider burnout condition, which may go on to deteriorate further.

The moderating role of perceived teacher autonomy support

Contrary to expectations, perceived teacher autonomy support failed to moderate any of the perfectionism-engagement or perfectionism-burnout relationships. Nonetheless, perceived teacher autonomy support was found to be a significant positive predictor of all four engagement dimensions and total engagement, independent of perfectionistic concerns and perfectionistic strivings. In addition, perceived teacher autonomy support was found to be a significant negative predictor of the three burnout symptoms, as well as total burnout, independent of perfectionism. This is consistent with previous research which has found a link between perceived autonomy support and other adaptive well-being outcomes in sport and dance (e.g. Adie et al., 2012; Balaguer et al., 2011). Consequently, it appears that perceived teacher autonomy support may have a positive influence on well-being but may not directly buffer the perfectionistic concerns-burnout relationship or directly enhance the perfectionistic strivings-engagement relationship.

However, perceived teacher autonomy support may have an indirect positive impact on perfectionistic individuals. Specifically, perceived autonomy support could have a positive indirect influence on perfectionism via its impact on the third order variables which explain the perfectionism-engagement and perfectionism-burnout associations. For example, perceived autonomy support has been found to be positively associated with basic psychological needs, problem-focused coping, as well as being negatively associated with controlled patterns of motivation (Adie et al., 2012).

In addition, while this study provides a cross-sectional indication of the adaptive nature of perceived autonomy support, longitudinal research may uncover greater variability in perceived autonomy support allowing for a more informed appraisal of its impact on youth performers with perfectionistic tendencies in sport, dance and other achievement focused domains. This is particularly relevant in light of recent research

which suggests that other components of the psychological climate (e.g. ego-involving climate) increase during traditionally demanding periods of the dance calendar, which leads to negative outcomes such as heightened anxiety (Nordin-Bates, Quested, Redding, Walker, 2012).

Limitations and future research directions

The fourth study of the thesis must be appraised in light of its limitations. The cross-sectional nature of the study means that causal inferences cannot be made. For example, while it could be speculated that perfectionistic tendencies may have developed in part due to parental conditional regard, the temporal precedence of the association between perfectionism and parental conditional regard cannot be ascertained from the current findings. Establishing, temporal precedence represents an important goal for future perfectionism research because it will help to establish targets for effective intervention.

Significant interactions were found between perfectionistic concerns and perfectionistic strivings, and between perfectionistic concerns and parental conditional regard. However, these findings must be interpreted with some caution because they did not predict variance over and above the main effects in their respective regression models. Difficulties in finding support for moderation hypotheses in non-experimental research are not uncommon, even notorious (McClelland & Judd, 1993). Other recent studies examining potential moderators of the perfectionism-burnout relationship in youth sport have been unsupportive (Appleton et al., 2009).

Difficulties in finding support for moderation hypotheses stem from the somewhat inevitable reductions in power which occur in non-experimental research. Specifically, power is reduced due to unreliability being magnified when interaction terms are created (Aiken & West, 1991), and from a lack of variability in proposed moderators. In this study, variability was limited in perceived teacher autonomy support

and perceived parental conditional regard and this may explain, in part, the lack of moderation. This limitation highlights the need to seek samples with greater heterogeneity in proposed moderators. Greater variability might also be unlocked in future studies by employing experimental designs. Experimental designs also have the added advantage of reducing the noise emanating from confounding variables that is not controlled for in non-experimental designs (McClelland & Judd, 1993).

Conclusions

In line with studies investigating youth athletes, perfectionism appears to share important associations with burnout and engagement in youth dancers. Perfectionistic concerns have a broadly detrimental impact. In contrast, it appears that perfectionistic strivings may reduce dancers' risk of burnout. Moreover, perfectionistic strivings appear to energize engagement, particularly when accompanied by low levels of perfectionistic concerns. It may still be the case that perfectionistic strivings represent a vulnerability factor but perhaps this vulnerability can be reduced by attenuating perfectionistic concerns.

Greater vulnerability appears to stem from the interaction between perfectionistic concerns and parental conditional regard. It appears that parents may exacerbate the negative influence of perfectionism if they only provide love and acceptance when their children conduct desired behaviours in dance. Finally, if dance teachers are able to create an autonomy supportive climate for their dancers this appears to have a positive influence on engagement and in reducing dancers' risk of burnout. However, autonomy support alone may not be enough to negate the maladaptive influence of perfectionistic concerns.

Chapter 6 - General Discussion

Purpose of the thesis

There is an ongoing debate regarding whether perfectionism is a fundamentally debilitating personality disposition or one that can be adaptive (Hall et al., 2012). Recently, researchers have suggested that further understanding regarding the precise nature of perfectionism in sport will be gained by examining the influence of two broad dimensions of perfectionism; perfectionistic concerns and perfectionistic strivings (Gotwals et al., 2012; Stoeber, 2011). However, while several studies have examined the individual sub-dimensions of perfectionistic concerns and perfectionistic strivings, few have examined the two broad dimensions as composite variables. Consequently, identifying the way in which the broad perfectionistic concerns and perfectionistic strivings dimensions are associated with psychological outcomes in youth athletes was the first purpose of this thesis.

In addition, recent research has also begun to uncover potential links between multidimensional perfectionism and the components of self-determination theory in youth athletes (Appleton & Hill, 2012; Gaudreau & Antl, 2008; Mallinson & Hill, 2011). Together this research suggests that perfectionistic concerns and perfectionistic strivings may impact motivational quality, and that this may explain the divergent outcomes of perfectionism in youth athletes. However, this line of research is its infancy meaning that only tentative conclusions can be made regarding the links between perfectionism and motivational quality and subsequent psychological outcomes. Therefore, the second purpose of this thesis was to build on this research by further establishing the links between perfectionism and self-determination theory and examining whether tenets of self-determination theory (i.e. indicators of high and low quality motivation) mediated or moderated the perfectionism-burnout and perfectionism-engagement associations.

Summary of the findings

The first study examined whether motivational regulation could explain the perfectionism-athlete burnout relationships. The findings from this study suggested a positive relationship between perfectionistic concerns and athlete burnout and that controlled motivation partially explained this relationship. In contrast, there was a negative relationship between perfectionistic strivings and burnout which was partially explained by autonomous motivation. These findings posed questions regarding whether this inverse association would extend to a positive association between perfectionistic strivings and adaptive cognitive-affective outcomes. Consequently, study two examined whether basic psychological needs could explain the perfectionism-athlete engagement relationships, as well as the perfectionism-burnout relationships. The findings suggested that the divergent perfectionistic concerns-burnout-engagement and perfectionistic strivings-burnout-engagement associations were explained by basic psychological needs satisfaction and thwarting. Together, the first two studies outlined the cross-sectional relationships between perfectionism and psychological outcomes; however, there was a need to examine how perfectionism was associated with psychological outcomes over time, specifically on a day-to-day basis. Therefore, study three examined the relationships between perfectionism and daily fluctuations in and levels of pride, shame and guilt in junior cricketers while on tour, and whether pride, shame and guilt were associated with athlete engagement and athlete burnout. The findings suggested that perfectionistic concerns contributed to greater daily fluctuations in pride, shame and guilt, as well as lower levels of pride and higher levels of shame and guilt. In contrast, perfectionistic strivings did not appear to be associated with emotional fluctuations or levels of pride, shame and guilt. Moreover, emotional fluctuations and levels of pride, shame and guilt did not appear to be associated with engagement or burnout. Following the understanding gained regarding the associations

that perfectionistic concerns and perfectionistic strivings share with psychological outcomes cross-sectionally and over time, study four aimed to establish whether psychological climates act as moderators of the perfectionism-engagement and perfectionism-burnout relationships. The findings from youth dancers suggested some support for parental conditional regard as a moderator of the perfectionistic concerns-burnout relationship. Specifically, the relationship between perfectionistic concerns and athlete burnout was strengthened by higher levels of perceived parental conditional regard. In addition it appears that perfectionistic concerns moderate the relationship between perfectionistic strivings and dimensions of athlete engagement. Specifically, the associations between perfectionistic strivings and confidence and between perfectionistic strivings and dedication were weakened by perfectionistic concerns.

The role of perfectionistic concerns and perfectionistic strivings

From the four studies outlined in the thesis it is clear that perfectionistic concerns and perfectionistic strivings play a key role in the psychological outcomes of youth athletes. Perfectionistic concerns encapsulate heightened concern over mistakes, chronic doubts about actions and the perception that social approval can only be gained by meeting the exacting standards set by significant others. Researchers are in agreement that perfectionistic concerns are solely maladaptive, because they are consistently linked to detrimental cognition, affect and behaviour (Hall, 2006; Stoeber, 2011).

