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Research at the University of York St John

Multidimensional perfectionism and antisocial behaviour in team sport: The mediating role of angry reactions to poor performance

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Submitted in accordance with the requirements for the degree of Master of Science by Research

York St. John University

School of Sport

September 2017

Acknowledgements

I would like to express my gratitude to everyone who has supported me during my time studying as a researcher at York St. John University. There are a number of individuals who I would like to acknowledge. Firstly, I would like to extend a special thank you to Gareth Jowett, Sarah Mallinson-Howard, and Howard Hall for providing me with the inspiration, support, and expert guidance needed to complete this research project. I feel privileged to have studied and developed under the supervision of such a distinguished supervisory team.

I am also extremely thankful to each member of the Motivation, Performance, and Well-being (MPaW) research group. My active involvement as a member of this group has had a positive influence on my development as a student researcher. In particular, I would like to extend my appreciation to the Group Director, Andy Hill, who has offered some extremely insightful thoughts on my work over the last two years.

I am also indebted to my family. To my Mam and Dad, I am grateful for the unconditional love and assistance you have provided me with throughout my life. To my partner, Emily, I can only begin to thank you for the incredible amount of love, patience, and encouragement you show me on a daily basis, especially when I make it difficult for you to do so.

A number of my close friends also deserve special recognition. In particular, I would like to thank Esmie Smith and Tracy Donachie for being a constant source of support and laughter. I would also like to thank Audrey and Dominic for their unwavering support in times of both difficulty and success.

Finally, I would also like to express my huge appreciation for all the sport coaches and athletes involved in the study by thanking them for their engagement with the research. Thank you for offering your valuable time and effort in order to make this research project possible.

Abstract

Researchers have recently asserted that perfectionism has an important role to play in generating antisocial athlete behaviour. In examining the relationship between multidimensional perfectionism and antisocial athlete behaviour within the context of team sport, the current thesis advanced this particular theme. These relationships were explored using a non-experimental, cross-sectional research design. Competitive adult and junior athletes (n = 257, M_{age} = 20.71 years, SD = 4.10) completed measures of multidimensional perfectionism, angry reactions to poor performance, and antisocial athlete behaviour. In total, three structural equation models were constructed and tested. The first model was designed to examine the independent effects of perfectionism dimensions in relation to antisocial behaviour focussed on outperforming others and achieving personal success in sport (i.e., *dark striving antisocial behaviour*). This model revealed that socially prescribed perfectionism emerged as the only positive predictor of dark striving antisocial behaviour. The second and third models were designed to test the mediating role of angry reactions to poor performance (i.e., poor personal and poor teammate performance) in the relationships between key components of perfectionism and antisocial acts during competition. The second model revealed that angry reactions to poor personal performance failed to mediate any of the relationships. By contrast, the third model revealed two significant indirect effects: self-oriented perfectionism shared a negative relationship (via angry reactions to poor teammate performance) with antisocial acts during competition, whereas other-oriented perfectionism shared a positive relationship (via angry reactions to poor teammate performance) with antisocial acts during competition. In line with research focussing on the independent effects of perfectionism in relation to hostile and disagreeable forms of interpersonal behaviour, the present findings indicate that socially prescribed and other-oriented perfectionism are the most problematic perfectionism dimensions in relation to antisocial athlete behaviour.

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1. Introduction.

Team sport athletes do not always behave in a morally virtuous manner. The social characteristics of team sport competition often provide athletes with opportunities to react with acts that have the potential to harm or disadvantage others (Kavussanu, 2008). This can be seen when athletes, for example, break up a threatening counter-attack with deliberate foul play or make disparaging verbal comments that aim to demoralise a player who is not playing particularly well (Kavussanu & Boardley, 2009). Such antisocial acts demonstrate an indignant disregard for others and are evident at all levels of competition (Kavussanu & Stanger, 2017a).

One level of competition in which antisocial behaviour is particularly apparent is elite sport (Kavussanu & Stanger, 2017b). An illustrative example of this is provided by Roy Keane, the Republic of Ireland assistant manager. In a press conference during the UEFA Euro 2016 soccer championship, Keane indicated that players must be prepared to make sacrifices in order to help their team achieve success and avoid failure (BBC Sport, 2016). In particular, Keane expressed the view that threatening competitive situations (e.g., an opposition counter-attack) often require players to react with antisocial behaviour (e.g., deliberately fouling an opponent). This ruthless attitude toward sport achievement is one that appears to be shared by competitive athletes across various sports. For instance, an example of what appeared to be an intentional foul was evident during the 2017 British and Irish Lions rugby union tour of New Zealand. In the second test of the series, New Zealand's Sonny Bill Williams performed an illegal tackle, driving his shoulder into the face of his opponent Anthony Watson. The act carried out by Williams was clearly dangerous and had the potential to provide New Zealand

with a competitive advantage. Together, this incident and the statement provided by Keane help to demonstrate that athletes who are hypercompetitive may also be willing to behave antisocially in order to achieve their competitive goals.

Other examples of antisocial behaviour are also evident in elite sport. For instance, in a recent interview, former Republic of Ireland International soccer player, Clinton Morrison, discussed the disruptive behaviours of his International teammate Roy Keane (Porter & James, 2017). Morrison revealed how many of his international teammates were afraid to train on the same team as Keane as they knew that if they were to give the ball away or make a mistake he would berate and belittle them. He also disclosed that certain players, such as Robbie Keane and Damian Duff, would appeal to the Manager, Mick McCarthy, in an attempt to avoid playing on the same side as Keane in training. The account Morrison provides serves as an illustrative example of how poor teammate performance can trigger angry reactions and antisocial behaviour in athletes who have high expectations for others and a low threshold for failure. Ultimately, the preceding high-profile cases indicate that an athlete's achievement-related attitudes and expectations may trigger behavioural acts that have a profound impact on others. Given the potential influence of immoral behaviour in sport, understanding the underpinnings of antisocial behaviour is an important endeavour for sport psychology researchers.

1.1. Theories of Sport Morality

One theory that has been used to explain moral behaviour in sport is Bandura's (1991) social cognitive theory of moral thought and action. According to this theory, individuals form moral judgements about social conduct by making important considerations regarding the legitimacy of the action, the context in which it takes place, the motivational factors that underpin it, and the potential consequences that may follow it. This perspective highlights how individuals are required to process a range of available information in order to make moral

judgements. According to Bandura (1991), however, the consequence of the action for others is the critical consideration that influences how the behaviour is perceived by others and whether it is regarded as morally acceptable or not. Athlete behaviours that show a cruel disregard for others and have the potential to cause suffering may therefore be viewed as immoral and socially unacceptable. Moreover, in line with Bandura's (1999) two-dimensional conceptualisation of morality, such behaviours are indicative of low levels of inhibitive morality (i.e., an inability to refrain from behaving inhumanely).

1.2. Antisocial Athlete Behaviour

Sport researchers interested in moral behaviour have started to focus on inhibitive morality by investigating antisocial behaviour in sport. This term refers to "voluntary behaviour intended to harm or disadvantage another individual" (Kavussanu & Boardley, 2009, p. 99). Athletes have reported and been observed engaging in a variety of acts indicative of this type of behaviour. For instance, behaviours such as swearing at others, criticising players for poor performance, and trying to kick other athletes have all been documented in team sport competition (Kavussanu & Boardley, 2009; Kavussanu, Stamp, Slade, & Ring, 2009). In developing a model for antisocial athlete behaviour, Kavussanu and Boardley (2009) have identified a range of antisocial athlete acts that occur during sport competition and have the potential to cause physical or psychological harm to others.

In team sport competition, athletes may employ antisocial acts with the aim of gaining an unfair advantage over others. Acts that involve deliberately fouling an opponent, intentionally breaking the rules, and putting other athletes down when they are performing poorly are particularly salient examples of antisocial behaviour that will disadvantage other individuals. The model developed by Kavussanu and Boardley (2009) focuses on the frequency of these overt antisocial acts by asking athletes to report how often they have engaged in each behaviour. However, as these behaviours are considered in isolation, it is not possible to

ascertain the underlying motivation behind the use of each antisocial act or what purpose it serves. This is an important consideration as athletes may use these antisocial acts for other reasons than trying to gain a competitive advantage. For instance, trying to purposefully foul an opposition player could be carried out with the sole aim of causing harm (e.g., Roy Keane exacting revenge on Alf-Inge Håland with dangerous foul in April, 2001), rather than preventing another player from achieving success (e.g., Ole Gunnar Solskjaer foul on Rob Lee in April, 1998).

The circumplex model of antisocial athlete behaviour (see Fig. 1) builds upon the work of Kavussanu and Boardley (2009). The model forwarded by Kaye and Hoar (2015) captures a wide array of antisocial behaviours, each of which is not exclusive to any one recipient (e.g., an opponent) and can apply to a variety of competitive contexts (e.g., training). The circumplex model incorporates two orthogonal axes: agency and communion. The communion axis captures behaviours that are hostile and dominant at one end versus friendly and affectionate at the other. By contrast, the agency axis differentiates between behaviours that are assertive-dominant and behaviours that are passive-submissive. The model is then further divided into eight octants, each of which reflects a specific blend of the two axes and is associated with a specific form of antisocial behaviour.
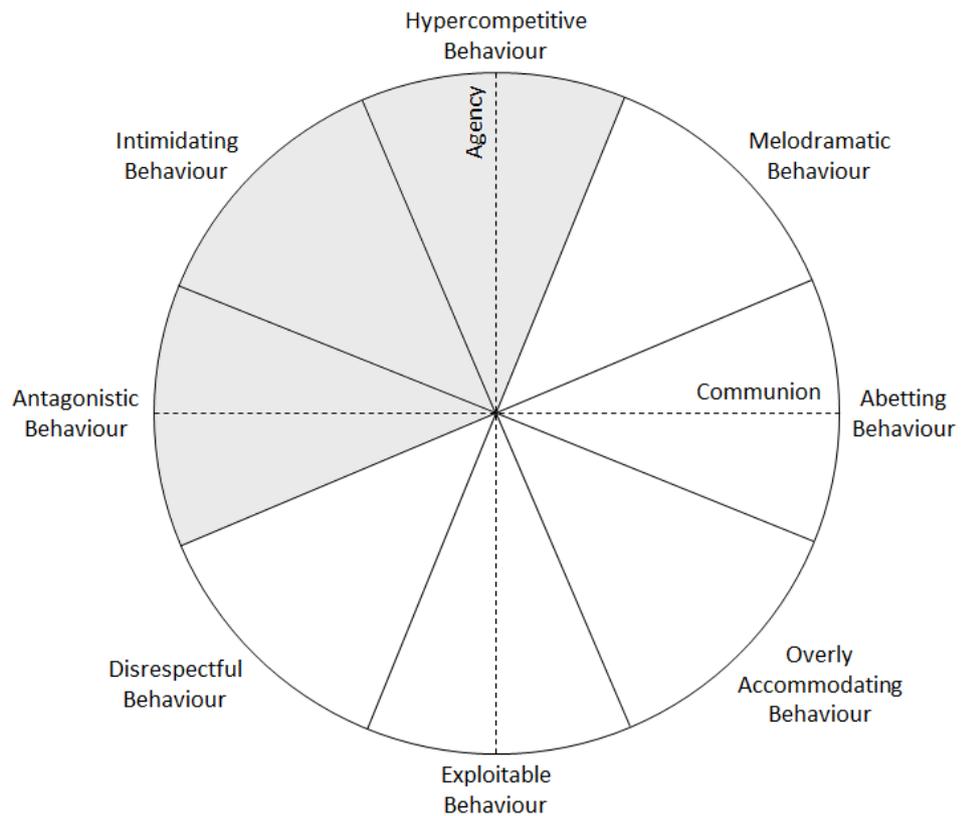
Figure 1. Circle of interpersonal antisocial sport behaviour. Adapted from "Antisocial sport behaviors survey: Instrument development and initial validation," by M. P. Kaye, and S. Hoar, 2015, *Journal of Sport and Exercise Psychology*, *37*(2), p. 166. Copyright 2015 by Human Kinetics.

The quadrant of the model housing hypercompetitive, intimidating, and antagonistic behaviour (see highlighted section in Fig. 1) captures forms of antisocial conduct with hostile and dominant characteristics (Kaye & Hoar, 2015). These forms of antisocial behaviour show a blatant disregard for the well-being of others and demonstrate some of the selfish and hostile acts athletes may exhibit in competitive scenarios. This model also directly implicates the use of such antisocial behaviour in the pursuit of aims such as attaining personal success, gaining a competitive advantage, and achieving victory. For example, Kaye and Hoar (2015) highlight how athletes may use threatening behaviour when winning is at stake (i.e., intimidating behaviour), do whatever it takes to achieve personal success (i.e., hypercompetitive behaviour), and compete selfishly in order to achieve personal goals (i.e., antagonistic

behaviour). This model therefore has the unique benefit of providing context to athletes' use of antisocial behaviour. In particular, the framework allows for an examination of the extent to which athletes are willing to go for the purposes of outperforming others, achieving personal success, and winning.

The two frameworks for antisocial athlete behaviour outlined above identify a range of antisocial behavioural interactions that occur in sport and have the potential to harm or disadvantage other athletes (Kavussanu & Boardley, 2009; Kaye & Hoar, 2015). As behaviours committed with the intention of causing harm to or thwarting the success of others, these behaviours clearly have potential negative consequences for the recipient. However, it is important to acknowledge that the antisocial acts exhibited by athletes may also have wider-reaching implications. For instance, if regarded by the recipient as an expression of interpersonal hostility or aggression, antisocial behaviour may also result in severed or impoverished peer relations (Hewitt, Flett, Sherry, & Caelian, 2006). Consequently, it is possible that in addition to having negative consequences for the recipient, behaving antisocially may also have a negative impact on the perpetrator. The potential consequences for both the recipient and perpetrator are reviewed in the following sections.

1.2.1. Consequences of antisocial athlete behaviour for the recipient.

Sport researchers have identified that a range of antisocial acts that occur during competition are directed specifically at teammates and opponents (Kavussanu & Boardley, 2009). In terms of teammates, the types of acts identified are generally forms of verbal abuse. For example, swearing at, criticising or mocking a teammate who is performing poorly. There are a number of psychological, emotional, and social consequences associated with these behaviours. For instance, one potential implication pertains to achievement motivation. When an athlete is confronted with such verbal abuse, it is possible that they may interpret the behaviour as an expression of their teammates' lack of confidence in one's athletic ability (Al-

Yaaribi, Kavussanu, & Ring, 2016). Especially for those who are sensitive to criticism from others, this perception may result in some athletes becoming demoralised and ultimately demotivated to put forth maximum effort. Al-Yaaribi et al. (2016) investigated this idea by asking a sample of soccer (study 1) and basketball players (study 2) to report how often their teammates acted antisocially toward them during a competitive fixture they had recently played. These reports were then examined in relation to the athletes' personal ratings of effort for the same match. In support of their theoretical proposal, Al-Yaaribi and his colleagues found that in both studies, received antisocial acts during competition demonstrated a negative association with personal ratings of effort. This finding indicates that athletes who believe their teammates frequently direct antisocial acts toward them during competition may struggle to put forth maximum effort.

The antisocial acts directed toward teammates during competition may also trigger an emotional response. Al-Yaaribi et al. (2016) proposed that receiving verbal abuse from a teammate may arouse anger. According to Lazarus (1991), situations and events appraised as "a demeaning offense against me and mine" (p. 222) will provoke anger. When expanding on this notion, Lazarus (1991) highlights that offensive acts considered to be intentional, inconsiderate, or malevolent contribute to the perception that we have been demeaned or slighted. Consequently, when targeted with antisocial behaviour from a teammate, it is possible that athletes will feel that they have been intentionally disrespected and taken for less than they deserve (Al Yaaribi et al., 2016). In turn, any perceived damage or threat to the athlete's ego-identity may produce anger (Lazarus, 1991). This is an idea that Al-Yaaribi and his colleagues examined by asking the soccer and basketball players to provide personal ratings of anger following the same competitive fixture they had recently played. The findings demonstrated that received antisocial acts during competition shared a consistent and positive association with personal ratings of anger. Therefore, in addition to exerting less effort, athletes who believe they are the target of frequent antisocial acts from their teammates

during competition may also experience more anger.

In addition to displaying antisocial behaviours toward teammates, athletes also direct antisocial acts toward their opponents during competition. Many of these behaviours are forms of physical abuse. For example, purposefully trying to foul or injure an opposing player (Kavussanu & Boardley, 2009; Kavussanu et al., 2009). One potential negative implication of such social conduct pertains to the physical well-being of the recipient. As these behaviours are potentially injurious, it is possible they will result in athletes being harmed or incapacitated. However, the fact that some behavioural acts committed by athletes during competition may cause injury to others is not in itself a primary cause for concern. Many team-based sports involve physical contact and the use of sanctioned behaviour that may result in injury (e.g., tackling in rugby; Kerr, 1999). However, when an athlete is at risk of injury due to behaviour carried out with the intention of causing harm, the moral implications of the situation become more problematic (Tenenbaum, Sacks, Miller, Golden, & Doolin, 2000). These acts often demonstrate a disregard for the rules of sport and lead to athletes being unnecessarily harmed (Tenenbaum et al., 2000). Consequently, antisocial acts carried out with the intention of causing harm to opponents during competition may result in athletes being unfairly injured.

In addition to antisocial behaviours that pose a physical threat to opponents, many of the antisocial acts athletes direct toward members of the opposition team have the potential to cause psychological distress. In particular, verbal forms of antisocial behaviour may result in some form of psychological suffering for the recipient (Kavussanu & Boardley, 2009). Acts indicative of this type of behaviour include swearing at, criticising, or threatening an opponent. As these behaviours are intended to harm or disadvantage an opponent (Kavussanu & Boardley, 2009), they are also typical of verbal sledging (i.e., trash talk). Sledging is a term used to refer to "verbal barbs directed at opponents during a sporting event in order to gain a

competitive edge" (Dixon, 2007, p. 96). These behaviours often involve making derogatory comments about an opponent's ability. As Dixon (2007) emphasises, these types of behaviours have the potential to offend athletes and cause a sense of distress that distracts athletes from performance related tasks. Antisocial forms of conduct that are verbal and directed toward opponents may therefore also cause psychological distress to opposition athletes during competition.

1.2.2. Consequences of antisocial athlete behaviour for the perpetrator.

Morally relevant behaviour is often discussed with a focus on the potential consequences that it has for others (e.g., Bandura, 1991). However, antisocial acts may also have a number of important personal repercussions. As acts that are often hostile, aggressive, and hypercompetitive, antisocial behaviour may generate interpersonal difficulties (Hewitt et al., 2006; Sherry, Mackinnon, & Gautreau, 2016). One way to help understand the potential interpersonal repercussions of such behaviour is to draw upon research grounded in achievement goal theory (Ames, 1992; Nicholls, 1989). Studies examining the peer motivational climate (e.g., Ntoumanis & Vazou, 2005) highlight how the actions of teammates encourage the adoption of a particular set of criteria on which ability is processed (i.e., a task- or ego-involving criterion; Vazou, Ntoumanis, & Duda, 2005). One particularly problematic dimension of a perceived ego-involving climate is intra-team conflict, which refers to the presence of negative and unsupportive teammate behaviours (Ntoumanis & Vazou, 2005). Examples of such behaviour include criticising teammates for performing poorly, laughing at teammates when they make mistakes, and making negative comments that put teammates down (Ntoumanis & Vazou, 2005). When reflecting on the accounts of athletes, Vazou et al. (2005) acknowledge that the presence of such behaviour appeared to have an undermining influence on peer relations. As these behaviours are extremely similar to the verbal antisocial acts directed at teammates during competition (Al-Yaaribi et al., 2016), this observation

suggests that athletes who frequently behave antisocially toward teammates may also experience relationship difficulties with their peers.

The use of antisocial behaviour as a means to gain a competitive advantage in sport may also result in other personal consequences. Rather than providing an advantage over others, acting antisocially during competition may actually lead to consequences that thwart the chances of victory and personal success. Firstly, it is possible that athletes will be punished for their antisocial behaviour. For instance, the International Football Association Board (2017) identifies that acts such as verbally distracting an opponent, recklessly kicking someone, and faking an injury are all deserving of disciplinary action (e.g., red card). Secondly, acting antisocially during competition may also have a positive motivational influence on the recipient. For example, in Kerr and Grange's (2009) study on verbal sledging in sport, one Australian football league player reported that they found using verbal abuse toward opponents would "spark some players up" (p. 368). This is a further illustration of how the use of antisocial acts during competition may function in an antithetical manner and lead to negative consequences for the perpetrator and their chance of achieving success.

1.2.3. Determinants of antisocial athlete behaviour.

Given the potential consequences to perpetrators and recipients, an important goal for sport researchers is to examine factors that lead athletes to behave antisocially during competition (Boardley & Kavussanu, 2010). Researchers have identified a range of both contextual and personal factors that are associated with antisocial acts during competition. In terms of situational influences, researchers have identified, for example, that antisocial behaviour has demonstrated negative associations with perceptions of an autonomy-coaching climate (e.g., Hodge & Lonsdale, 2011) and positive associations with perceptions of a controlling-coach climate (e.g., Hodge & Gucciardi, 2015). These findings indicate that coaching styles may have an important influence on antisocial athlete behaviour. Specifically,

athletes who perceive an environment in which the coach provides choice, acknowledges feelings, and encourages independence may be less likely to act antisocially during competition. By contrast, athletes who perceive an environment in which the coach is coercive, authoritarian, and manipulative may be more likely to act antisocially during competition. In addition to these situational influences, researchers have demonstrated that individual difference factors also have a bearing on the frequency of antisocial acts demonstrated by an athlete during competition. For example, researchers have identified that antisocial behaviour has demonstrated negative associations with empathy (e.g., Kavussanu & Boardley, 2009) and positive associations with fear of failure (Sagar, Boardley, & Kavussanu, 2011), anger (e.g., Kavussanu, Stanger, & Boardley, 2013), ego-orientation (e.g., Boardley & Kavussanu, 2010), subclinical narcissism (e.g., Jones, Woodman, Barlow, & Roberts, 2017), and moral disengagement (e.g., Boardley & Kavussanu, 2010).

One finding that is relevant, from a social-cognitive perspective, is that an ego-orientation has been linked to antisocial acts during competition (Kavussanu & Stanger, 2017a). Ego-orientation refers to the tendency for individuals to judge their ability in comparison to the performance and effort of others. When competing, athletes in a state of ego-involvement tend to focus on the demonstration of normative ability and feel successful when they have outperformed others around them (Duda, Chi, Newton, Walling, & Catley, 1995). Researchers have identified that ego-orientation has demonstrated positive associations with indices of moral functioning including unsportsmanlike attitudes and antisocial judgements and behaviours (e.g., Duda, Olson, & Templin, 1991; Sage, Kavussanu, & Duda, 2006). With regards to antisocial behaviour, Boardley and Kavussanu (2010) have demonstrated that this positive association is also apparent when considering antisocial acts directed toward teammates during competition. Ultimately, the findings reported by this body of research provide support to Nicholls' (1989) suggestion that an ego-oriented individuals' focus on winning will likely outweigh their concerns with issues of justice and fairness.

Perfectionism is another achievement-related personality variable also underpinned by "the need to be great and win" (Flett & Hewitt, 2016, p. 312). In pursuit of these perfectionistic aims, the highly perfectionistic athlete may display a similar disregard for morality as that demonstrated by highly ego-oriented performers. Specifically, the irrational level of importance that perfectionistic athletes assign to the achievement of excessively high performance standards may foster a "win at all costs" (Flett & Hewitt, 2016, p. 312) mentality in which antisocial behaviour is required as a necessary means of achieving success and avoiding failure. This proposal is consistent with the view that personality characteristics influence how individuals behave when interacting with others in a group environment (Shaw, 1981), indicating, specifically, that perfectionism may influence antisocial athlete acts during team sport competition.

1.3. Multidimensional Perfectionism

Perfectionism is a construct that has long been the subject of academic and clinical enquiry. Over a period stretching more than half a century, theorists and researchers interested in perfectionism have provided personal accounts and empirical evidence that have helped to advance our understanding of the psychological construct (Hewitt, Flett, & Mikail, 2017). It is now generally accepted that perfectionism is a multidimensional personality characteristic that involves the compulsive pursuit of flawlessness and harsh critical evaluations (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). The conceptualisation of perfectionism as a complex multidimensional construct first gained traction following the seminal work of two separate research groups (Frost et al., 1990; Hewitt & Flett, 1990, 1991). Prior to the emergence of these two multidimensional frameworks, perfectionism was predominantly considered as a unidimensional construct. A number of classical and contemporary theorists provided descriptions of perfectionism that were based largely on personal experiences (A. P. Hill, 2016). The majority of these conceptualisations

were consistent in presenting a focus on features of perfectionism that reflect the self-imposed importance of pursuing and achieving exceedingly high personal standards (A. P. Hill, 2016; Hewitt & Flett, 1991). Burns (1980), for instance, described perfectionists as "people who strain compulsively and unremittingly toward impossible goals and who measure their own worth entirely in terms of productivity and accomplishment" (p. 34). However, as Hewitt and Flett (1991) highlighted, the restricted focus of emerging perspectives presented a focus on perfectionism that failed to adequately take into account important interpersonal aspects.

While Hewitt and Flett (1991) acknowledged that the self-imposed pursuit of perfection is a core feature of the construct, they argued that interpersonal components were also crucial in defining perfectionism. The idea that perfectionism incorporates salient interpersonal features is in accordance with the accounts of several theorists and clinicians. For example, Horney (1945/1972) advanced the notion that perfectionism involves an extreme sensitivity to external demands and forms of pressure placed upon the self by others. Moreover, Hollender (1965) maintained that perfectionists relied on performance as a means of satisfying their need for feelings of acceptance and approval from others. These accounts support the idea that perfectionism involves beliefs that others are perfectionistic in their demands and that self-worth is dependent on gaining acceptance from others through achieving perfect performance (Hewitt, Flett, Besser, Sherry, & Mcgee, 2003).

Horney (1950) and Hollender (1965) also described other unique interpersonal components of perfectionism. One interpersonal feature that is apparent in their writing relates to the idea that perfectionism involves a requirement for others to be perfect. Horney (1950), for instance, described how "a person may primarily impose his [or her] standards upon others and make relentless demands as to their perfection" (p. 78). Similarly, Hollender (1965) argued "some persons who do not demand perfection of themselves, demand it of others" (p. 100). These accounts support the idea that perfectionism often involves an

externally directed need for others to be perfect.