The findings from the thesis support this position. Across the four studies perfectionistic concerns demonstrated consistent links with maladaptive psychological outcomes including controlled motivation, basic psychological need thwarting, shame, guilt, emotional instability and athlete burnout. Consequently this work replicates the studies which have found similar associations between perfectionistic concerns and controlled motivation, and between perfectionistic concerns and basic psychological

need thwarting (Gaudreau & Antl, 2008; Mallinson & Hill, 2011). This thesis also extends previous research which has examined the links between perfectionism and athlete burnout (e.g. Hill et al., 2008; Hill et al., 2010a; Hill, Hall, Appleton, & Murray, 2010; Appleton et al., 2009) and other maladaptive psychological outcomes in sport such as anxiety (Frost & Henderson, 1991; Hall et al., 1998). Specifically, the current findings demonstrate that the detrimental nature of the individual sub-dimensions of perfectionistic concerns is also reflected in the broad perfectionistic concerns dimension. Therefore, athletes, coaches and sport practitioners should be offered strategies designed to mitigate the negative impact of perfectionistic concerns.

In contrast, perfectionistic strivings encapsulate the pursuit of self-set standards and harsh self-criticism when those standards aren't met. Researchers have argued that this broad dimension of perfectionism is more motivationally complex than perfectionistic concerns, and might even be adaptive (Gotwals et al., 2012; Stoeber & Otto, 2006). At first glance the findings from the thesis appear to support this position. Perfectionistic strivings tended to share inverse associations with maladaptive outcomes such as basic psychological need thwarting and athlete burnout. Moreover perfectionistic strivings tended to share positive associations with adaptive outcomes such as autonomous motivation, basic psychological needs satisfaction and athlete engagement. This more adaptive profile of perfectionistic strivings was particularly evident when the associations between perfectionistic concerns and perfectionistic strivings was controlled. For instance, when examining the bivariate associations in study one, the bivariate association between perfectionistic strivings and controlled motivation was positive and significant. However, when the association between perfectionistic strivings and perfectionistic concerns was controlled in the structural model, the association between perfectionistic strivings and controlled motivation was negative and non-significant. This provides empirical support for the assertions by

Stoeber et al. (Stoeber, 2011; Stoeber & Otto, 2006) that perfectionistic strivings can be adaptive when isolated from perfectionistic concerns. However, given that perfectionistic strivings and perfectionistic concerns demonstrate consistently high positive correlations, questions remain regarding whether the statistical separation of these two broad perfectionism dimensions has real world value. Moreover, Hall et al. (2012) have argued that when considered in isolation perfectionistic strivings no longer reflects perfectionism but instead simply represents adaptive achievement striving. Therefore, researchers might stop short of advocating strategies which encourage perfectionistic strivings as this may also have the unwanted side effect of heightening perfectionistic concerns.

Researchers have recently tried to address this by adopting a group-based approach to perfectionism in the tripartite (Rice & Ashby, 2007) and 2 x 2 models of perfectionism (Gaudreau & Thompson, 2010). This approach allows researchers to examine differences in psychological outcomes based on different profiles of perfectionism (e.g. high perfectionistic strivings/low perfectionistic concerns vs. low perfectionistic strivings/high perfectionistic concerns). Researchers have found support for the hypotheses that these different types of perfectionists exist (e.g. Gaudreau & Verner-Fillion, 2012; Cumming & Duda, 2012).

However, there are limitations to this group-based approach. For example, these perfectionistic profiles are sample specific. Therefore, difficulties arise in making reliable comparisons between the high vs. low perfectionism profiles from one study to another. In addition, Stoeber (2012) has questioned the 2 x 2 model in regards to its lack of parsimony and the way in which it encourages the interpretation of non-significant findings. Furthermore, adopting a group based approach is not without controversy given that it is based on scales which are not diagnostic tools.

The role of self-determination theory in multidimensional perfectionism

The findings of this thesis clearly demonstrate that self-determination theory is valuable in helping to explain the role of perfectionistic concerns and perfectionistic strivings in youth sport and dance. According to self-determination theory, athletes are more likely to experience well-being when their motivational regulation is autonomous as opposed to controlled. Athletes' motivation will be more autonomous when they perceive their basic psychological needs are being satisfied as opposed to thwarted. In turn, the psychological climate will determine the extent to which athletes perceive their basic psychological needs are being satisfied or thwarted (Deci & Ryan, 2000). This proposed theoretical model was supported across the findings of this thesis. For example, autonomous motivation was associated with lower levels of athlete burnout while controlled motivation was associated with higher levels of burnout.

It also appears that each component of self-determination theory reveals something about the relationships between perfectionism and psychological outcomes in youth athletes. The first component identified was motivational regulation. Previous research had outlined links between the self-oriented perfectionism indicator of perfectionistic strivings and autonomous motivation in college students and school children (Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Van Yperen, 2006). Extending this work in the athletic domain, Gaudreau and Antl (2008) demonstrated that autonomous and controlled motivation were partial mediators which could help to explain the relationships between broad dimensions of perfectionism and coping, goal attainment and life-satisfaction outcomes. In addition, Appleton and Hill (2012) demonstrated that individual motivational regulations mediated the associations between the Hewitt and Flett (1991) model of perfectionism and athlete burnout. The first study in this thesis extended this previous research by indicating that autonomous motivation and controlled motivation also partially explained the associations between

perfectionism and burnout. Specifically perfectionistic concerns appeared to elicit a controlled pattern of motivation which increased athletes' risk of burnout. In contrast, perfectionistic strivings, when considered independent of perfectionistic concerns, appeared to elicit an autonomous pattern of motivation which reduced athletes' risk of burnout. Therefore, the findings from the first study in this thesis highlight the importance of motivational regulation in understanding the perfectionism- athlete burnout relationships.

Study three in this thesis also highlights the associations between perfectionism and motivational regulation, albeit indirectly. Specifically it appears that perfectionistic concerns is associated with lower levels of pride and higher levels of shame and guilt. This is interesting as these emotions are central to introjected regulation. Introjected regulation reflects participating in behaviour in order to pursue pride, confirm self-worth and to avoid shame and guilt (Vallerand, 2001). Previous studies have indicated an association between the socially prescribed indicator perfectionistic concerns and introjected regulation (Appleton & Hill, 2012). Therefore, it appears that athletes who harbour perfectionistic concerns may encounter a downward spiral of introjection and self-conscious emotions. Due to their perfectionistic concerns these athletes are drawn to participating in sport in order to try to boost feelings of pride and self-worth, and to avoid shame and guilt. However, via their participation they experience lower levels of pride and self-worth and higher levels of shame and guilt due to their failure to meet others' expectations and heightened concern over making mistakes. Subsequently, they are motivated to try and restore pride and escape shame and guilt only to fall short again, and so the spiral continues.

Self-determination theory posits that motivational regulation is determined by basic psychological needs. Therefore, study two of this thesis examined whether basic psychological needs satisfaction and thwarting could explain the perfectionism-

engagement and perfectionism-burnout relationships in youth athletes. It was clear from historical theorising on perfectionism there may be a link between perfectionism and basic psychological needs. For example, early work on perfectionism proposed the way in which the preoccupation with striving for perfection could undermine personal control, lead to perceived incompetence and cause difficulties in interpersonal relationships (Horney, 1950). Hewitt and Flett (1991) expanded this by proposing a link between the socially prescribed perfectionism indicator of perfectionistic concerns and a lack of personal control (i.e. low autonomy) and perceived failure (i.e. low competence). In contrast, they proposed a link between the self-oriented perfectionism indicator of perfectionistic strivings and self-directed behaviour (i.e. high autonomy). Similarly, Frost and Henderson (1991) proposed a link between the concern over mistakes indicator of perfectionistic concerns and perceived failure (i.e. low competence) and between the personal standards indicator of perfectionistic strivings and perceived accomplishment (i.e. high competence).

More recently, researchers had found direct empirical support for the links between perfectionistic concerns and basic psychological need thwarting (Mallinson & Hill, 2011). However, Mallinson and Hill also found an unexpected positive association between perfectionistic strivings and basic psychological need thwarting. Therefore, clarity was required regarding the associations between perfectionism and basic psychological needs. Study two of this thesis replicated the positive association between perfectionistic concerns and basic psychological need thwarting but demonstrated an inverse association between perfectionistic strivings and basic psychological need thwarting. This may be explained by the presence of other oriented perfectionism in the Mallinson and Hill (2011) study and the absence of this sub-dimension in study two. Other oriented perfectionism could for instance contribute to increased relatedness thwarting when an athlete feels others are not able to meet their own high standards.

The findings from study two also extend the research by Mallinson and Hill (2011) by indicating the mediating role of basic psychological needs in the perfectionism-engagement and perfectionism-burnout associations. Specifically, the inverse perfectionistic concerns-engagement and the positive perfectionistic concerns-burnout relationships were explained by higher levels of basic psychological need thwarting and lower levels of basic psychological needs satisfaction. In contrast, the positive perfectionistic strivings-engagement and the inverse perfectionistic strivings-burnout relationships were explained by heightened basic psychological needs satisfaction and low levels of basic psychological need thwarting.