According to accounts provided by Horney (1945/1972, 1950) and Hollender (1965), perfectionism incorporates interpersonal components that are central to the construct's conceptualisation (see Hewitt et al., 2003, for further evidence). Hewitt et al. (2003, 2017) have acknowledged that these accounts had a profound impact on their conceptualisation of perfectionism as a multidimensional construct containing both personal and social features. This conceptualisation was reflected in the development of the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991), which incorporates three core components: self-oriented, socially prescribed, and other-oriented perfectionism. Self-oriented perfectionism reflects internally motivated beliefs that pursuing exceptionally demanding standards and achieving perfection are essential (Stoeber & Madigan, 2016). Individuals characterised by high levels of self-oriented perfectionism require perfection from the self and are extremely self-critical when they fall short of this demanding standard (Hewitt & Flett, 1991). By contrast, socially prescribed perfectionism reflects externally motivated beliefs that pursuing exceptionally demanding standards and being perfect are essential to others (Stoeber & Madigan, 2016). Individuals demonstrating high levels of socially prescribed perfectionism believe that others require them to be perfect and will be highly critical should they fall short of this demanding standard (Hewitt & Flett, 1991). Finally, other-oriented perfectionism reflects internally motivated beliefs that it is essential for others to pursue exceptionally demanding standards and achieve perfection (Stoeber & Madigan, 2016). Individuals high in other-oriented perfectionism require others to be perfect and are highly critical of those who fall short of this demanding standard (Hewitt & Flett, 1991).

The multidimensional framework developed by Hewitt and Flett (1991) therefore provides a balanced representation of perfectionism as incorporating both personal and social features (Sirois & Molnar, 2016). In sport, researchers have dedicated considerable resources

to investigating outcomes associated with each of the perfectionism components identified in this framework (see Jowett, Mallinson, & Hill, 2016, for a review). The research findings concerning socially prescribed perfectionism largely mirror the results obtained from studies outside sport, providing further support to the notion that this component is uniformly debilitating. For instance, socially prescribed perfectionism has been found to share positive relationships with a range of negative outcomes (e.g., depressive symptoms, athlete burnout, and negative affect) and inverse relationships with a range of positive outcomes (e.g., life satisfaction, unconditional self-acceptance, and body-esteem). With regards to self-oriented perfectionism, the research findings once again mostly replicate the findings demonstrated in studies outside of sport. The pattern of findings is equally equivocal, showing, for instance, that self-oriented perfectionism shares direct relationships with both positive (e.g., intrinsic motivation, positive affect, and satisfaction with goal progress) and negative outcomes (e.g., depressive symptoms, worry, and negative self-perception when losing).

The majority of this research has focussed on potential personal costs and benefits associated with perfectionistic achievement striving in sport. This focus has had an impact on research findings concerning other-oriented perfectionism in the sport domain. Other-oriented perfectionism is primarily associated with interpersonal difficulties, rather than personal problems (Hewitt & Flett, 1991). Therefore, researchers in sport have either elected to exclude other-oriented perfectionism from their studies altogether (e.g., A. P. Hill & Appleton, 2011), or have found that other-oriented perfectionism is unrelated to the personal problems being examined (e.g., Mallinson & Hill, 2011). Ultimately, this has had an adverse impact on our understanding of other-oriented perfectionism and how it may impact the experiences of athletes in the sporting environment (especially in comparison to self-oriented and socially prescribed perfectionism).

Research outside the sport domain, however, has identified that other-oriented

perfectionism shares a consistent and robust relationship with interpersonal difficulties (see Habke & Flynn, 2002, for a review). In particular, researchers have identified that other-oriented perfectionism appears to be a particularly salient construct in terms of understanding socially aversive behaviour (e.g., interpersonal hostility; Stoeber, Noland, Mawenu, Henderson, & Kent, 2017). This line of research has recently helped to reinvigorate an interest in other-oriented perfectionism and the impact it may have in various research areas, including sport psychology (Stoeber, 2016). One of the primary objectives in the present thesis was to build on this interest by examining the relationships shared between each perfectionism component (i.e., self-oriented, socially prescribed, and other-oriented perfectionism) and antisocial athlete behaviour. In doing so, this study will also have the additional benefit of helping to identify some of the potential interpersonal difficulties associated with key components of perfectionism in the team sport context.

1.4. Multidimensional Perfectionism and Antisocial Athlete Behaviour: A Theoretical Perspective

Each of the core dimensions of perfectionism identified in Hewitt and Flett's (1991) framework has the potential to energise antisocial athlete behaviour. The first dimension considered is self-oriented perfectionism, which is underpinned by the pursuit of exceedingly high personal standards and the tendency to engage in harsh self-criticism (Hewitt & Flett, 1991). It is generally accepted that this perfectionism component encompasses features which energise the pursuit of high personal standards and may even lead to remarkable achievement (Hall, 2006). In particular, characteristics that reflect the setting of demanding standards and pursuit of perfection are often regarded as having beneficial consequences (Stoeber & Otto, 2006). When these features are considered independently of other core characteristics, self-oriented perfectionism is often regarded as a positive form of achievement striving (Flett & Hewitt, 2002). However, this narrow and restricted conceptualisation is inconsistent with the

construct initially proposed by Hewitt and Flett (1991). Specifically, this perspective fails to acknowledge evaluative features that are central to understanding the true character of self-oriented perfectionistic striving (Hall, 2006).

When viewed in the manner intended by Hewitt and Flett (1991), self-oriented perfectionism is reflected in a rigid and obsessive form of achievement striving (Hall, Jowett, & Hill, 2014). This extreme form of striving is thought to be underpinned by irrational thoughts that alter the meaning perfectionists assign to achievement (Hall, Hill, & Appleton, 2012). For instance, a belief that self-worth is contingent on achievement is proposed to motivate the extraordinary efforts of the self-oriented perfectionistic athlete (Hall et al., 2014). Moreover, due to the irrational importance self-oriented perfectionists attach to achievement, outcomes are assessed in terms of total success or total failure (Hall et al., 2014; Hewitt & Flett, 1991). Ultimately, this thought pattern generates an extreme pre-occupation with failure and the implications of not being perfect (Hall et al., 2014). Accordingly, one of the primary reasons for the unremitting pursuit of perfection is to avoid the distressing experience of failure (Hall et al., 2012).

The extent to which self-oriented perfectionists are under pressure to be perfect is often reflected in a hypercompetitive attitude (Flett and Hewitt, 2014). As Sherry et al. (2016) note, this hypercompetitiveness often manifests itself in a "win-at-all-cost interpersonal style where others are viewed more as competitors than collaborators" (p. 230). When discussing this idea in the context of sport, Flett and Hewitt (2016) suggest that some perfectionistic athletes may respond to the desire to win and be the best by engaging in *dark striving*; a term used to refer to "unacceptable behaviours that 'cross the line' and reflect this need to win and be great no matter what is required" (p. 312). Consequently, it is possible that in response to such self-imposed demands, self-oriented perfectionistic athletes will engage in antisocial behaviours in order to gain a competitive advantage over others and achieve personal success

in sport (i.e., dark striving antisocial behaviour).

The second dimension considered is socially prescribed perfectionism, which is underpinned by the perception that others expect perfection from the self and will be highly critical of them should they fail to satisfy these imposed demands (Hewitt & Flett, 1991). Similar to self-oriented perfectionism, this dimension entails irrational beliefs regarding achievement (Hewitt & Flett, 1991). Specifically, socially prescribed perfectionism involves the belief that achieving extremely demanding goals is necessary in gaining the respect and approval of others (Campbell & Di Paula, 2002). In order to validate a sense of self, the socially prescribed perfectionist seeks recognition from others via the pursuit of perfection (Hall, 2006). Unfortunately, however, the standards these individuals pursue are perceived as being unrealistic and beyond their control (Hall, 2006). Inevitably, this outlook contributes to feelings of anger, helplessness, and hopelessness (Hewitt & Flett, 1991).

It would seem that individuals high in socially prescribed perfectionism are plagued by the perception that it is impossible to satisfy the exceedingly demanding standards thrust upon them by others (Flett et al., 2016). In response to such a sense of despair and self-inadequacy, socially prescribed perfectionists may engage in antisocial behaviours that help them to outperform others and achieve personal success in sport (i.e., dark striving antisocial behaviour). However, not all socially prescribed perfectionists will necessarily respond to the pressure to be perfect in this way. As well as promoting a sense of desperation, the burden of extreme pressure to satisfy unfair expectations also generates anger and resentment (Flett et al., 2016). This indignant response often manifests itself in irritable and aggressive interpersonal behaviour (Habke & Flynn, 2002). Consequently, when subjected to chronic pressure to be perfect, some socially prescribed perfectionistic athletes may instinctively retaliate with hostile antisocial acts (e.g., swearing at others).

The final dimension considered is other-oriented perfectionism, which is underpinned

by expectations that others must strive for and attain exceedingly demanding goals (Hewitt & Flett, 1991). Similar to other dimensions of perfectionism, the requirement for perfection is underpinned by an extreme sense of urgency (Flett, et al., 2016). In fact, the extent to which other-oriented perfectionists insist on perfection is reflected in their tendency to be highly critical of those who fail to satisfy imposed demands (Hewitt & Flett, 1991). Moreover, given the extreme level of scrutiny under which others are evaluated, individuals high in other-oriented perfectionism are repeatedly dissatisfied with others' performance endeavours (Hall, 2006). This sense of discontent and disapproval toward others often manifests itself in hostile and extrapunitive forms of interpersonal behaviour (Flett et al., 2016). As Habke and Flynn (2002) highlight, such hostile-dominant behaviour is likely to alienate others and ultimately strain social relationships (see also Sherry et al., 2016).

The interpersonal expression of other-oriented perfectionism is particularly problematic in social settings (Habke & Flynn, 2002). Given the interdependent features inherent to team sport competition (Boardley & Jackson, 2012), athletes high in other-oriented perfectionism will inevitably be frustrated by their teammates. Specifically, the rigid demands they impose on their teammates will frequently be interpreted as discrepant from actual performance outcomes (Hall, 2006). In this situation, these athletes will often be distressed and annoyed at their teammates' substandard achievement and performance effort. In turn, it is possible that these feelings will generate acts that are indicative of antisocial behaviour (e.g., verbally abusing a teammate). Unlike self-oriented and socially prescribed perfectionists who may adopt antisocial behaviour as means to achieving success, other-oriented perfectionists are more likely to use the behaviour as an expression of their anger, contempt, and frustration with others during competitive situations (Hewitt et al., 2017).

1.5. Multidimensional Perfectionism and Antisocial Behaviour: Empirical Research

1.5.1. Multidimensional perfectionism and dark personality traits.

Researchers have demonstrated that dimensions of perfectionism are associated with various personality traits and disorders that are socially maladaptive (e.g., antisocial personality disorder; Stoeber, 2014a). As Flett and Hewitt (2014) highlight, the beliefs and motives associated with many of these personality features may facilitate the tendency for perfectionistic athletes to engage in antisocial behaviour. In accord, this section will review research that has examined the association between components of multidimensional perfectionism and personality traits that have the potential to generate antisocial behaviour.

Stoeber (2014a) examined the relationships of multidimensional perfectionism with personality traits included in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013). In doing so, Stoeber (2014a) was able to explore the relationship between multidimensional perfectionism and antisocial personality disorder. An examination of the bivariate correlations revealed that both socially prescribed and other-oriented perfectionism shared positive associations with a range of antisocial personality traits. For example, the interpersonal perfectionism dimensions shared positive associations with hostility (example item: "I am usually pretty hostile"), callousness (example item: "I really don't care if I make other people suffer"), deceitfulness (example item: "I don't hesitate to cheat if it gets me ahead"), and manipulativeness (example item: "It is easy for me to take advantage of others"). It is possible that, when accompanied by such a pattern of antisocial beliefs, interpersonal perfectionistic tendencies (i.e., those associated with socially prescribed and other-oriented perfectionism) could manifest as antisocial acts during socially competitive situations (e.g., team sport competition).

More recently, Stoeber (2014b) also examined the relationships of multidimensional perfectionism with the dark triad of personalities. The *dark triad* is a term used to refer to three similar, yet distinct personality constructs: Machiavellianism, subclinical narcissism, and subclinical psychopathy (Paulhus & Williams, 2002). These are socially undesirable

personalities that share a "socially malevolent character with behaviour tendencies toward

self-promotion, emotional coldness, duplicity, and aggressiveness" (Paulhus & Williams, 2002,

p. 557). The bivariate correlations revealed that other-oriented perfectionism shared the

strongest and most consistent associations with the dark triad personalities. In this regard,

Stoeber's (2014b) findings indicate that individuals high in other-oriented perfectionism have a

strong desire to attain the admiration of others, believe they are thoroughly deserving of

superior treatment, have a cruel disregard for others, and are willing to employ devious tactics

to achieve their goals. Once again, it is possible that these beliefs and motives may promote

the tendency for individuals reporting high levels of other-oriented perfectionism to act

antisocially during competitive situations.

The results of Stoeber's (2014a, 2014b) studies indicate that it is the interpersonal

aspects of trait perfectionism that demonstrate the most consistent association with aspects

of an antisocial personality. In addition, they serve as an indication that both perfectionism

dimensions share a low regard for others. Nevertheless, these dimensions also have unique

characteristics that set them, and possibly their associations with antisocial personality

features, apart. For instance, Stoeber (2015) identified that other-oriented perfectionism

shared a unique positive bivariate association with interpersonal feelings of superiority

(example item: "I am superior to others"). By contrast, socially prescribed perfectionism

shared a negative bivariate association with positive self-regard (example item: "I am pretty

much exactly as I would like to be"). These findings are consistent with results demonstrating

that other-oriented perfectionism is positively associated with narcissistic features (e.g.,

Sherry, Gralnick, Hewitt, Sherry, & Flett, 2014), whereas socially prescribed perfectionism is

negatively associated with self-esteem (e.g., Flett, Hewitt, Blankstein, & O'Brien, 1991). In

considering these differences, it is possible that the motives underpinning antisocial beliefs

and personality features differ between the two perfectionism dimensions. The pattern of

antisocial personality features associated with other-oriented perfectionism appears to be

motivated by an inherent sense of superiority and entitlement. By contrast, an insecure sense of self-worth appears to influence the aspects of an antisocial personality associated with socially prescribed perfectionism (Stoeber, 2015).