The third component of self-determination theory to be examined was the psychological climates created by teachers and parents. It's previously been argued that teachers and parents are integral to the way in which athletes perceive their experiences (Reinboth & Duda, 2006). Moreover, Flett and Hewitt (2005) proposed that the interaction between the psychological environment and perfectionism is central in shaping athletes' experiences (Flett & Hewitt, 2005). Links between perfectionism, parental psychological control and depression had been found previously in Belgian students (Soenenset al. 2005). However, no research had examined whether the associated construct of parental conditional regard, moderated the perfectionism-burnout or the perfectionism-engagement relationships in dancers. Similarly, researchers had proposed that autonomy support might mitigate the negative influence of perfectionism (Hall et al., 2012) but there was a dearth of empirical research examining the associations between perfectionism and autonomy support. Consequently, while no support was found for autonomy support as a moderator, the findings from study four of this thesis advanced previous research in sport and dance by demonstrating that parental conditional regard exacerbated the relationships between perfectionistic concerns and ill-being in youth dancers.

Future research directions

Hierarchical model of self-determined motivation

The findings of this thesis clearly suggest that self-determination theory is valuable in understanding the perfectionism-engagement and perfectionism-burnout relationships in youth sport and dance.. Consequently, a potentially useful direction for future research would be to further extend this understanding by adopting a more nuanced approach to self-determination. A theoretical model which would allow this is Vallerand's (1997) hierarchical model of self-determined motivation. According to the hierarchical model, self-determination theory can be understood at three levels of generality; the situational level, the contextual level and the global level (Vallerand, 1997; Vallerand & Ratelle, 2002). The situational level refers to motivation for a specific activity at one particular point in time. The contextual level refers to more generalized motivation toward broad life concepts such as sport, work, and interpersonal relationships. The global level refers motivational orientation at the personality level (Guay, Mageau, & Vallerand, 2003).

Vallerand et al. contend that the model operates with proximal effects. Specifically, there is a top down effect whereby motivation at the global level has a stronger influence on motivation at the contextual level than it does on motivation at the situational level. In contrast, there is a bottom up effect whereby motivation at the situational level has a stronger influence on motivation at the contextual level than it does on motivation at the global level (Guay et al., 2003). According to the model, each level of motivation is also determined by social factors and perceived basic psychological needs at the corresponding level of generality. In addition, motivation is proposed to lead to cognitive, affective and behavioural outcomes at the corresponding level (Vallerand, 2000). A number of studies in sport have provided support for the

hierarchical model (e.g. Blanchard, Mask, Vallerand, de la Sablonniere, & Provencher, 2007; Gagné et al., 2003; Gillet, Vallerand, Amoura, & Baldes, 2010).

As perfectionistic strivings and perfectionistic concerns are dispositional but domain specific (Dunn et al., 2002), it can be argued that perfectionism will operate somewhere between the global level and the contextual level of the hierarchical model. The findings from study one, study two and study four of this thesis suggest that perfectionism shares important relationships with motivation and subsequent outcomes at the contextual level. In contrast, study three suggests that perfectionism is associated with emotional outcomes at the situational level. However, future research is required that has the specific aim of examining the relationships between perfectionism and motivation and subsequent outcomes at different levels of generality. For example, researchers might choose to focus on whether perfectionistic concerns and perfectionistic strivings share stronger relationships with autonomous motivation, controlled motivation, and affect at the situational, contextual or global level.

The hierarchical model could also serve as a theoretical basis for examining other components of perfectionism which operate at different levels of generality. This would be useful because as highlighted in study three of this thesis, there is currently limited understanding regarding how perfectionism manifests in specific situations in sport. It would therefore be interesting to examine the associations that perfectionistic cognitions (Flett, et al., 1998) and perfectionistic self-presentational style (Hewitt et al., 2003) share with affective and behavioural outcomes during a specific competitive event (i.e. at the situational level). In summary, examining perfectionism in light of the hierarchical model of motivation may provide the basis for significant advancement of research investigating perfectionism in youth sport and wider contexts.

Management of perfectionism

The findings from this thesis clearly suggest that strategies should be sought which aim to manage the negative influence of perfectionistic concerns. However, supporting evidence for factors which may ameliorate the relationships that perfectionistic concerns share with detrimental psychological outcomes remains somewhat elusive. As demonstrated in study four of this thesis and in previous studies (e.g. Appleton et al., 2009), establishing factors that moderate the relationships between perfectionistic concerns and maladaptive outcomes can be a challenging process. This lack of support for moderation may be reflective of the difficulties in managing perfectionism cited by clinical psychologists.

Perfectionism has a long standing reputation for being difficult to treat and disruptive to the therapeutic process (Rice et al., 1998). As Hall et al. (2012) highlight, perfectionistic beliefs are often deeply entrenched in one's identity and therefore difficult to change. In particular, despite the negative consequences of perfectionistic concerns, individuals are reluctant to change their perfectionistic beliefs, because they see their perfectionism as a source of their performance success. Consequently, it is likely that effective management of perfectionistic concerns will only be possible over an extended period of time. Therefore, an important direction for future research is to examine the longitudinal impact of interventions designed to ameliorate the negative influence of perfectionistic concerns.

Given the findings in this thesis and the tenets of self-determination theory, such interventions should be focussed on improving motivational quality. A clear way of influencing motivational quality over time is via coaches and teachers providing autonomy support. Study four failed to support the moderating role of perceived teacher autonomy support; however, it may still be valuable to examine the moderating role of autonomy support on the relationships between perfectionistic concerns and

maladaptive outcomes over time. This is because it is clear from study one and study two that perfectionistic concerns undermine motivational quality via basic psychological needs thwarting and controlled motivation. Consequently, given the tenets of self-determination theory, over time an autonomy supportive environment will elicit perceived basic psychological needs satisfaction, which in turn will lead to more autonomous motivation. Therefore, providing autonomy support has the potential to change perfectionistic beliefs, lead to greater internalization of sport or dancing behaviour, and ultimately increase the likelihood of positive well-being outcomes in youth sport and dance.

Daily diary studies

Another important direction for future research is to further examine the way in which perfectionistic concerns and perfectionistic strivings manifest on a daily basis. The findings of study three indicate that both perfectionistic concerns and perfectionistic strivings are associated with greater emotionality in the form of daily fluctuations in pride, shame and guilt. Still, relatively little is known about the daily manifestation of perfectionistic concerns and perfectionistic strivings in sport. This represents an important gap in the literature because daily impact may be a stronger indicator of distress than broader reactions to major life events (Dunkley, et al., 2012).

Examining the daily manifestation of perfectionism may allow for a more nuanced understanding of the processes by which perfectionistic concerns are associated with negative well-being outcomes in sport and dance. This has recently been demonstrated with undergraduate students by Mushquash and Sherry (2012). They examined the processes through which the socially prescribed perfectionism indicator of perfectionistic concerns proliferated a cycle of self-defeat. Utilising diary measures twice a day for seven days, Mushquash and Sherry (2012) found that socially prescribed perfectionism was associated with a cyclical maladaptive pattern of self-evaluation,

perfectionistic self-presentation, affect and behaviour. Establishing whether perfectionistic concerns elicit a similar cycle in youth athletes, represents an interesting question for future research.

The need for longitudinal perfectionism research in youth sport

Future diary studies will provide understanding about how the broad dimensions of perfectionism manifest on a daily basis which is clearly warranted. However, there is also a need to further examine the associations between perfectionism and psychological outcomes across a longer period of time in youth athletes. Doing so will help to indicate whether broad dimensions of perfectionism predispose athletes to psychological difficulties across the course of a season and in future seasons. This has the potential to benefit coaches and other stakeholders seeking to implement effective and timely psychological interventions in youth sport. Yet despite this potential, there is a current dearth of longitudinal perfectionism research in youth sport. One exception to this is the investigation by Chen et al. (2009) that examined whether perfectionism predicted athlete burnout. Chen et al.'s findings suggest that neither perfectionistic concerns nor perfectionistic strivings predict athlete burnout over time. However, the study is severely limited in key areas. Not least, data for the study were collected at two time points, three months apart, but both during the off-season. Furthermore, no time three follow-up was carried out to examine whether the non-significant associations persisted during the season. Consequently, the study says little about whether perfectionism may predispose athletes to burnout in an ecologically valid sporting context.

More robust evidence has been gathered by researchers operating outside the sport domain. Findings from this clinical, social and educational research suggests that perfectionistic concerns predispose individuals to negative outcomes including depression (Hewitt, Flett, & Ediger, 1996; Rice, Vegara, & Aldea, 2006; Soenens et al.,

2008), hopelessness (Enns et al., 2001), distress (Enns, Cox, & Clara, 2005), and sleep disturbance (Azevedo et al. 2010). In contrast, the longitudinal evidence relating to perfectionistic strivings is equivocal. Some research suggests that perfectionistic strivings at baseline are a vulnerability factor for negative outcomes such as depression four months later (Hewitt et al., 1996). Other studies suggest no temporal link between perfectionistic strivings and negative outcomes (Enns et al., 2005; Enns et al., 2001). While other findings suggest that perfectionistic strivings are inversely associated with negative outcomes over time, and in some cases predispose individuals to positive outcomes, such as goal attainment (Powers, Koestner, & Topciu, 2005).