1.5.2. Multidimensional perfectionism and interpersonal problems.

In addition to identifying how perfectionism is associated with aspects of personality that may facilitate antisocial behaviour, researchers have also examined a more direct relationship between perfectionism and problematic interpersonal behaviour. A study conducted by R. W. Hill, Zrull, and Turlington (1997) investigated the associations between multidimensional perfectionism and behaviours captured by the Inventory of Interpersonal Problems (IIP–C; Alden, Wiggins, & Pincus, 1990; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). This circumplex measure incorporates two orthogonal axes: dominance and nurturance. The nurturance axis includes extremes of love and warmth at one end versus hostility and coldness at the other. By contrast, the dominance axis differentiates between behaviour that is passive-submissive and behaviour that is assertive-dominant (Flett et al., 2016). This circumplex model is then further divided into eight octants, each of which reflects a specific blend of the two major dimensions and is associated with a unique set of problematic social behaviours (Flett et al., 2016; Habke & Flynn, 2002).

The results of R. W. Hill et al.'s (1997) study identified that dimensions of perfectionism incorporated in Hewitt and Flett's (1991) multidimensional framework demonstrated an association with domineering and vindictive interpersonal problems. These octants represent a range of behavioural problems, including issues with control, manipulation, trust, empathy, and aggression toward others. In particular, the results of this study indicate that the two interpersonal dimensions of perfectionism (especially other-oriented perfectionism) are associated with interpersonal problems that demonstrate an extremely low regard for others. In the team sport context, this interpersonal style and hostile-

dominant tone may be expressed using antisocial athlete behaviour.

1.5.3. Multidimensional perfectionism, interpersonal difficulties, and the potential role of antisocial athlete behaviour.

A handful of sport studies exist in which the relationships between individual dimensions of perfectionism and interpersonal difficulties have been examined (i.e., Mallinson & Hill, 2011; Ommundsen, Roberts, Lemyre, & Miller, 2005). The results of these studies highlight some of the interpersonal difficulties associated with components of multidimensional perfectionism. In terms of the focus of the current thesis, these studies are relevant as these difficulties could be explained by a positive association between perfectionism and antisocial athlete behaviour. The potential role of antisocial behaviour in this relationship is discussed after reviewing the two studies.

Ommundsen et al. (2005) investigated the relationship between multidimensional perfectionism and various indices of peer relationships in a sample of youth soccer players. The results of this study revealed that a range of perfectionism dimensions shared a positive association with peer conflict (i.e., arguing and fighting with a teammate) and negative associations with peer acceptance (i.e., feeling accepted by a teammate) and companionship (i.e., spending time and talking with a teammate). In particular, the results of this study indicate that perfectionistic junior athletes who perceive parental pressure to be perfect, are extremely pre-occupied with mistakes, and have a tendency to doubt their own ability will experience interpersonal problems with those whom they consider to be close friends.

More recently, Mallinson and Hill (2011) also examined how perfectionistic junior athletes perceived their relation to others in the sporting environment. Mallinson and Hill (2011) investigated the relationship between multidimensional perfectionism and perceived psychological need thwarting. In terms of the current discussion, the facet of psychological need thwarting concerned with relatedness is particularly important as it assesses the extent

to which one feels they do not belong and are disconnected from others (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011). The results of this study revealed that a range of perfectionism dimensions shared a positive association with relatedness thwarting. In particular, the findings indicated that perfectionistic junior athletes who perceive external parental pressure to be perfect will feel disliked and rejected by others in their sport.

These findings collectively highlight some of the interpersonal difficulties faced by perfectionistic junior athletes. It is possible that many of these problems are a product of the tendency for perfectionistic athletes to exhibit socially aversive behaviours when interacting with significant others in the sport environment (Ommundsen et al., 2005). This idea is consistent with the Perfectionism Social Disconnection Model (Hewitt et al., 2006; Sherry et al., 2016). This model proposes that one way in which highly perfectionistic individuals generate interpersonal problems is via their tendency to engage in interpersonally hostile and aggressive behaviour. As Sherry et al. (2016) note, over time these types of behaviours are likely to undermine the development and maintenance of interpersonal relationships. When considering the range of social interactions indicative of antisocial behaviour, it becomes apparent that a number of the behaviours could be displayed or interpreted by the recipient as an expression of hostility (e.g., verbally criticising a teammate) or aggression (e.g., deliberately trying to injure an opponent). Consequently, it is possible that the interpersonal difficulties reported by perfectionistic athletes (e.g., feeling disliked by peers) could be related to a tendency to behave in a hostile and potentially antisocial manner.

1.6. Multidimensional Perfectionism and Antisocial Athlete Behaviour: Study Rationale

The theoretical and empirical evidence outlined above indicates that team sport athletes who are highly perfectionistic may have a tendency to behave antisocially. Nevertheless, no study has yet examined the direct relationship between multidimensional perfectionism and antisocial behaviour in the context of team sport. Accordingly, the first

research aim of the present thesis was to explore the associations shared between key components of perfectionism (i.e., self-oriented, socially prescribed, and other-oriented perfectionism) and antisocial athlete behaviour (i.e., dark striving antisocial behaviour and antisocial acts during competition).

1.7. Multidimensional Perfectionism and Antisocial Acts During Competition: The Potential Role of Angry Reactions to Poor Performance

In addition to identifying factors that lead athletes to engage in antisocial behaviour, it is also important to establish potential mediating mechanisms through which specific relationships function (Boardley & Kavussanu, 2010). This allows researchers to better understand how certain factors affect outcomes such as antisocial athlete behaviour (Hayes, 2013). In terms of the relationship under investigation in the current thesis (i.e., perfectionism-antisocial athlete behaviour), one potential mediating variable worthy of investigation is state anger. State anger is commonly defined as an "emotional state or condition marked by subjective feelings that vary in intensity from mild irritation or annoyance to intense fury or rage" (Spielberger, 1991, p. 1). As Deffenbacher (2011) highlights, such angry feelings have the potential to elicit behavioural responses. Deffenbacher (2011) postulates that as angry feelings increase in intensity, so too does the probability they will be expressed in potentially destructive forms of behaviour (e.g., physical or verbal assaults). Athletes who are short-tempered and frequently infuriated during competition may therefore often lash out at others with antisocial behaviour. In support of this idea, Kavussanu et al. (2013) found that anger and hostility shared positive associations with antisocial acts during competition. These findings suggest that team sport athletes who perceive themselves as being angry and hostile are also likely to direct antisocial acts toward their teammates and opponents during competition.

An important consideration, however, is that athletes are likely to differ in terms of their state anger vulnerability. An individuals' personality is a factor that will "undoubtedly

contribute to the readiness to become angry" (Lazarus, 1991, p. 221). As Lazarus (1991)

explains, individual differences in personality can explain how it is possible for different people

to have separate emotional experiences following the same provoking event. One personality

variable which appears to contribute to an athlete's tendency to interpret relatively mild

provocations as offensive is perfectionism. A series of research studies in sport psychology

have reported findings in support of this notion.

The first study to examine the perfectionism-anger relationship in sport was

conducted by Dunn, Gotwals, Causgrove Dunn, and Syrotuik (2006). Dunn et al. (2006) sought

to establish whether perfectionism influenced an athlete's vulnerability to experience anger in

general (i.e., trait anger), as well as anger in response to poor personal performance. In a

sample of Canadian football players, Dunn and his colleagues found that a pattern of high

personal standards, concern over mistakes, and perceived coach pressure dimensions of

perfectionism demonstrated a positive association with competitive trait anger. This finding

illustrates that athletes who report high levels of these perfectionistic features may be hot-

headed competitors who react angrily in situations involving frustration (e.g., being slowed

down by others) and negative evaluation (e.g., being criticised in front of others). As Hall

(2012) highlights, this heightened angry temperament may manifest itself in intense angry

outbursts during competitive situations. In accordance with this idea, Dunn et al. found that

the same pattern of perfectionism dimensions also demonstrated a positive association with

angry reactions to poor personal performance. This finding demonstrates that athletes

reporting high levels of these perfectionistic tendencies reported experiencing intense feelings

of anger (e.g., fury) and urges to express their anger verbally (e.g., swearing at someone) and

physically (e.g., kicking something) when playing poorly during competition.

Vallance, Dunn, and Causgrove Dunn (2006) carried out the next study in the series. In

order to extend the work carried out by Dunn et al. (2006), the researchers recruited a

different athletic population and examined the multivariate relationship between perfectionism and trait anger. In a sample of junior ice hockey players, Vallance et al. (2006) found that a pattern of high personal standards, concern over mistakes, perceived parental pressure, and perceived coach pressure dimensions of perfectionism demonstrated a positive association with competitive trait anger. This finding provides further support to the idea that athletes reporting high levels of perfectionism are generally quick-tempered individuals. A further purpose of Vallance et al.'s study was to examine how athletes would anticipate reacting if they were to make a personal mistake during competition. Vallance and his colleagues sought to establish if perfectionistic athletes' angry reactions differed according to the criticality of situation in which the personal mistake was made (i.e., in a low criticality versus high criticality game scenario). Vallance et al. found that regardless of which scenario the mistake was proposed to occur, athletes reporting high levels of perfectionism anticipated feeling more intense feelings of anger and urges to express their anger verbally and physically compared to athletes reporting lower levels of perfectionism.

The most recent study in the series again examined how perfectionism might influence athletes' emotional reactions to making personal mistakes during competition. Lizmore, Dunn, and Causgrove Dunn (2016) asked a sample of Canadian curling athletes to report the intensity of anger (e.g., fury and annoyance) and dejection (e.g., disappointment and unhappiness) they would anticipate feeling if they were to make a personal error in low criticality (i.e., making a mistake when trailing by one point early in the game) and high criticality (i.e., making a mistake when trailing by one point late in the game) competitive scenarios. Lizmore et al. (2016) found that regardless of when the mistake was proposed to occur, a cluster of athletes reporting higher levels across the personal standards, concern over mistakes, perceived parental pressure, doubts about actions, and organisation dimensions of perfectionism anticipated experiencing the most intense levels of anger and dejection following performance errors. This finding adds further weight to the notion that athletes reporting high levels of

perfectionism are particularly vulnerable to feelings of anger, especially in situations when they make personal errors during competition.

1.8. Multidimensional Perfectionism, Angry Reactions to Poor Performance, and Antisocial Acts During Competition: Study Rationale

The research studies outlined above indicate that making performance errors and failing to reach high personal standards during competition are circumstances that will be especially telling for the highly perfectionistic athlete. In these situations, perfectionistic athletes reported experiencing or anticipating frequent angry feelings and impulses to act hostile (e.g., swear at or hit somebody). An important question that arises from these particular research findings is: do these angry feelings and urges to demonstrate hostility play a role in how highly perfectionistic athletes actually behave during competition? As Dunn et al. (2006) highlight, there would be an important difference between an athlete who "feels like shouting" and an athlete who "actually shouts" (p. 21). In order to investigate this possibility, the present study examined the mediating role of angry reactions to poor personal performance in the relationship between multidimensional perfectionism and antisocial acts during competition.

The studies identified above have all focussed on how athletes respond in situations when personal performance is lacking. While the findings provide an important insight into the vulnerabilities faced by perfectionistic athletes, there are still important questions that remain unanswered. For instance, "how do perfectionists playing team sports respond when their teammates are falling short of their expectations?" (Flett & Hewitt, 2016, p. 297). An important aim of the research study will be to extend this line of research by examining how perfectionistic athletes respond in situations when their teammates are not playing particularly well. As Dunn et al. (2006) highlight, "it would be worthwhile determining if athletes' anger responses varied as a function of whether mistakes in competition (i.e., those

that correspond to playing poorly) were committed by the self or others (e.g., teammates)" (p. 21). Moreover, it is possible that this form of angry reaction will play an important role in determining how certain perfectionistic athletes actually behave during competition. Therefore, the mediating role of angry reactions to poor teammate performance in the relationship between multidimensional perfectionism and antisocial acts during competition will also be examined.

1.9. The Present Study

In line with the theoretical and empirical evidence outlined above, the present study had two overarching aims. The first aim was to provide an initial examination of the perfectionism-antisocial athlete behaviour relationship in a team sport context. This involved investigating the independent effects of three perfectionism components (i.e., self-oriented, socially prescribed, and other-oriented perfectionism) in relation to dark striving antisocial behaviour (e.g., see Fig. 2) and antisocial acts during competition. The second aim was to examine whether angry reactions to poor personal (see Fig. 3) and or teammate (see Fig. 4) performance mediated the associations between perfectionism and antisocial acts during competition.