Clearly there are practical challenges including resources and subject attrition which make longitudinal research difficult to orchestrate. Nonetheless, it seems that a worthwhile future endeavour would be to build on the existing longitudinal perfectionism research in clinical, social and educational contexts by conducting similar investigations in youth sport. In addition, given the current limitations to longitudinal research in sport, re-examining perfectionism and athlete burnout longitudinally should be a concern for future research in this area. Such studies would help to highlight whether perfectionistic concerns predispose youth athletes to negative psychological outcomes. Moreover, future longitudinal research could allow empirical assessment of the notion that perfectionistic strivings are best described as a vulnerability factor which predispose athletes to detrimental psychological outcomes in the longer term (Flett & Hewitt, 2005; Hill et al., 2008).

Further practical implications

The thesis provides a novel contribution to existing perfectionism research by examining how self-determination theory can help to explain the perfectionism-engagement and perfectionism-burnout associations in youth sport and dance. In doing so, the findings from the thesis have important implications which could influence the

practice of sport coaches, dance tutors and other stakeholders who guide young people's development in these domains. In particular, empirical support for the theoretical underpinnings of the thesis may provide a practical foundation. The findings from study one and two indicate the benefit of autonomous motivation and basic psychological needs satisfaction in youth sport. Moreover, study four of the thesis demonstrates the value of tutors providing autonomy support in youth dance.

In addition to the thesis findings, there is growing evidence to suggest that environments designed to foster self-determination are beneficial across different contexts. For example, the applicability of self-determination theory to the youth sport domain has recently been evidenced in findings from the Promoting Adolescent Physical Activity (PAPA) project (see International Journal of Sport and Exercise Psychology for a special issue on PAPA). This pan-European project has demonstrated that coach autonomy support for grass roots youth soccer players is associated with players reporting higher basic psychological needs satisfaction, greater levels of enjoyment and lower intention to drop out (Quested et al., 2013).

Such findings are consistent with a long line of motivational research that has provided support for self-determination theory and the psychological, behavioural and performance value of adopting approaches designed to enhance motivational quality (see Deci & Ryan 2002 for a review). Further longitudinal and experimental research is required to examine whether these benefits extend to mitigating the maladaptive components of perfectionism. Nonetheless, it appears that practice based on the underlying principles of self-determination theory can enhance young people's participation, engagement and well-being in achievement focussed domains. Therefore, the findings of the thesis not only have the potential to inform practitioners in youth sport and dance but could also generalise to other domains such as education.

The way in which this practical impact could be implemented most effectively is via those individuals who shape youth athletes' and dancers' psychological climates (e.g. coaches/teachers, parents and peers; Ames, 1992; Jowett & Lavallee, 2007, p. 115). Therefore, practical interventions could be targeted towards these individuals but also towards those who are likely to work with youth athletes and dancers in future. For example, in order to educate future practitioners, principles designed to foster motivational quality and negate the detrimental cognitions and behaviours associated with perfectionistic concerns could be integrated into teaching on undergraduate sport degree programmes. As outlined by Duda (2013) there is sometimes resistance from experienced coaches in changing their philosophy to coaching and implementing new ideas. In contrast, future practitioners are likely to be still developing their coaching or tutoring philosophy and therefore represent a more captive audience for intervention.

Limitations and other directions for future research

The studies in the thesis had a number of limitations. The first limitation was mono-method bias. Within each study, the sole method used to gather data was via self-report questionnaire. The validity of the constructs examined in the research could have been enhanced by adopting other measures. This reflects a wider problem in the perfectionism literature, as perfectionism and outcome variables such as athlete burnout are typically only measured using self-report questionnaires (e.g. Hill et al., 2008). Nonetheless, mono-method bias can inflate shared variance amongst measured variables. Consequently, validity could be improved in future studies by utilising other sources of measurement. For example, when examining athletes' levels of perfectionism, the athletes' coach could also be asked to provide a measure of the athletes' perfectionism. In addition, it would also be useful to acquire other measures such as physiological markers of stress to examine the influence of perfectionistic strivings and perfectionistic concerns within the youth sport and dance contexts.

The second limitation which is common across studies one, two and four is the use of cross-sectional designs. Together these studies provide an indication of the perfectionism-burnout and the perfectionism-engagement relationships, as well as the way in which motivational quality helps to explain these relationships. However, it is not possible to determine from these relationships whether, for example, perfectionism causes engagement or burnout. Furthermore, while the structural models proposed in study one and study two suggest a potential causal sequence based on theory and previous research, it is not definitive whether perfectionism precedes motivational regulation or basic psychological needs. Consequently, as outlined in detail above, future research is required to determine whether these associations are supported longitudinally. Nonetheless establishing cross-sectional relationships such as those outlined in study one, two and four is required prior to experimentation.

Finally, a non-sport specific measure of perfectionism was utilised in each study of the thesis (i.e. H-MPS short version Cox et al., 2002). While this has been adopted in other recent sport research (e.g., Gaudreau & Antl, 2008; Hill et al., 2010a), it may be useful for researchers to develop a validated sport-specific version of the H-MPS in order to more accurately capture the self-oriented perfectionism and socially prescribed perfectionism dimensions in youth sport. This progression follows recent recommendations which have suggested that domain specific measures of perfectionism are likely to represent better indicators of perfectionistic concerns and perfectionistic strivings (Stoeber, 2011).

Conclusions

The thesis has made several unique contributions to research examining perfectionism in youth sport and dance. The findings from study one and study two build on existing research that has examined perfectionism and athlete burnout. Specifically, study one extends the previous work by Hill et al. (Hill et al., 2008; Hill et

al., 2010a; Hill, Hall, Appleton, & Murray, 2010), by establishing the relationships between perfectionism and athlete burnout using composite measures of perfectionistic concerns and perfectionistic strivings. Study two extends previous work by demonstrating that the divergent relationships that the broad dimensions of perfectionism share with athlete burnout also extend to athlete engagement. Study four also extends this previous research but in a slightly different manner. Specifically, the findings from study four suggest that the divergent relationships that perfectionistic concerns and perfectionistic strivings share with engagement and burnout extend to aesthetic athletes, namely youth dancers. Together the studies suggest that perfectionistic concerns are associated with lower engagement and elevated burnout. In contrast, it appears that perfectionistic strivings, when considered separately from perfectionistic concerns, are associated with elevated engagement and reduced burnout.

The thesis also includes the first line of research specifically examining how motivational quality as defined within self-determination theory explains the perfectionism-burnout and perfectionism-engagement relationships in youth sport and dance. From the findings it appears that the perfectionistic concerns-burnout and perfectionistic concerns-engagement relationships can be explained by a pattern of low quality motivation (i.e. controlling climate, controlled motivation and basic psychological need thwarting). In contrast, the perfectionistic strivings-burnout and perfectionistic strivings-engagement relationships can be explained by a pattern of high quality motivation (i.e. autonomy supportive climate, autonomous motivation and basic psychological need satisfaction). In conclusion, the broad dimensions of perfectionism and the indicators of motivational quality are key considerations in the onset of engagement and burnout in youth sport and dance.

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Appendices

Appendix A - Ethics approval notifications

A.1 Study one ethics approval

Gareth Jowett
Faculty of Health & Life Sciences

York St John University

Dr Simon Rouse
Chair of Research Ethics
Direct Line 876901
e-mail: s.rouse@yorksj.ac.uk

19 March 2010

Dear Gareth

RE: Perfectionism, junior athlete burnout and engagement: The mediating role of motivational regulation

REF: UC/19/3/10/GJ

I can confirm that your ethics proposals, submitted on the 5/3/2010, has been reviewed and approved with no amendments.

Yours sincerely

Cc Professor Howard Hall
Dr Andy Hill

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www.yorksj.ac.uk

A.2 Study two ethics approval

Gareth E. Jowett
PhD student
Faculty of Health & Life Sciences

York St John University

Dr Simon Rouse
Chair of Research Ethics
Direct Line 876901
e-mail s.rouse@yorksj.ac.uk

15 February 2011

Dear Gareth

RE: Perfectionism, athlete burnout and engagement: The mediating roles of basic needs satisfaction and need thwarting in elite junior athletes

REF UC/15/2/11/GJ

The research ethics committee has approved the above research ethics submission of the 31 January 2011. We note your reply of the 11th February 2011 that answered our initial reservations.

Best wishes

Cc Professor Howard Hall, Dr Andy Hill

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A.3 Study three ethics approval

Gareth E. Jowett
PhD student
Faculty of Health & Life Sciences

York St John University

Dr Simon Rouse
Chair of Research Ethics
Direct Line 876901
e-mail s.rouse@yorksj.ac.uk

22 June 2011

Dear Gareth

RE: Perfectionism and athlete burnout: Trait and state psychological mechanisms.

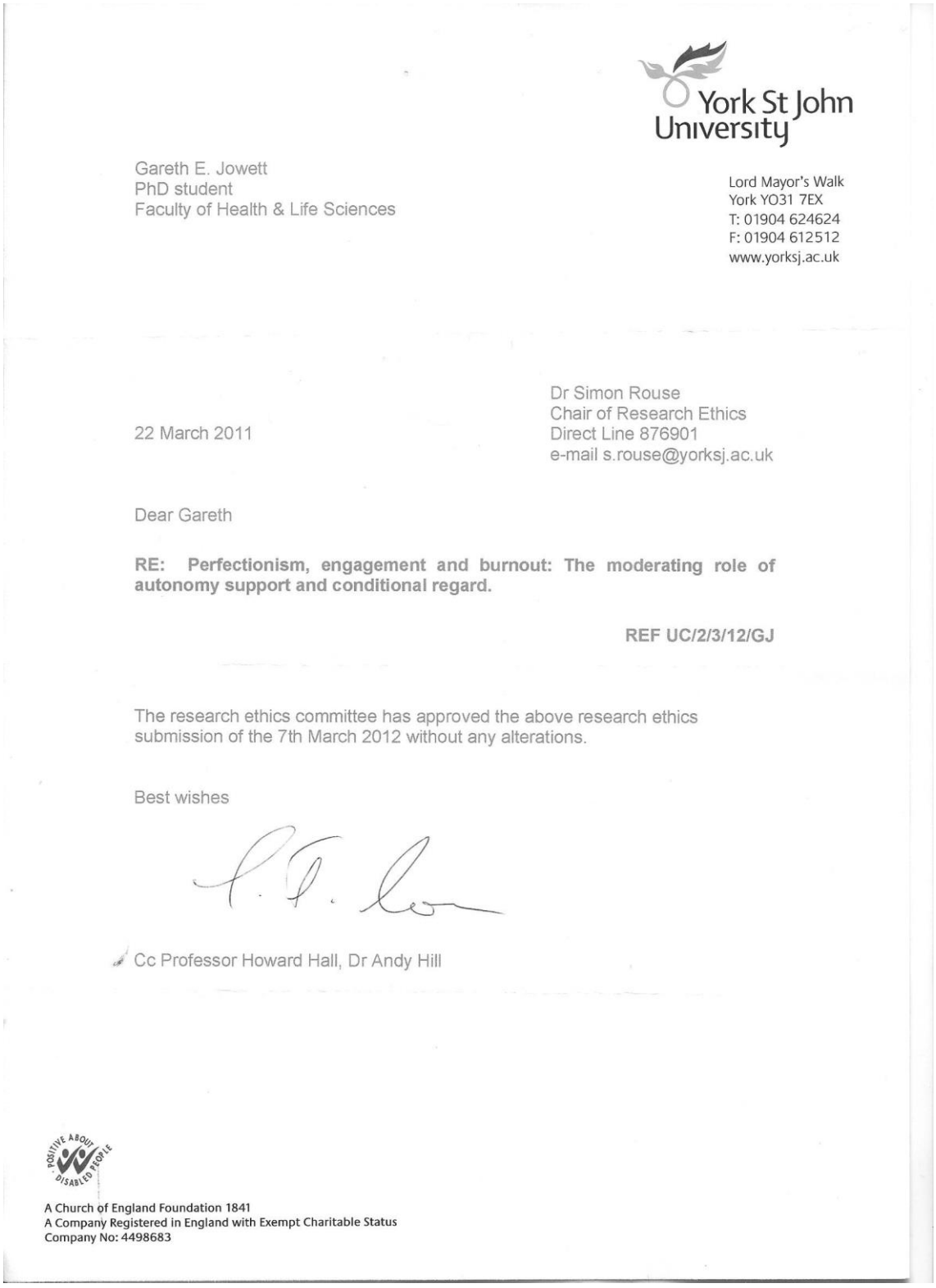
REF UC/22/6/11/GJ

The research ethics committee has approved the above research ethics submission of the 14 June 2011. We note your reply of the 20th June 2011 that answered our two initial reservations concerning gender mix and the need to recognise that some of the sample group may be over the age of 18 and therefore will not require parental consent.

Best wishes

Cc Professor Howard Hall, Dr Andy Hill

A.4 Study four ethics approval



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22 March 2011

Dr Simon Rouse
Chair of Research Ethics
Direct Line 876901
e-mail s.rouse@yorksj.ac.uk

Dear Gareth

RE: Perfectionism, engagement and burnout: The moderating role of autonomy support and conditional regard.

REF UC/2/3/12/GJ

The research ethics committee has approved the above research ethics submission of the 7th March 2012 without any alterations.

Best wishes

Cc Professor Howard Hall, Dr Andy Hill

Appendix B – Informed Consent Forms

B.1 Study one participant consent form

Gareth E. Jowett

Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Athlete:

I am writing to request your participation in a research project, which I am conducting as part of my sport psychology PhD at York St John University under the supervision of Professor Howard Hall. The research that I am conducting is investigating aspects of athlete motivation and how these may be linked to various thoughts and feelings that athletes may experience as a result of their participation in sport.

While the information resulting from this project may be of limited immediate benefit to you, the knowledge gained from the research may help to increase our understanding about the sporting experience of junior athletes and how various forms of motivation may affect these experiences. This, in turn will add to the knowledge base in sport psychology. To help me complete this research I request your assistance. I would like you to complete the attached questionnaire. This should take approximately 20 minutes. Your participation in this research project is voluntary and you are free to withdraw at any time without prejudice. I hope you can find the time to help me. Your responses to the questionnaire will be completely anonymous and only group data will be reported following data analysis (i.e., It will not be possible to identify any individual or club). The data collected will be stored in a locked filing cabinet at York St John University for a period of five years. This will only be accessible to myself and my supervisor. If you are willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Sport Research Ethics Committee at York St John University. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed. Furthermore, I would be pleased to present the research findings to members of your club or organisation who might be interested.

For further information about the research, or information about your rights as a participant, you can contact Dr. Simon Rouse, Chair of the Research Ethics Committee. His telephone number is 01904 876901, or you can contact him by email at s.rouse@yorksj.ac.uk.

For informal enquiries about the research you can contact me by e-mail g.jowett@yorksj.ac.uk or Tel: 01904 876238. I greatly appreciate your assistance with this project and I wish to thank you at this point for taking the time to help.

Sincerely

Gareth E. Jowett MSc. BSc. (Hons)

I understand the above information and agree, voluntarily, to participate in this investigation.

Signature: ..... Date: .....

B.2 Study one parent informed consent form

Gareth E. Jowett
Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Parent:

I am writing to request your child's participation in a research project, which I am conducting as part of my sport psychology PhD at York St John University under the supervision of Professor Howard Hall. The research that I am conducting is investigating aspects of athlete motivation and how these may be linked to various thoughts and feelings that athletes may experience as a result of their participation in sport.

While the information resulting from this project may be of limited immediate benefit to your child, the knowledge gained from the research may help to increase our understanding about the sporting experience of junior athletes and how various forms of motivation may affect these experiences. This, in turn will add to the knowledge base in sport psychology. To help me complete this research I request your child's assistance. During a training session your child will be asked to complete a short questionnaire that should take approximately 20 minutes to complete. Your child's participation in this research project is voluntary and he/she is free to withdraw at any time without prejudice. Your child's responses to the questionnaire will be completely anonymous and only group data will be reported following data analysis (i.e., It will not be possible to identify any individual or club). The data collected will be stored in a locked filing cabinet at York St John University, for a period of 5 years, that is only accessible to myself and my supervisor.

This project has received the full support of the Sport Research Ethics Committee at York St John University. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed. For further information about the research, or information about your child's rights as a participant, you can contact Dr. Simon Rouse, Chair of the Research Ethics Committee. His telephone number is 01904 876901, or you can contact him by email at s.rouse@yorksj.ac.uk.

For informal enquiries about the research you can contact me by e-mail g.jowett@yorksj.ac.uk or Tel: 01904 876238. I greatly appreciate your assistance with this project and I wish to thank you at this point for taking the time to help. If you give consent for your child to participate in the research you need not do anything else.

If, however, you <u>do not</u> wish your child to take part in this research project please sign the bottom of this form and return it to the club.

Sincerely,

Gareth E. Jowett

Please sign below, **<u>only if you do not wish your child to participate</u>** in the research described above.
I have read and understand the above information and **do not consent** to my child participating in this research investigation.

Signature: ..... Date: .....

B.3 Study two participant informed consent form

Gareth E. Jowett
Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Athlete,

I am writing to invite your participation in a research project, which I am conducting as part of my sport psychology PhD at York St John University under the supervision of Professor Howard Hall. The research is investigating aspects of athlete motivation and how these may be linked to various thoughts and feelings that athletes may experience in sport.

The knowledge gained from the research may help to increase our understanding about the sporting experience of junior athletes and how various forms of motivation may affect these experiences. To help me complete this research I invite your assistance. I would like you to complete the attached questionnaire. This should take approximately 20 minutes.

Your participation in this research project is voluntary and you are free to withdraw at any time without prejudice. I hope you can find the time to help me. Your responses to the questionnaire will be completely anonymous and only group data will be reported following data analysis (i.e., It will not be possible to identify any individual or club). The data collected will be stored in a locked filing cabinet at York St John University for a period of 3 years. This will only be accessible to myself and my supervisor. If you would like to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed. Furthermore, I would be pleased to present the research findings to members of your club or organisation who might be interested. This project has received the full support of the Sport Research Ethics Committee at York St John University.