1.10. Hypotheses

1. Self-oriented and socially prescribed perfectionism will share positive associations with dark striving antisocial behaviour.
2. Socially prescribed and other-oriented perfectionism will share positive associations with antisocial acts during competition.
3. The Socially prescribed perfectionism-antisocial acts during competition relationship will be mediated by a positive association with angry reactions to poor personal performance.
4. The other-oriented perfectionism-antisocial acts during competition relationship will be mediated by a positive association with angry reactions to poor teammate performance.
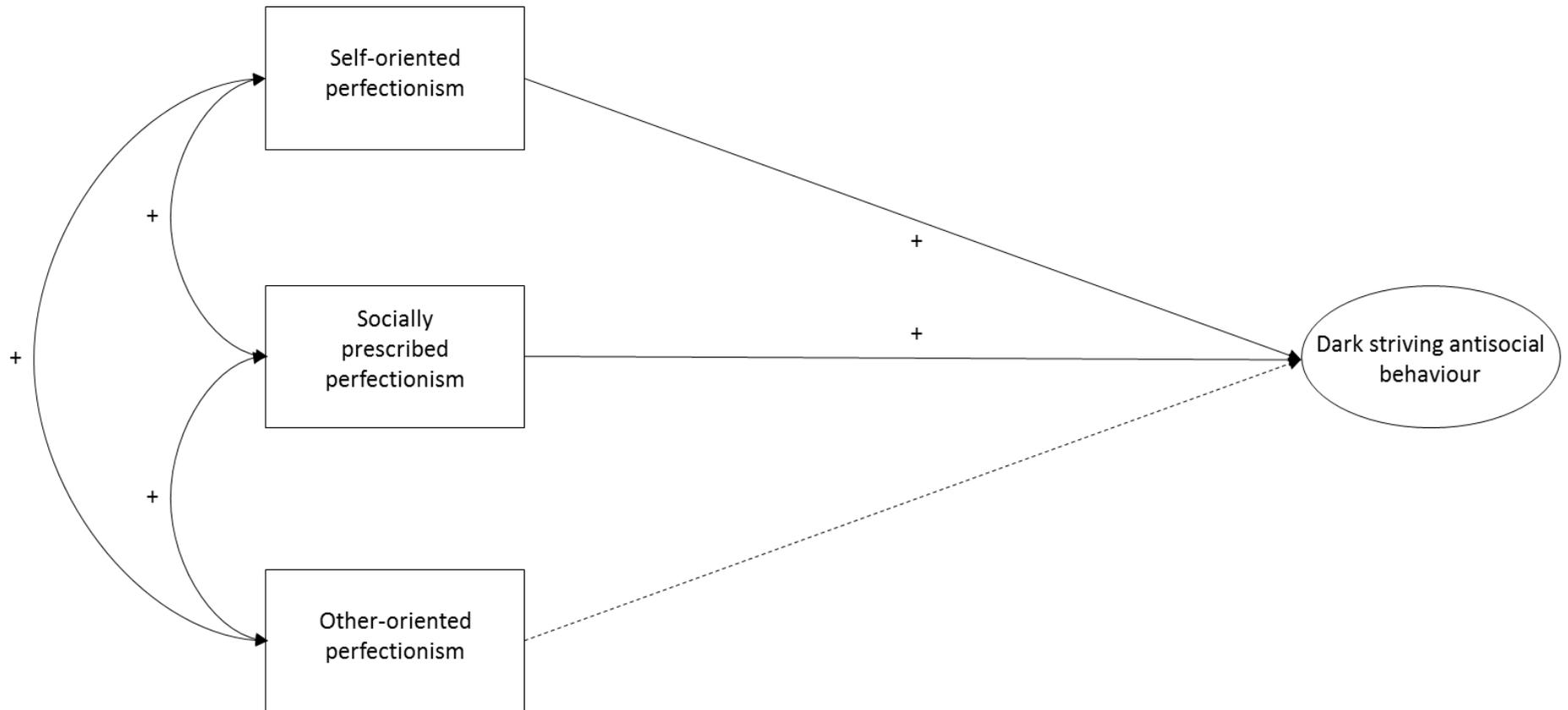
Figure 2. Hypothesised model (HM1) – The associations between multidimensional perfectionism and dark striving antisocial behaviour in sport.
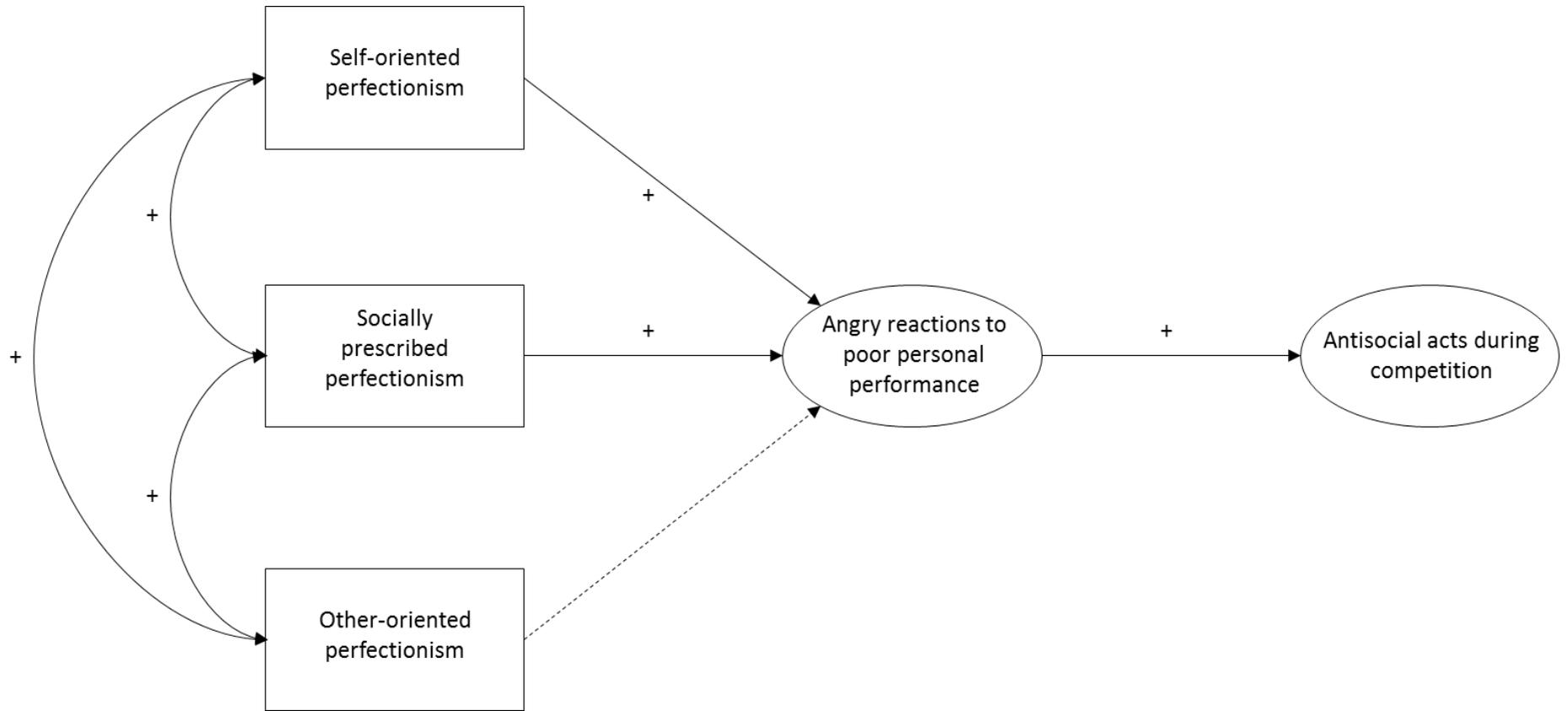
Figure 3. Hypothesised model (HM2) – The associations between multidimensional perfectionism, angry reactions to poor personal performance, and antisocial acts during competition.
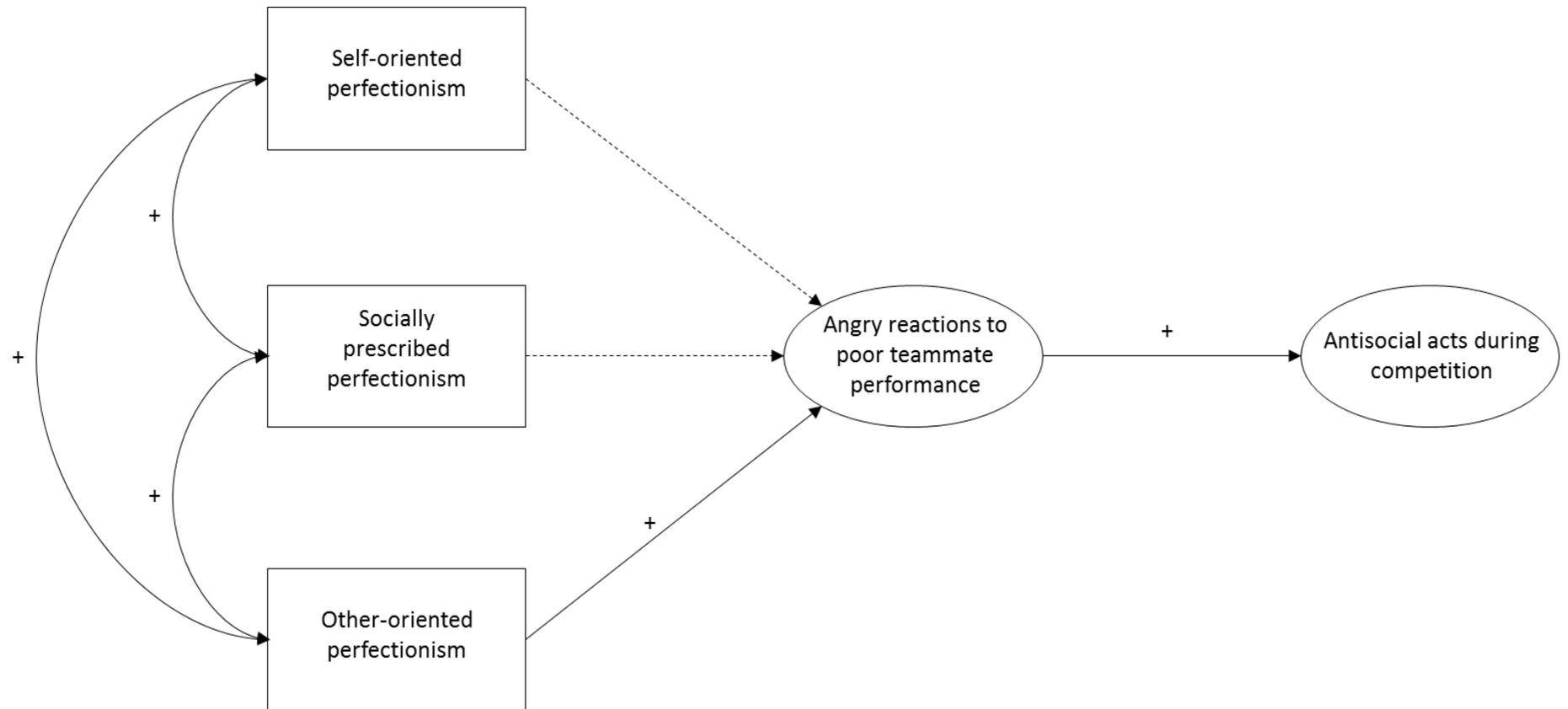
Figure 4. Hypothesised model (HM3) – The associations between multidimensional perfectionism, angry reactions to poor teammate performance, and antisocial acts during competition.

2. Method

2.1. Research Design

The study hypotheses presented above were tested using a non-experimental, cross-sectional design. As no study has yet examined the relationship between perfectionism and antisocial athlete behaviour, adopting this design helped to determine if these constructs are associated. This was achieved by asking team sport athletes to complete a multi-section inventory containing a number of validated instruments (see appendix A). This quantitative data was then used to test the three hypothesised models (HM1: Fig. 2; HM2: Fig. 3; and HM3: Fig. 4). Ultimately, this empirical approach helped to evaluate whether the data collected provided support to confirm or refute the study hypotheses.

2.2. Participants

Participants were 257 (219 males; 38 females; M_{age} = 20.71 years; SD = 4.10 years; range = 16–39 years) competitive adult (≥ 18 years) and junior (16 to 17 years) athletes recruited from various sport teams in the United Kingdom (206 adults; 48 juniors; 3 unknown). The sports that athletes participated in were soccer (n = 110), rugby union (n = 85), and rugby league (n = 62). The highest level that athletes had competed at was international (n = 57), national (n = 63), regional (n = 27), academy (n = 78), university (n = 28), and unknown (n = 4). On average, participants had been competing in their sport for 11.28 years (SD = 4.65 years) and dedicated 11.86 hours (SD = 5.57 hours) to training and competition per week. In comparison to other activities in their lives, participants rated their sport as extremely important (M = 7.92, SD = 1.92: 1 = *extremely unimportant* to 9 = *extremely important*).

2.3. Sample Criteria

A number of important factors were taken into consideration prior to recruiting participants for the current study. Firstly, a decision was made to recruit athletes from team-

based sports that (a) provide athletes with opportunities to socially interact with one another; and (b) allow physical contact with opponents. This criterion was adopted to ensure that potential participants were involved in sports which provide opportunities for a wide array of antisocial behaviours to occur during competition (Kavussanu & Boardley, 2009). A further important procedure involved screening the multi-item inventory for items that may not be applicable to certain sports. This procedure flagged up one item that may have been problematic. The item asking athletes to report how often they have helped an opponent off the floor during competition would not be applicable to water-based sports (e.g., water-polo), for example. Based on the above considerations, athletes participating in soccer, rugby union, rugby league, netball, and basketball were considered appropriate for participation (Kavussanu & Boardley, 2009).

The timing of the data collection period (mid-September to mid-December) was also taken into consideration prior to selecting an appropriate sample. Some sports were in the competitive phase of their sports annual cycle for the entirety of this period (e.g., football), whereas others were not (e.g., rugby league). In order to accommodate all five sports and maximise the number of athletes able to participate in the study, a decision was made to recruit athletes from all five sports regardless of the timing of data collection (i.e., whether data collection took place during the competitive season or during the preseason). This decision had an impact on the instructions preceding one of the instruments included in the multi-item inventory.

The final important consideration involved thinking about what level of competition to target when recruiting athletes. Rather than selecting athletes from one particular standard of competition, a decision was made to recruit a range of competitive athletes (i.e., university 1st team, academy, regional, and national level athletes). These athletes compete at standards of competition that typically involve a strong focus on the importance of winning (Yukhymenko-

Lescroart, 2015). The pressure which often accompanies this focus (e.g., the pressure to avoid bad performances due the fear of being dropped or released; MIND, 2014) may promote the tendency for athletes to engage in antisocial interactions (Yukhymenko-Lescroart, 2015).