Sincerely

Gareth E. Jowett MSc. BSc. (Hons)

I understand the above information and agree, voluntarily, to participate in this investigation.

Name: ……

Signature: ..... Date: .....

B.4 Study two parent informed consent form

Gareth E. Jowett
Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Parent,

I am writing to request your child's participation in a research project, which I am conducting as part of my sport psychology PhD at York St John University under the supervision of Professor Howard Hall and Dr. Andrew Hill. The research is investigating aspects of athlete motivation and how these may be linked to various thoughts and feelings that athletes may experience in sport.

The knowledge gained from the research may help to increase our understanding about the sporting experience of junior athletes and how various forms of motivation may affect these experiences.

To help me complete this research I invite your child's assistance. Before a training session, your child will be asked to complete a short questionnaire that should take approximately 15 minutes to complete. Your child's participation in this research project is voluntary and he/she is free to withdraw at any time without prejudice. The data collected will be stored in a locked filing cabinet at York St John University, and as a password protected electronic data file for a period of 3 years before being destroyed. If you would like to withdraw your child's data following their participation, please send a letter to the address above or an e-mail to g.jowett@yorksj.ac.uk stating your child's team and postcode at the time of data collection, and your child's date of birth.

This project has received the full support of the Sport Research Ethics Committee at York St John University. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed.

I greatly appreciate your assistance with this project and I wish to thank you at this point for taking the time to help. If you give consent for your child to participate in the research you need not do anything else.

If, however, you <u>do not</u> wish your child to take part in this research project please sign the bottom of this form and return it to your child's coach.

Sincerely,

Gareth E. Jowett

Please sign below, **<u>only if you do not wish your child to participate</u>** in the research described above.

I have read and understand the above information and **do not consent** to my child participating in this research investigation.

Name: …….

Signature: ..... Date: .....

B.5 Study three parent informed consent form

Gareth E. Jowett
Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Parent,

I am writing to request your child's participation in a research project, which I am conducting as part of my sport psychology PhD at York St John University under the supervision of Professor Howard Hall. We're interested in the personality and motivation of elite junior cricketers and how this influences their reactions to perceived successes and failures in cricket. Specifically, our aim is to look at the impact that their personality and motivation have on their emotions during a cricket tour, and whether certain types of personality, motivation and emotions make cricketers more or less likely to burnout.

To help me complete this research I invite your child's assistance. The research will involve your child completing an initial questionnaire (approx. 15mins to complete) about their motivation and thoughts and feelings about cricket. This will take place at the start of a training session. They will then be asked to complete a shorter questionnaire (approx. 5mins) at the end of each day on their upcoming tour.

Your child's participation in this research project is voluntary and he/she is free to withdraw at any time without prejudice. The data collected will be stored in a locked filing cabinet at York St John University, and as a password protected electronic data file for a period of 3 years before being destroyed. If you would like to withdraw your child's data following their participation, please send a letter to the address above or an e-mail to g.jowett@yorksj.ac.uk stating your child's date of birth and postcode at the time of data collection.

The knowledge gained from the research may help to increase our understanding about the sporting experience of junior cricketers and how personality, motivation, and emotion influence burnout. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed.

This project has received the full support of the Sport Research Ethics Committee at York St John University and (the county cricket club). Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed.

I greatly appreciate your assistance with this project and I wish to thank you at this point for taking the time to help. If you give consent for your child to participate in the research you need not do anything else.

If, however, you <u>do not</u> wish your child to take part in this research project please sign the bottom of this form and return it to your child's coach prior to …(e.g. 30th May 2011).

Sincerely,

Gareth E. Jowett

Please sign below, **only if you do not wish your child to participate** in the research described above.

I have read and understand the above information and **do not consent** to my child participating in this research investigation.

Name: ……

Signature: ..... Date: .....

B.6 Study four parent informed consent form

Gareth E. Jowett
Faculty of Health and Life Sciences
Graduate Centre DG110
York St. John University
Lord Mayors Walk
York, YO31 7EX

Dear Parent,

I am writing to request your child's participation in a research project, which I am conducting as part of my psychology PhD at York St John University, under the supervision of Professor Howard Hall and Dr. Andrew Hill. We are interested how the personalities of youth dancers, and their dance teachers and parents influence their engagement in dance.

To help me complete this research I invite your child's assistance. The research will involve your child completing a questionnaire (approx. 15mins to complete) about their personality, motivation, engagement, and burnout. This will take place prior to a forthcoming practice session.

Your child's participation in this research project is voluntary and he/she is free to withdraw at any time without prejudice. The data collected will be stored in a locked filing cabinet at York St John University, and as a password protected electronic data file for a period of 3 years before being destroyed. If you would like to withdraw your child's data following their participation, please send a letter to the address above or an e-mail to g.jowett@yorksj.ac.uk stating your child's date of birth and postcode at the time of data collection.

The knowledge gained from the research will help to increase our understanding about the experiences of dancers and how psychological characteristics and interactions with dance teachers and parents influence these experiences. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed.

This project has received the full support of the Research Ethics Committee at York St John University. Upon request, I will be happy to supply a written report on the research findings once the investigation has been completed.

I greatly appreciate your assistance with this project and I wish to thank you at this point for taking the time to help. If you give consent for your child to participate in the research you need not do anything else.

If, however, you <u>do not</u> wish your child to take part in this research project please sign the bottom of this form and return it to the address above as soon as possible.

Sincerely,

Gareth E. Jowett

Please sign below, **<u>only if you do not wish your child to participate</u>** in the research described above.

I have read and understand the above information and **do not consent** to my child participating in this research investigation.

Name: …….

Signature: ..... Date: .....

NB: For study three and study four athlete verbal assent was ascertained rather than written informed consent.

Appendix C – Scales used in the thesis

C.1 The Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001)

The following items are concerned with how you feel at the moment about your sport. Please read each of the statements listed below and indicate how much you personally agree with each one. Remember, there are no right or wrong answers.

Almost Never	Rarely	Sometimes	Frequently	Almost Always
1	2	3	4	5

1. I'm accomplishing many worthwhile things in *my sport*	① ② ③ ④ ⑤
2. I feel so tired from my training that I have trouble finding the energy to do other things	① ② ③ ④ ⑤
3. The effort I spend in *my sport* would be better spent doing other things	① ② ③ ④ ⑤
4. I feel overly tired from my *sport* participation	① ② ③ ④ ⑤
5. I am not achieving much in *my sport*	① ② ③ ④ ⑤
6. I don't care as much about my *sport* performance as I use to	① ② ③ ④ ⑤
7. I am not performing up to my ability in *my sport*	① ② ③ ④ ⑤
8. I feel "wiped out" from *my sport*	① ② ③ ④ ⑤
9. I'm not into *my sport* like I use to be	① ② ③ ④ ⑤
10. I feel physically worn out from *my sport*	① ② ③ ④ ⑤
11. I feel less concerned about being successful in *my sport* that I use to	① ② ③ ④ ⑤
12. I am exhausted by the mental and physical demands of *my sport*	① ② ③ ④ ⑤
13. It seems no matter what I do, I don't perform as well as I should	① ② ③ ④ ⑤
14. I feel successful at *my sport*	① ② ③ ④ ⑤
15. I have negative feelings towards *my sport*	① ② ③ ④ ⑤

C.2 The Sport Multidimensional Perfectionism Scale (SMPS-2; Gotwals & Dunn, 2009)

Listed below are a number of statements that identify how athletes view certain aspects of their competitive experiences in sport. Please read each of the statements carefully, and indicate the extent to which you personally agree or disagree with each statement.

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	2	3	4	5

1.	**If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player**	① ② ③ ④ ⑤
2.	Even if I fail slightly in competition, for me, it is as bad as being a complete failure	① ② ③ ④ ⑤
3.	**My parents set very high standards for me in my sport**	① ② ③ ④ ⑤
4.	I feel like my coaches criticizes me for doing things less than perfectly in competition	① ② ③ ④ ⑤
5.	**In competition, I never feel like I can quite meet my parents' expectations**	① ② ③ ④ ⑤
6.	I hate being less than the best at things in my sport	① ② ③ ④ ⑤
7.	**If I fail in competition, I feel like a failure as a person**	① ② ③ ④ ⑤
8.	Only outstanding performance during competition is good enough in my family	① ② ③ ④ ⑤
9.	**I usually feel uncertain as to whether or not my training effectively prepares me for competition**	① ② ③ ④ ⑤
10.	Only outstanding performance in competition is good enough for my coach	① ② ③ ④ ⑤
11.	**My parents have always had higher expectations for my future in sport than I have**	① ② ③ ④ ⑤
12.	The fewer mistakes I make in competition, the more people will like me	① ② ③ ④ ⑤
13.	**I usually feel unsure about the adequacy of my pre-competition practices**	① ② ③ ④ ⑤
14.	It is important to me that I be thoroughly competent in everything I do in my sport	① ② ③ ④ ⑤
15.	**I feel like I am criticized by my parents for doing things less than perfectly in competition**	① ② ③ ④ ⑤
16.	I think I expect higher performance and greater results in my daily sport-training than most players	① ② ③ ④ ⑤
17.	**I feel like I can never quite live up to my coach's standards**	① ② ③ ④ ⑤
18.	I usually have trouble deciding when I have practised enough heading into a competition	① ② ③ ④ ⑤

19.	**I feel that other players generally accept lower standards for themselves in sport than I do**	① ② ③ ④ ⑤
20.	Prior to competition, I rarely feel satisfied with my training	① ② ③ ④ ⑤
21.	**I should be upset if I make a mistake in competition**	① ② ③ ④ ⑤
22.	In competition, I never feel like I can quite live up to my parents' standards	① ② ③ ④ ⑤
23.	**My coach sets very high standards for me in competition**	① ② ③ ④ ⑤
24.	If a team-mate or opponent (who plays a similar position to me) plays better than me during competition, then I fell like I failed to some degree	① ② ③ ④ ⑤
25.	**My parents expect excellence from me in my sport**	① ② ③ ④ ⑤
26.	My coach expects excellence from me at all times: both in training and competition	① ② ③ ④ ⑤
27.	**If I do not do well all the time in competition, I feel that people will not respect me as an athlete**	① ② ③ ④ ⑤
28.	I have extremely high goals for myself in my sport	① ② ③ ④ ⑤
29.	**I feel like my coach never tries to fully understand the mistakes I sometimes make**	① ② ③ ④ ⑤
30.	I set higher achievement goals than most athletes who play sport	① ② ③ ④ ⑤
31.	**I feel like my parents never try to fully understand the mistakes I make in competition**	① ② ③ ④ ⑤
32.	People will probably think less of me if I make mistakes in competition	① ② ③ ④ ⑤
33.	**My parents want me to be better than all other players who play my sport**	① ② ③ ④ ⑤
34.	If I play well but only make one obvious mistake in the entire game, I still feel disappointed with my performance	① ② ③ ④ ⑤
35.	**I rarely feel that that my training fully prepares me for competition**	① ② ③ ④ ⑤
36.	I rarely feel that I have trained enough in preparation for a competition	① ② ③ ④ ⑤
37.	**On the day of competition I have a routine that I try to follow**	① ② ③ ④ ⑤
38.	I have and follow a pre-competitive routine	① ② ③ ④ ⑤
39.	**I follow pre-planned steps to prepare myself for competition**	① ② ③ ④ ⑤
40.	I follow a routine to get myself into a good mindset going into competition	① ② ③ ④ ⑤
41.	**I develop plans that dictate how I want to perform during competition**	① ② ③ ④ ⑤
42.	I set plans that highlight the strategies I want to use when I compete	① ② ③ ④ ⑤

C.3 Multidimensional Perfectionism Scale (HMPS-Short Version; Cox, Enns, & Clara, 2002)

The following items are statements concerning personal characteristics that some people demonstrate when they are **training or playing their sport.** Please read each of the statements carefully, and indicate the extent to which you personally agree or disagree with each statement. Remember there are no right or wrong answers.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

In my sport…

1. One of my goals is to be perfect in everything I do.	①	②	③	④	⑤	⑥	⑦
2. Anything that I do that is less than excellent will be seen as poor performance by those around me.	①	②	③	④	⑤	⑥	⑦
3. I strive to be as perfect as I can be.	①	②	③	④	⑤	⑥	⑦
4. I am perfectionistic in setting goals.	①	②	③	④	⑤	⑥	⑦
5. I feel that people are too demanding of me.	①	②	③	④	⑤	⑥	⑦
6. Although they may not show it, other people get very upset with me when I slip up	①	②	③	④	⑤	⑥	⑦
7. My family expects me to be perfect.	①	②	③	④	⑤	⑥	⑦
8. People expect nothing less than perfection from me.	①	②	③	④	⑤	⑥	⑦
9. I set very high standards for myself.	①	②	③	④	⑤	⑥	⑦
10. I must always be successful in activities that are important to me.	①	②	③	④	⑤	⑥	⑦

C.4 The Behavioural Regulation in Sport Questionnaire (BRSQ; Lonsdale, Hodge, & Rose, 2008)

Below are some reasons why people participate in sport. Using the scale provided, please indicate how true each of the following statements is for you. When deciding if this is one of the reasons why you participate, please think about all the reasons why you participate. There are no right or wrong answers, so do not spend too much time on any one question and please answer as honestly as you can. Some items may appear similar but please respond to all the statements.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

I participate in my sport…

1.	**because I enjoy it.**	① ② ③ ④ ⑤ ⑥ ⑦
2.	because of the pleasure I experience when I feel completely absorbed in my sport.	① ② ③ ④ ⑤ ⑥ ⑦
3.	**because it's a part of who I am.**	① ② ③ ④ ⑤ ⑥ ⑦
4.	because its an opportunity to just be who I am.	① ② ③ ④ ⑤ ⑥ ⑦
5.	**because I would feel ashamed if I quit.**	① ② ③ ④ ⑤ ⑥ ⑦
6.	but the reasons why are not clear to me anymore.	① ② ③ ④ ⑤ ⑥ ⑦
7.	**because I would feel like a failure if I quit.**	① ② ③ ④ ⑤ ⑥ ⑦
8.	but I wonder what's the point.	① ② ③ ④ ⑤ ⑥ ⑦
9.	**because what I do in sport is an expression of who I am.**	① ② ③ ④ ⑤ ⑥ ⑦
10.	because the benefits of sport are important to me.	① ② ③ ④ ⑤ ⑥ ⑦
11.	**because I enjoy the feeling of achievement when trying to reach long-term goals.**	① ② ③ ④ ⑤ ⑥ ⑦
12.	because I enjoy the feeling of success when I am working towards achieving something important.	① ② ③ ④ ⑤ ⑥ ⑦
13.	**because if I don't other people will not be pleased with me.**	① ② ③ ④ ⑤ ⑥ ⑦
14.	because I like it.	① ② ③ ④ ⑤ ⑥ ⑦
15.	**I enjoy learning something new about my sport.**	① ② ③ ④ ⑤ ⑥ ⑦
16.	because I feel obligated to continue.	① ② ③ ④ ⑤ ⑥ ⑦
17.	**but I question why I continue.**	① ② ③ ④ ⑤ ⑥ ⑦
18.	because I feel pressure from other people to play.	① ② ③ ④ ⑤ ⑥ ⑦
19.	**because of the excitement I feel when I am really**	① ② ③ ④ ⑤ ⑥ ⑦

	involved in the activity.	
20.	because people push me to play.	① ② ③ ④ ⑤ ⑥ ⑦
21.	**because it's fun.**	① ② ③ ④ ⑤ ⑥ ⑦
22.	because it teaches me self-discipline.	① ② ③ ④ ⑤ ⑥ ⑦
23.	**because I enjoy doing something to the best of my ability.**	① ② ③ ④ ⑤ ⑥ ⑦
24.	because I would feel guilty if I quit.	① ② ③ ④ ⑤ ⑥ ⑦
25.	**because I find it pleasurable.**	① ② ③ ④ ⑤ ⑥ ⑦
26.	because I like learning how to apply new techniques.	① ② ③ ④ ⑤ ⑥ ⑦
27.	**because I value the benefits of my sport.**	① ② ③ ④ ⑤ ⑥ ⑦
28.	because I enjoy learning new techniques.	① ② ③ ④ ⑤ ⑥ ⑦
29.	**because I love the extreme highs that I feel during sport.**	① ② ③ ④ ⑤ ⑥ ⑦
30.	but I question why I am putting myself through this.	① ② ③ ④ ⑤ ⑥ ⑦
31.	**because it is a good way to learn things which could be useful to me in my life.**	① ② ③ ④ ⑤ ⑥ ⑦
32.	because of the positive feelings that I experience while playing my sport.	① ② ③ ④ ⑤ ⑥ ⑦
33.	**in order to satisfy people who want me to play.**	① ② ③ ④ ⑤ ⑥ ⑦
34.	because I get a sense of accomplishment when I strive to achieve my goals.	① ② ③ ④ ⑤ ⑥ ⑦
35.	**because it allows me to live in a way that is true to my values.**	① ② ③ ④ ⑤ ⑥ ⑦
36.	for the pleasure it gives me to know more about my sport.	① ② ③ ④ ⑤ ⑥ ⑦

C.5 The Athlete Engagement Questionnaire (AEQ; Lonsdale, Hodge, & Jackson, 2007)

Read the following items and indicate how often you have felt that way in the last four months by filling the appropriate circle completely (e.g., ●), that corresponds with your view.