2.4. Procedure

Once institutional ethical approval had been granted (see appendix B), an official letter was distributed to the gatekeepers (e.g., academy manager or head coach) of team sport clubs and organisations who satisfied the participation criteria. The letter outlined the aims of the research and invited the recipients' sport club or organisation to be involved in the study (see appendix C). A number of gatekeepers from football, rugby league, and rugby union demonstrated an immediate interest in the research project. A pragmatic decision was made to therefore focus on recruiting participants from these three sports. For those expressing an interest in participating, data collection arrangements were made. Specifically, a time-slot convenient for the sport club or organisation was established in which the lead researcher could provide an overview of the project, address any queries, and invite athletes to complete the study questionnaire. In accordance with the British Psychological Society's (BPS) Code of Human Research Ethics (BPS, 2010), valid consent was then gained from all willing participants. When working with adult athletes (≥ 18 years), the consent procedure involved the researcher providing written information about the project (see appendix D) and obtaining signed informed consent from the participant (see appendix E). When working with junior athletes (16 to 17 years), the consent procedure involved gaining both parental consent and verbal assent from the participant. For parental consent, an official letter (see appendix F) was sent to parents at least fourteen days prior to data collection. An opt-out protocol was adopted whereby parents who did not want their child to take part in the study could indicate so by e-mailing the project director or informing the child's coach. In accordance with institutional guidelines, an active consent method (e.g., opt-in protocol) was not deemed necessary on the

basis that all adolescent athletes invited to take part in the study were aged 16 years and over, the risks associated with participation were considered minimal, and data collection arrangements were to be carried out in a sport club setting in the presence of a consenting gatekeeper (Noret, 2012). To check whether junior athletes also agreed to their participation, verbal assent was required prior to granting participation. This procedure involved providing junior athletes with a clear and comprehensible verbal explanation of the study and looking for a verbal indication that they were willing to partake in the project (Noret, 2012).

In accordance with the approved ethical procedure, all data collection arrangements took place on the premises of participating clubs (e.g., at the team's training facility or home ground). On every occasion, the lead researcher turned up at a pre-arranged time with the relevant study materials prepared (e.g., questionnaires, clipboards, and pencils). These resources were then handed out to the athletes at a convenient time. This was typically immediately prior to or following an organised training session. The lead researcher then discussed the research project with athletes, explained to them what participation would entail, and ensured that all questions and queries were addressed prior to obtaining valid consent. It was at this stage that the athletes were then instructed to complete the study questionnaire if they wished to.

2.5. Instruments

The multi-item inventory was comprised of six primary sections. In the first section, participants were asked to provide personal details (e.g., postcode), demographic data (e.g., age), and athlete profiling information (e.g., main sport). The second section included an instrument designed to capture levels of multidimensional perfectionism in sport. The third and fourth sections included a scale designed to measure the frequency of angry feelings experienced in two specified competitive scenarios. Finally, the last two sections included separate measures of antisocial athlete behaviour. It took athletes approximately 15 – 20

minutes to complete all sections.

2.5.1. Multidimensional perfectionism in sport.

In addition to selecting a measure that assesses the core personal characteristics associated with perfectionism, it was important the adopted instrument also captured important interpersonal features. Hewitt and Flett (1991) offer a conceptualisation of multidimensional perfectionism that adequately captures a range of these features (Sirois & Molnar, 2016). Consequently, an instrument that captures this particular framework was required in the current study.

Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HF-MPS) is a 45-item scale. While this instrument is not overlong, there are situations where employing a shorter HF-MPS is often necessary (Stoeber 2016). For example, the full-length scale may be too time-consuming for athletes to complete when preparing for training or competition (e.g., A. P. Hill, Stoeber, Brown, & Appleton, 2014). Other situations where the administration of the full-length HF-MPS may be too demanding or impractical include studies involving repeated measurement (e.g., A. R. Graham et al., 2010) and studies using multiple measures of multidimensional perfectionism (e.g., Jowett, Hill, Hall, & Curran, 2016). Many of these considerations were recognised by Cox, Enns, and Clara (2002), who sought to establish if there was a more parsimonious version.

Using an exploratory factor analysis technique, Cox et al. (2002) created a short form HF-MPS. Specifically, each of the three full-length HF-MPS subscales was subjected to a factor analysis. In each of the three analyses, a single factor was identified and the five items with the largest factor loadings were identified for inclusion in the short form HF-MPS. Consequently, the final scale consisted of three 5-item subscales assessing self-oriented, socially prescribed, and other-oriented perfectionism. The self-oriented and socially prescribed perfectionism subscales are assessed with items that are positively worded (i.e., higher scores are reflective

of higher perfectionism), whereas other-oriented perfectionism is assessed exclusively with negatively worded items (i.e., higher scores are reflective of lower perfectionism). This short-form HF-MPS is an established and frequently adopted research tool used by perfectionism researchers (e.g., Mallinson & Hill, 2011). However, as Stoeber (2016) explains, Cox et al.'s short-form scale presents problems for researchers wishing to measure other-oriented perfectionism.

Stoeber (2016) highlights that Cox et al.'s (2002) use of negatively worded items to capture other-oriented perfectionism may cause interpretational difficulties. This argument is based on the idea that negatively phrased items may not necessarily capture the same construct as positively worded items. As Stoeber and Madigan (2016) explain, "disagreeing with statements that it is OK for others to be imperfect may not be the same as agreeing with statements that others should be perfect" (p. 38). Moreover, Cox et al.'s other-oriented perfectionism subscale is problematic in that it has demonstrated alpha reliability (α) scores less than .70 (Stoeber & Madigan, 2016). Due to these problems, it has been advised to reconsider using Cox et al.'s (2002) short form HF-MPS when assessing other-oriented perfectionism (Stoeber & Madigan, 2016; Stoeber, 2016).

More recently, Hewitt, Habke, Lee-Baggley, Sherry, and Flett (2008) also introduced a brief HF-MPS. This instrument is similar to Cox et al.'s (2002) short form HF-MPS in that it uses 15-items to assess self-oriented, socially prescribed, and other-oriented perfectionism. Moreover, both instruments assess self-oriented and socially prescribed perfectionism using positively phrased items. As for other-oriented perfectionism, however, Hewitt et al. (2008) were consistent in the sense that this subscale was also measured using positively worded items. This distinction appears to be crucial in terms of how well each short form other-oriented perfectionism subscale performs. When comparing the extent to which each short form scale replicated the correlations demonstrated by the full-length HF-MPS, Stoeber (2016)

identified that Hewitt et al.'s other-oriented perfectionism subscale was far superior in terms of performance. With Hewitt et al.'s other-oriented perfectionism subscale, only 22 % (compared to 49% for Cox et al.'s other-oriented perfectionism subscale) of correlations were outside the 95% confidence interval of the full-length other-oriented perfectionism subscale correlation. Moreover, of these 11 correlations, only one was not significant ($p < .05$) when the correlation involving the full-length other-oriented perfectionism subscale was significant.

In the present study, Hewitt et al.'s (2008) brief HF-MPS was employed. The justification supporting this choice was two-fold. Firstly, due to competitive commitments, the time athletes have to complete questionnaires is often limited. Consequently, a short form multidimensional perfectionism scale was deemed necessary. Secondly, an instrument was needed which could adequately assess all three forms of perfectionism identified in Hewitt and Flett's (1991) multidimensional framework. Therefore, Hewitt et al.'s brief HF-MPS was preferred over the Cox, Enns, and Clara (2002) instrument.

Brief Multidimensional Perfectionism Scale (Brief HF-MPS; Hewitt et al., 2008). Hewitt et al.'s (2008) brief HF-MPS was used to capture athletes' levels of multidimensional perfectionism in sport. This 15-item self-report scale assesses self-oriented (SOP; 5-items, e.g., "I strive to be as perfect as I can be"), socially prescribed (SPP; 5-items, e.g., "People expect nothing less than perfection from me"), and other-oriented perfectionism (OOP; 5-items, e.g., "Everything that others do must be of top-notch quality"). Athletes responded to all items using a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Hewitt et al. (2008) have provided evidence showing that each short form subscale demonstrated a strong correlation with the corresponding subscale from the original HF-MPS (SOP $r = .91$, SPP $r = .90$, and OOP $r = .81$). Moreover, the instrument has also demonstrated acceptable internal reliability (SOP $\alpha = .83 - .88$, SPP $\alpha = .75 - .80$, & OOP $\alpha = .69 - .84$; Hewitt et al., 2008; Stoeber, 2016).

To ensure the brief HF-MPS was appropriate to capture multidimensional perfectionism in sport, modifications to the instrument were made in line with the recommendations of Stoeber and Madigan (2016). First, the instructions of the scale were modified to direct athletes' focus to sport ("Below are a number of statements regarding attitudes toward sport and sport performance. Please read each statement and decide to what degree this statement characterises *your attitudes toward competitive sport*"). In addition, the item set was prefaced with the phrase "*In competitive sport …*" Previous studies (e.g., A. P. Hill, Hall, Appleton, & Kozub, 2008; Jowett, Hill, Hall, & Curran, 2013) have made similar amendments to versions of the HF-MPS in order to account for potential domain-specific differences in perfectionism scores (see Dunn, Gotwals, & Causgrove Dunn, 2005, for a discussion).

2.5.2. Antisocial athlete behaviour.

In the present study, two instruments were identified as appropriate to measure antisocial athlete behaviour. The first instrument identified and reviewed was the Prosocial and Antisocial Behaviour in Sport Scale (Kavussanu & Boardley, 2009). This measure includes two antisocial subscales that capture acts that have the potential to harm or disadvantage other athletes during competition. These subscales present a focus on the personal behaviour of athletes and include a wide range of verbal (example item: "swore at a teammate") and physical (example item: "tried to injure an opponent") acts specific to the team sport domain (Kavussanu & Boardley, 2009).

Prosocial and Antisocial Behaviour in Sport Scale (PABSS; Kavussanu & Boardley, 2009). The antisocial behaviour subscales of Kavussanu and Boardley's (2009) PABSS were used to assess self-reported levels of antisocial athlete behaviour during competition. These subscales capture antisocial teammate behaviour (AT; 5-items, e.g., "Criticised a teammate") and antisocial opponent behaviour (AO; 8-items, e.g., 8-items, e.g., "Tried to injure an opponent").

The antisocial teammate subscale consists of verbal behaviours, whereas the antisocial opponent subscale is comprised of verbal and physical acts. In line with previous research (e.g., Boardley & Kavussanu, 2010), athletes were instructed to report how often they had engaged in each behaviour during the current season using a 5-point Likert scale (1 = *never* to 5 = *very often*). In order to emphasize these instructions, the item set was also prefaced with the phrase "*During the season (so far), I have …*" Athletes in the pre-season phase of their sports annual cycle were instructed to indicate how often they had engage in each behaviour during the previous season (e.g., Kavussanu et al., 2013). This alternate instruction also extended to athletes who were injured or had not been selected to play during the current season. Kavussanu and her colleagues have provided evidence of the validity and reliability of the PABSS. This includes evidence for the construct validity, test-retest reliability, and internal reliability (AT & AO α's ≥ .77; Kavussanu & Boardley, 2009; Kavussanu et al., 2013).

The second instrument identified and reviewed was the Antisocial Sport Behaviour Survey (Kaye & Hoar, 2015). This self-report measure assesses an array of antisocial behaviours that occur in sport and have potential to harm or disadvantage others. A total of eight classes of behaviour are identified and mapped onto a circumplex model (see Fig. 1). In the present thesis, the quadrant of the circumplex that captures forms of behaviour that are both dominant and hostile (see highlighted section in Fig. 1) is most relevant. This sector focusses on hypercompetitive, intimidating, and antagonistic antisocial behaviours used by athletes in order to facilitate personal goals (e.g., winning and outperforming others). Adopting this measure and focussing on these behaviours would therefore help to determine whether key components of perfectionism are associated with antisocial behaviour focussed on exceeding other competitors and achieving personal success (i.e., dark striving antisocial behaviour). This instrument was adopted in order to provide a more comprehensive understanding of the antisocial behaviour associated with perfectionism in sport.

Antisocial Sport Behaviour Survey (ASBS; Kaye & Hoar, 2015). Kaye and Hoar's (2015) ASBS was used to assess self-reported levels of antisocial behaviour in sport. This 31-item scale assess hypercompetitive (HYP; 4-items, e.g., "It is easy for me to strive for personal success at any cost in a competition), intimidating (INT; 5-items, e.g., "In a competition, it is easy for me to upset an opponent to gain an advantage"), antagonistic (ANT; 4-items, e.g., "It is easy for me to compete selfishly to ensure I reach my goals"), disrespectful (DIS; 4-items, e.g., "It is easy for me to make up excuses for my losses"), exploitable (EXP; 3-items, e.g., "It is hard for me to protect my rights to a fair competition"), overly accommodating (OVR; 5-items, e.g., "It is easy for me to withhold effort in a competition to benefit another person"), abetting (ABT; 2-items, e.g., "It is hard for me to stop myself from helping another person bend the rules in a competition"), and melodramatic (MEL; 4-items, e.g., "It is hard for me to maintain my composure so I don't create a scene when winning is at stake") behaviours. Athletes were asked to indicate how characteristic each behaviour was of them and responded to items using a 5-point Likert scale (1 = *not at all* to 5 = *extremely*). Kaye and Hoar (2015) have provided evidence for the construct validity (i.e., discriminant and convergent validity) and factor structure of the scale.