Almost Never	Rarely	Sometimes	Frequently	Almost Always
1	2	3	4	5

1. I believe I am capable of accomplishing my goals in sport.	① ② ③ ④ ⑤
2. I am dedicated to achieving my goals in sport.	① ② ③ ④ ⑤
3. I feel energised when I participate in my sport.	① ② ③ ④ ⑤
4. I feel excited about my sport.	① ② ③ ④ ⑤
5. I feel capable of success in my sport.	① ② ③ ④ ⑤
6. I am determined to achieve my goals in sport.	① ② ③ ④ ⑤
7. I feel energetic when I participate in my sport.	① ② ③ ④ ⑤
8. I am enthusiastic about my sport.	① ② ③ ④ ⑤
9. I believe I have the skills/technique to be successful in my sport.	① ② ③ ④ ⑤
10. I am devoted to my sport.	① ② ③ ④ ⑤
11. I feel really alive when I participate in my sport.	① ② ③ ④ ⑤
12. I enjoy my sport	① ② ③ ④ ⑤
13. I am confident in my abilities.	① ② ③ ④ ⑤
14. I want to work hard to achieve my goals in sport.	① ② ③ ④ ⑤
15. I feel mentally alert when I participate in my sport.	① ② ③ ④ ⑤
16. I have fun in my sport.	① ② ③ ④ ⑤

C.6 The Basic Need Satisfaction in Sport Scale (BNSSS; Ng, Lonsdale, & Hodge, 2011)

Please answer the questions according to your feelings and experiences when participating in your main sport.

Not true at all			Somewhat true			Very true
1	2	3	4	5	6	7

1.	**In my sport, I feel close to other people.**	①	②	③	④	⑤	⑥	⑦
2.	In my sport, I feel I am pursuing goals that are my own.	①	②	③	④	⑤	⑥	⑦
3.	**I feel I participate in my sport willingly.**	①	②	③	④	⑤	⑥	⑦
4.	In my sport, I get opportunities to make choices.	①	②	③	④	⑤	⑥	⑦
5.	**In my sport, I feel that I am being forced to do things that I don't want to do.**	①	②	③	④	⑤	⑥	⑦
6.	I can overcome challenges in my sport.	①	②	③	④	⑤	⑥	⑦
7.	**I show concern for others in my sport.**	①	②	③	④	⑤	⑥	⑦
8.	I choose to participate in my sport according to my own free will.	①	②	③	④	⑤	⑥	⑦
9.	**In my sport, I have a say in how things are done.**	①	②	③	④	⑤	⑥	⑦
10.	There are people in my sport who care about me.	①	②	③	④	⑤	⑥	⑦
11.	**I am skilled at my sport.**	①	②	③	④	⑤	⑥	⑦
12.	I feel I am good at my sport.	①	②	③	④	⑤	⑥	⑦
13.	**In my sport, I can take part in the decision making process.**	①	②	③	④	⑤	⑥	⑦
14.	I get opportunities to feel that I am good at my sport.	①	②	③	④	⑤	⑥	⑦
15.	**In my sport, I really have a sense of wanting to be there.**	①	②	③	④	⑤	⑥	⑦
16.	In my sport, I feel I am doing what I want to be doing.	①	②	③	④	⑤	⑥	⑦
17.	**I have the ability to perform well in my sport.**	①	②	③	④	⑤	⑥	⑦
18.	In my sport, there are people who I can trust.	①	②	③	④	⑤	⑥	⑦
19.	**I have close relationships with people in my sport.**	①	②	③	④	⑤	⑥	⑦
20.	In my sport, I get opportunities to make decisions.	①	②	③	④	⑤	⑥	⑦

C.7 The Psychological Need Thwarting Scale (PNTS; Bartholomew, Ntoumanis, Ryan, &Thøgersen-Ntoumani, 2011)

Please indicate how much you agree or disagree with each statement.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1.	**I feel prevented from making choices with regard to the way I train in my sport.**	①	②	③	④	⑤	⑥	⑦
2.	There are situations in my sport where I am made to feel inadequate.	①	②	③	④	⑤	⑥	⑦
3.	**I feel pushed to behave in certain ways in my sport.**	①	②	③	④	⑤	⑥	⑦
4.	I feel I am rejected by those around me in my sport.	①	②	③	④	⑤	⑥	⑦
5.	**I feel forced to follow training decisions made for me in my sport.**	①	②	③	④	⑤	⑥	⑦
6.	I feel inadequate in my sport because I am not given opportunities to fulfil my potential.	①	②	③	④	⑤	⑥	⑦
7.	**I feel under pressure to agree with the training regime I am provided in my sport.**	①	②	③	④	⑤	⑥	⑦
8.	I feel others in my sport can be dismissive of me.	①	②	③	④	⑤	⑥	⑦
9.	**Situations occur in my sport in which I am made to feel incapable.**	①	②	③	④	⑤	⑥	⑦
10.	I feel other people involved in my sport dislike me.	①	②	③	④	⑤	⑥	⑦
11.	**There are times when I am told things that make me feel incompetent in my sport.**	①	②	③	④	⑤	⑥	⑦
12.	I feel that other people in my sport are envious when I achieve success.	①	②	③	④	⑤	⑥	⑦

C.8 The State Shame and Guilt Scale (SSGS; Marschall, Sanftner, & Tangney, 1994)

The following are some statements which may or may not describe how you felt **after performing today**. To what extent did you experience any of the following **after today's game or practise**. Please rate each statement using the 5-point scale below.

Not feeling this way at all		**Feeling this way somewhat**		**Feeling this way very strongly**
①	②	③	④	⑤

1. I felt good about myself.	①	②	③	④	⑤
2. I wanted to sink to the floor and disappear.	①	②	③	④	⑤
3. I felt remorse, regret.	①	②	③	④	⑤
4. I felt worthwhile, valuable.	①	②	③	④	⑤
5. I felt small.	①	②	③	④	⑤
6. I felt tension about something I had done.	①	②	③	④	⑤
7. I felt capable, useful.	①	②	③	④	⑤
8. I felt like I was a bad person.	①	②	③	④	⑤
9. I couldn't stop thinking about something bad I had done.	①	②	③	④	⑤
10. I felt proud.	①	②	③	④	⑤
11. I felt humiliated, disgraced.	①	②	③	④	⑤
12. I felt like apologizing, confessing.	①	②	③	④	⑤
13. I felt pleased about something I had done.	①	②	③	④	⑤
14. I felt worthless, powerless.	①	②	③	④	⑤
15. I felt bad about something I had done.	①	②	③	④	⑤

C.9 Adapted version of The Sport Climate Questionnaire (SCQ; Deci, 2001)

This section contains items that are related to your experience with your teacher. Teachers have different styles in dealing with dancers, and we would like to know more about how you have felt about your encounters with your dance teacher. Your responses are confidential. Please be honest and candid.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
①	②	③	④	⑤	⑥	⑦

1. I feel that my teacher provides me choices and options.	①	②	③	④	⑤	⑥	⑦
2. I feel understood by my teacher.	①	②	③	④	⑤	⑥	⑦
3. I am able to be open with my teacher while engaged in dance.	①	②	③	④	⑤	⑥	⑦
4. My teacher conveyed confidence in my ability to do well at dance	①	②	③	④	⑤	⑥	⑦
5. I feel that my teacher accepts me.	①	②	③	④	⑤	⑥	⑦
6. My teacher made sure I really understood the goals of my athletic involvement and what I need to do.	①	②	③	④	⑤	⑥	⑦
7. My teacher encouraged me to ask questions.	①	②	③	④	⑤	⑥	⑦
8. I feel a lot of trust in my teacher.	①	②	③	④	⑤	⑥	⑦
9. My teacher answers my questions fully and carefully.	①	②	③	④	⑤	⑥	⑦
10. My teacher listens to how I would like to do things.	①	②	③	④	⑤	⑥	⑦
11. My teacher handles people's emotions very well.	①	②	③	④	⑤	⑥	⑦
12. I feel that my teacher cares about me as a person.	①	②	③	④	⑤	⑥	⑦
13. I don't feel very good about the way my teacher talks to me.	①	②	③	④	⑤	⑥	⑦
14. My teacher tries to understand how I see things before suggesting a new way to do things.	①	②	③	④	⑤	⑥	⑦
15. I feel able to share my feelings with my teacher.	①	②	③	④	⑤	⑥	⑦

C.10 Adapted version of the Perceived Parental Conditional Regard – Sport Domain Scale (PPCR-SD; Assor et al., 2004)

Please read the items and indicate how you have felt about your experiences with your parents in dance.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
①	②	③	④	⑤	⑥	⑦

1. I often feel that I will lose much of my mother's affection if I do poorly in dance.	①	②	③	④	⑤	⑥	⑦
2. I often feel that my mother's affection for me depends on my success in dance.	①	②	③	④	⑤	⑥	⑦
3. I often feel that my mother's affection for me depends on me practicing hard for dance.	①	②	③	④	⑤	⑥	⑦
4. I often feel that I will lose much of my father's affection if I do poorly in dance.	①	②	③	④	⑤	⑥	⑦
5. I often feel that my father's affection for me depends on my success in dance.	①	②	③	④	⑤	⑥	⑦
6. I often feel that my father's affection for me depends on me practicing hard for dance.	①	②	③	④	⑤	⑥	⑦