2.5.3. Angry reactions to poor performance.

In the present study, an instrument was required to assess athletes' anger responses in two scenarios: (1) when personal performance is poor and (2) when teammate performance is poor. However, as Vallance et al. (2006) note, capturing how athletes feel when competing presents both practical and logistical difficulties. A scale designed to manage such issues is the Reactions-to-Mistakes Anger Scale (Dunn et al., 2006). This scale was used by Dunn and his colleagues in order to assess athletes' reactions to poor personal performance during competition. The same instrument will be used in the current study to assess scenario (1), whereas a modified iteration of this tool will be used to assess scenario (2).

The Reactions-to-Mistakes Anger Scale (RTM-Anger; Dunn et al., 2006). The RTM-Anger scale was used to assess athletes' angry reactions in the two specified scenarios. This instrument is a modified version of the 15-item State Anger scale (S-Anger) found in Spielberger's (1999) State-Trait Anger Expression Inventory-2 (STAXI-2). The S-Anger scale contains three subscales that are used to assess the intensity of anger that individuals feel at the time they are responding to the instrument. These subscales are labelled as follows: feeling angry (FA; 5-items, e.g., "I feel angry"), feel like expressing anger verbally (FLEAV; 5-items, e.g., "I feel like yelling at somebody"), and feel like expressing anger physically (FLEAP; 5-items, e.g., "I feel like hitting someone"). Individuals completing this scale respond to each item using a 4-point Likert Scale (1 = *not at all* to 4 *very much so*).

The RTM-Anger scale is based on the three-factor structure and item content of the S-Anger scale. However, rather than instructing individuals to rate the intensity of anger they felt when completing the scale, the RTM-Anger scale asks athletes "to rate how frequently they generally reacted with (or felt like expressing) anger when they were not playing well during competition" (Dunn et al., 2006, p. 13). This approach was replicated in the current study. However, the scale was used twice in order to account for the two specified scenarios. As scenario (1) is concerned with athletes' angry reactions to poor personal performance, the first RTM-Anger scale was prefaced with the phrase: "*When I am not playing well …*" (Dunn et al., 2006, p. 13). By contrast, scenario (2) is concerned with athletes' angry reactions to poor teammate performance. Hence, the second RTM-Anger scale was prefaced with the phrase: "*When one of my teammates is not playing well …*"

As these versions of the RTM-Anger scale focus on the frequency of anger responses, the original Likert scale associated with the S-Anger scale was no longer applicable. Accordingly, athletes responded to all items using a 7-point Likert Scale (1 = *never* to 7 = *almost always*). In addition to changes made to the instruction set and rating system, two-

items from the original S-Anger scale were reworded to improve their relevance to sport.

These were item numbers 7 ("I feel like banging on the table") and 11 ("I feel like kicking

somebody") from the original scale. These items were replaced with "I feel like slamming my

water bottle" and "I feel like kicking something", respectively. All changes were consistent with

those made by Dunn and his colleagues. Spielberger (1999) has provided evidence that

supports the psychometric properties of the S-Anger scale. Moreover, the RTM-Anger scale

also demonstrated acceptable internal reliability in Dunn et al.'s study (feeling angry α = .88,

feel like expressing anger verbally α = .86, and feel like expressing anger physically α = .86).

2.6. Data Analysis

A multi-stage procedure was implemented to analyse the data. These analyses were

carried out using IBM Statistic SPSS 20.0 (stages one and two) and AMOS 20.0 (Arbuckle, 2011)

(stages three, four, and five). The first stage of data analyses involved following the data

screening protocol outlined by Tabachnick and Fidell (2014). Accordingly, the accuracy of the

data file, amount and distribution of missing data, and assumptions of univariate and

multivariate normality and reliability were all evaluated. Identifying and resolving any issues

with the data is important in ensuring that any subsequent analyses are honest and reliable

(Tabachnick & Fidell, 2014). It was particularly important to determine whether the data under

investigation demonstrated multivariate normality. This is a critically important assumption

when undertaking structural equation modelling (Byrne, 2016). In particular, Byrne (2016)

identifies that data that are multivariate kurtotic can have a detrimental influence when

testing structural models. This assumption was tested using Mardia's (1974) normalised

coefficient. Normalised estimates ≥ 5 are considered to be indicative of non-normality

(Bentler, 2005). This guideline was used when assessing the multivariate normality of data

used in the current study.

In the second stage of data analysis, descriptive statistics, Cronbach's alpha

coefficients, and Pearson's bivariate correlations were calculated. The correlations allowed for an initial assessment of the relationships between multidimensional perfectionism, angry reactions to poor personal and teammate performance, and antisocial athlete behaviour. To aid the assessment of the magnitude of these relationships, the descriptors for small ($.10 \leq r < .30$), medium ($.30 \leq r < .50$), and large ($r \geq .50$) effects were used (Cohen, 1988).

In the present thesis, three hypothesised models (HM1: Fig. 2; HM2: Fig. 3; and HM3: Fig. 4) were designed to examine the independent effects of perfectionism in relation to dark striving antisocial behaviour, antisocial acts during competition, and angry reactions to poor performance. The third stage of the analytical procedure involved testing each of these models using structural equation modelling with maximum likelihood estimation. These procedures were carried out in accordance with the two-step approach for structural equation modelling proposed by Anderson and Gerbing (1988). In each case, a confirmatory factor analysis was used to test the measurement model (stage three) prior to assessing the hypothesised structural model (stage four).

The first measurement model (HM1) consisted of four inter-correlated variables including self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, and dark striving antisocial behaviour. The three perfectionism variables were represented as measured variables, whereas dark striving antisocial behaviour was represented as a latent variable. The latent dark striving antisocial behaviour variable was constructed using three subscales from Kaye and Hoar's (2015) antisocial circumplex model (i.e., hypercompetitive, intimidating, and antagonistic). These subscales capture antisocial behaviours that are hostile, dominant, and used explicitly to facilitate the pursuit of personal aims such as outperforming others, achieving individual goals, and winning. The construction of this model therefore lends itself to investigating whether key components of perfectionism are linked with antisocial behaviours that are inappropriate and used by athletes in order to

outperform others and achieve personal success in sport (i.e., dark striving antisocial behaviour).

The second measurement model (HM2) consisted of five inter-correlated variables including self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, angry reactions to poor personal performance, and antisocial acts during competition. The three perfectionism dimensions were represented as measured variables, while angry reactions to poor personal performance and antisocial acts during competition were represented as latent variables. The two latent variables were constructed using their respective subscales as measured variables (angry reactions to poor personal performance = three indicators: feeling angry 1, feel like expressing anger verbally 1, and feel like expressing anger physically 1; antisocial acts during competition = two indicators: antisocial teammate and antisocial opponent). The two antisocial subscales adopted capture a range of acts that occur during competition (e.g., trying to foul an opponent and verbally abusing a teammate) and correspond with many of the angry reactions triggered by poor performance (e.g., an impulse to kick something or yell at somebody; Dunn et al., 2006; Kavussanu & Boardley, 2009). The construction of this model therefore lends itself to investigating whether angry reactions to poor personal performance account for the relationship between key components of perfectionism and antisocial acts during competition.

The third measurement model (HM3) also consisted of five inter-correlated variables and included self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, angry reactions to poor teammate performance, and antisocial acts during competition. The same mixed model approach adopted in the second measurement model was replicated. The only difference between the two models pertains to the inclusion of the angry reactions to poor teammate performance latent variable (i.e., in place of the angry reactions to poor personal performance latent variable). This latent variable was constructed

using its associated subscales as measured variables (three indicators: feeling angry 2, feel like expressing anger verbally 2, and feel like expressing anger physically 2). This model was constructed in order to investigate whether angry reactions to poor teammate performance account for the relationship between key components of perfectionism and antisocial acts during competition.

A collection of fit indices were used to help determine how well each hypothesised model fit the data. The first statistic examined was the chi-square (χ^2) statistic. The probability value associated with this statistic provides an indication of the fit between the hypothesised model and perfect fit. Significant probability values ($p < .05$) suggest that data does not provide an adequate fit to the hypothesised model. It is important to note, however, that this statistic is heavily influenced by sample size and that "postulated models (no matter how good) can only ever fit real-world data approximately and never exactly" (Byrne, 2016, p. 93). Due to these limitations, many have advised that a combination of other goodness-of-fit statistics should be examined when trying to determine model fit (e.g., Byrne, 2016). Consequently, a range of alternative fit indices were also checked to help assess the overall fit of the three hypothesised models (i.e., χ^2/df; comparative fit index, CFI; Tucker-Lewis Index, TLI; standardised root mean square residual, SRMR; and root mean square error of approximation, RMSEA). Evaluating this range of fit indices will help provide a good indication of how well the hypothesised models fit the sample data (Bryne, 2016). The guidelines for acceptable (χ^2/df ≤ 3, CFI ≥ .90, TLI ≥ .90, SRMR ≤ .10, RMSEA ≤ .10) and good fit (χ^2/df ≤ 2, CFI ≥ .95, TLI ≥ .95, SRMR ≤ .06, RMSEA ≤ .06) proposed by Marsh, Hau, and Wen (2004) were consulted when making these evaluations.

The final stages in the analytical procedure involved testing for mediation in structural models HM2 and HM3 (stage five). This involved a bootstrapping process, which was implemented to test the significance of specific indirect effects. An indirect effect is the effect

of a predictor variable on a criterion variable through a mediator variable (Preacher & Hayes, 2008). Each structural model incorporates three indirect pathways. In model HM2, these are the associations between self-oriented, socially prescribed, and other-oriented perfectionism on antisocial acts during competition via angry reactions to poor personal performance. In model HM3, the indirect pathways are the same but with angry reactions to poor teammate performance as the mediator variable. The significance of these indirect effects was assessed by examining the 95% confidence interval associated with each statistic. Indirect effects were deemed significant if their 95% confidence interval excluded the value of zero.

3. Results

3.1. Preliminary Analysis

The missing value analysis indicated that there were 196 complete cases and 61 cases with at least one item non-response. In line with the recommendation of Tabachnick and Fidell (2014), cases with item non-response that exceeded the 5% threshold were removed from any further analyses (n = 4). Item non-response for the remaining cases with missing data was ≤ 4 items (M = 1.56, SD = 0.82, $range$ = 1-4 items). Little's (1988) missing completely at random (MCAR) test revealed that the remaining missing data could not be characterised as MCAR (χ^2 = 5046.33, df = 4718, p < .05). Consequently, the patterns of missing data were analysed to help determine if there was a systematic reason for the missing data. This analysis revealed that for the 57 participants with missing data, there were 50 unique patterns of missing data. The high ratio of missing data patterns to the number of participants with missing data (ratio = .88) serves as an indicator that data is missing in a non-systematic manner (McKnight, McKnight, Sidani, & Figueredo, 2007). As the amount of missing data was low and the scales adopted have demonstrated acceptable internal consistency, the remaining missing values were replaced using the mean of non-missing items from relevant subscales (J. W. Graham, Cumsille, & Elek-Fisk, 2003).

Following the data screening protocol proposed by Tabachnick and Fidell (2014), subscales were computed and screened for univariate and multivariate outliers. Standardized z-scores greater than +/- 3.29 ($p < .001$, two-tailed) served as the indicator for univariate outliers. Nine cases with values outside this range were identified and subsequently removed from further analyses. A Mahalanobis distance greater than χ^2 (21) = 46.80 ($p < .001$) was used as the criteria to identify multivariate outliers. This evaluation resulted in a further three cases being removed from the study ($n = 241$; male $n = 205$; female $n = 36$; M age = 20.61; SD = 4.07). Following the removal of these cases, skewness and kurtosis values were then analysed. All variables were considered approximately univariate normal (absolute skewness M = .46, SD = .37, SE = .08, absolute kurtosis M = .48, SD = .33, SE = .07). When all variables were considered, Mardia's (1974) normalised coefficient for multivariate kurtosis was 7.04. This normalised estimate suggests that the current data is slightly positively kurtotic. However, when the set of variables included in each hypothesised model (HM1; HM2; & HM3) were assessed, the normalised estimates for multivariate kurtosis were 2.18, 2.03, and 3.28, respectively (Mardia, 1974). These values indicate that the data used in each structural equation model satisfies the assumption of multivariate normality. The final step of this stage was to examine Cronbach's alpha coefficients. All subscales demonstrated internal consistency α = .67 - .91 (see Table 1).

Table 1. Descriptive statistics and reliability estimates

		M	SD	Scale range	α
1.	Self-oriented perfectionism (SOP)	5.34	1.09	1-7	.85
2.	Socially prescribed perfectionism (SPP)	4.07	.97	1-7	.70
3.	Other-oriented perfectionism (OOP)	4.37	.92	1-7	.69
4.	Feeling angry 1 (FA1)	4.00	1.38	1-7	.87
5.	Feel like expressing anger verbally 1 (FLEAV1)	3.25	1.40	1-7	.85
6.	Feel like expressing anger physically 1 (FLEAP1)	2.10	1.12	1-7	.87
7.	Feeling angry 2 (FA2)	2.79	1.10	1-7	.87
8.	Feel like expressing anger verbally 2 (FLEAV2)	2.56	1.25	1-7	.88
9.	Feel like expressing anger physically 2 (FLEAP2)	1.59	.80	1-7	.91
10.	Antisocial teammate (AT)	2.27	.77	1-5	.81
11.	Antisocial opponent (AO)	2.33	.79	1-5	.85
12.	Hypercompetitive (HYP)	2.54	.81	1-5	.67
13.	Intimidating (INT)	2.16	.79	1-5	.77
14.	Antagonistic (ANT)	2.09	.77	1-5	.73

Note. The number following each angry reaction to poor performance variable denotes the scenario being assessed. 1 = angry reactions to poor personal performance; 2 = angry reactions to poor teammate performance.

3.2. Descriptive Statistics

The means and standard deviations are reported in Table 1. On average, team sport athletes reported moderate-to-high levels of self-oriented perfectionism and moderate levels of both socially prescribed and other-oriented perfectionism. The finding for self-oriented perfectionism is consistent with research investigating perfectionism in sport (e.g., Mallinson & Hill, 2011). Similarly, levels of socially prescribed perfectionism in the present study are comparable to scores reported by other competitive athlete samples (e.g., A. P. Hill & Appleton, 2011; A. P. Hill et al., 2008). As for other-oriented perfectionism, the finding in the current study is analogous with the mean score reported by the sample of junior sport participants in Mallinson and Hill (2011).

Team sport athletes tended to report moderate-to-infrequent levels of antisocial acts directed toward teammates and opponents during competition. These findings are consistent with studies examining antisocial behaviour in athlete samples incorporating multiple team sports (e.g., Kavussanu & Boardley, 2009; Kavussanu et al., 2013). Furthermore, on average, athletes reported moderate-to-low levels of hypercompetitive, intimidating and antagonistic behavioural characteristics. This pattern of results is consistent with scores reported by student athletes in Kaye and Hoar's (2015) study.

In response to poor personal performance, team sport athletes' impulse to express anger physically was infrequent, whereas their urge to express anger verbally was moderate-to-infrequent. In response to the same situation (i.e., when personal performance is poor), athletes tended to report feeling angry in general on a moderately frequent basis. In comparison to the athlete sample in Dunn et al.'s (2006) study, the current athletes generally reported less frequent angry reactions across all three subscales. In accordance with the findings reported by Dunn and his colleagues, however, feeling anger in general was the most common response to poor personal performance, followed by the impulse to express anger

verbally, and then the desire to express anger physically.

In response to poor teammate performance, team sport athletes' desire to express anger physically was reported on an infrequent basis, whereas their desire to express anger verbally and feel angry in general was reported on a moderate-to-infrequent basis. Similar to findings regarding athletes' angry reactions to poor personal performance, the most common response to poor teammate performance was feeling angry in general, followed by the impulse to express anger verbally, and then the desire to express anger physically. The results also show that, on average, team sport athletes reported more frequent angry reactions in response to poor personal performance versus poor teammate performance.

3.3. Pearson's Bivariate Correlations

The Pearson correlations (see Table 2) revealed that self-oriented perfectionism shared a significant positive association with the antisocial behavioural characteristic of hypercompetitiveness. By contrast, socially prescribed perfectionism shared significant positive associations with the frequency of angry physical feelings in response to poor personal and poor teammate performance. Socially prescribed perfectionism also shared significant positive associations with hypercompetitive, intimidating and antagonistic behavioural characteristics. Other-oriented perfectionism shared significant positive associations with the frequency of general angry feelings and angry verbal feelings in response to poor teammate performance. Furthermore, other-oriented perfectionism shared significant positive associations with the frequency of antisocial acts directed toward teammates and opponents during competition, as well as hypercompetitive and intimidating antisocial behavioural characteristics. All the significant associations were small in effect size (Cohen, 1988).

Table 2. Bivariate correlations

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.	SOP													
2.	SPP	.50**												
3.	OOP	.60**	.62**											
4.	FA1	.05	-.01	.01										
5.	FLEAV1	-.07	.01	-.03	.57**									
6.	FLEAP1	-.02	.18**	.02	.44**	.59**								
7.	FA2	.06	.07	.19**	.53**	.47**	.29**							
8.	FLEAV2	-.03	.07	.15*	.38**	.66**	.38**	.73**						
9.	FLEAP2	.02	.26**	.13	.25**	.37**	.66**	.39**	.48**					
10.	AT	.02	.11	.14*	.16*	.27**	.25**	.41**	.43**	.24**				
11.	AO	.01	.09	.13*	.16*	.25**	.29**	.35**	.34**	.23**	.58**			
12.	HYP	.14*	.17**	.22**	.28**	.22**	.19**	.32**	.27**	.14*	.28**	.36**		
13.	INT	.00	.13*	.14*	.25**	.32**	.41**	.34**	.34**	.35**	.41**	.58**	.67**	
14.	ANT	.03	.16*	.11	.15*	.24**	.29**	.27**	.29**	.31**	.32**	.33**	.63**	.71**

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

Note. SOP = Self-oriented perfectionism; SPP = Socially prescribed perfectionism; OOP = Other-oriented perfectionism; AB = Antisocial behaviour; FA = Feeling angry; FLEAV = Feel like expressing anger verbally; FLEAP = Feel like expressing anger physically; AT = Antisocial teammate behaviour; AO = Antisocial opponent behaviour; HYP = Hypercompetitive; INT = Intimidating; Ant = Antagonistic. The number following each angry reaction variable denotes the scenario being assessed. 1 = angry reactions to poor personal performance; 2 = angry reactions to poor teammate performance.
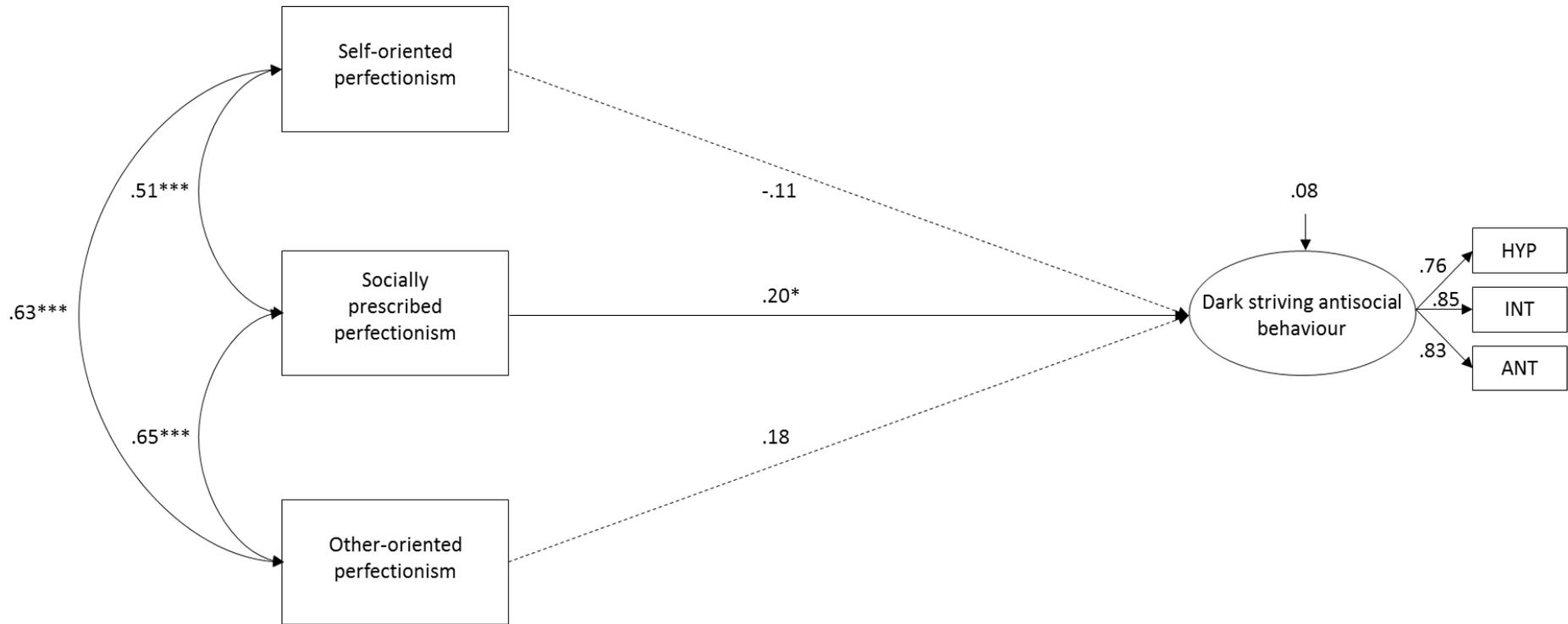
Figure 5. Final structural equation model (HM1): The associations between multidimensional perfectionism and dark striving antisocial behaviour in sport.

Note. HYP = Hypercompetitive; INT = Intimidating; ANT = Antagonistic. All pathways are standardized, n = 245, dashed line = non-significant, * *p* < .05; ** *p* <

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

3.4. Structural Model HM1

Structural equation model HM1 was developed in order to examine the independent effects of each perfectionism dimension in relation to dark striving antisocial behaviour. Testing this model will therefore help to ascertain whether certain perfectionistic athletes are willing to behave antisocially as means to achieve personal success and exceed others (Flett & Hewitt, 2016).

Assessment of measurement model. The confirmatory factor analysis revealed that the measurement model provided good fit to the data, χ^2_6 = 11.05, p > .05; χ^2 /df = 1.84, CFI = .99, TLI = .98, SRMR = .02, RMSEA = .06, 90% CI = .00 to .11. All standardized factor loadings for the measured variables on their respective latent factor were significant (p < .001) (dark striving antisocial behaviour β range = 0.76 to 85). Additionally, the latent factor demonstrated a composite reliability (ρc = .86) score that supported the measurement model.

Assessment of structural model. Structural equation modelling indicated that the hypothesised model also provided acceptable fit to the data, χ^2_6 = 11.05, p > .05; χ^2 /df = 1.84, CFI = .99, TLI = .98, SRMR = .02, RMSEA = .06, 90% CI = .00 to .11. The standardised path coefficients between each of the variables are reported in Figure 5. This figure demonstrates that the combination of multidimensional perfectionism dimensions accounted for 8.2% of variance in dark striving antisocial behaviour. The results of this analysis revealed that the only dimension to emerge as a significant predictor of dark striving antisocial behaviour was socially prescribed perfectionism.

Figure 6. Final structural equation model (HM2): The associations between multidimensional perfectionism, angry reactions to poor personal performance, and antisocial acts during competition. *Note.* FA = Feeling angry; FLEAV = Feel like expressing anger verbally; FLEAP = Feel like expressing anger physically; AT = Antisocial teammate behaviour; AO = Antisocial opponent behaviour. The number following each angry reaction variable denotes the scenario being assessed; 1 = Angry reactions to poor personal performance. All pathways are standardized, n = 241, dashed line = non-significant, * *p* < .05; ** *p* < .01; ****p* < .001.

3.5. Structural Model HM2

Structural equation model HM2 was developed in order to examine the independent effects of each perfectionism dimension in relation to angry reactions to poor personal performance and antisocial acts during competition. The model was designed and tested in order to ascertain whether angry reactions triggered by poor personal performance mediated the relationships between dimensions of perfectionism and antisocial acts during competition.

Assessment of measurement model. The confirmatory factor analysis revealed that the measurement model provided acceptable fit to the data, χ^2_{13} = 27.48, p < .05; χ^2/df = 2.11, CFI = .98, TLI = .95, SRMR = .04, RMSEA = .07, 90% CI = .03 to .10. All standardized factor loadings for the measured variables on their respective latent factors were significant (p < .001) (angry reactions to poor personal performance β range = 0.65 to 0.86; antisocial acts during competition β range = 0.75 to 77). Additionally, each of the latent factors demonstrated composite reliability (ρc) scores that support the measurement model: angry reactions to poor personal performance = .78 and antisocial acts during competition = .73.

Assessment of structural model. Structural equation modelling indicated that the hypothesised model also provided acceptable fit to the data, χ^2_{16} = 35.14, p < .01; χ^2/df = 2.20, CFI = .97, TLI = .94, SRMR = .05, RMSEA = .07, 90% CI = .04 to .10. The standardised path coefficients between each of the variables are reported in Figure 6. This figure also demonstrates that the combination of multidimensional perfectionism dimensions accounted for only 1.2% of variance in angry reactions to poor personal performance. However, the three perfectionism dimensions in combination with angry reactions to poor personal performance accounted for 16.9% of variance in antisocial acts during competition.

Bootstrap analysis. In order to assess the stability of the parameter estimates in the structural model, bootstrapping with 5000 iterations was employed. The parameter estimates derived from the bootstrap analysis are almost exactly the same as those obtained from the

maximum likelihood estimation method. The similarity between the sets of statistics is a sign

of high parameter stability. The results of this analysis are displayed in Table 3.

Table 3. Standardised coefficients from hypothesised model (HM2) and associated bootstrap
analysis

Path	Hypothesised model	Bootstrap analysis	
	Standardised coefficient	Mean standardised coefficient (SE)	Bias corrected 95% CI
SOP – Angry reactions to poor personal performance	-.10	-.10 (.10)	-.28 to .10
SPP – Angry reactions to poor personal performance	.12	.13 (.10)	-.07 to .32
OOP – Angry reactions to poor personal performance	-.02	-.02 (.10)	-.21 to .19
Angry reactions to poor personal performance – AB	.41	.41 (.09)	.23 to .59

Note. SOP = Self-oriented perfectionism; SPP = Socially prescribed perfectionism; OOP = Other-

oriented perfectionism; AB = Antisocial acts during competition.

Assessment of mediation. The indirect effects of each pathway in the final structural

model are displayed in Table 4. The confidence intervals for the specific indirect effects of self-

oriented, socially prescribed, and other-oriented perfectionism on antisocial acts during

competition via angry reactions to poor personal performance excluded zero and were

therefore non-significant.

Table 4. Standardised indirect effects of perfectionism dimensions on antisocial acts during competition via angry reactions to poor personal performance

	Indirect effect	95% CI
SOP – Angry reactions to poor personal performance – AB	-.04 (.04)	-.13 to .04
SPP – Angry reactions to poor personal performance – AB	.05 (.04)	-.02 to .15
OOP – Angry reactions to poor personal performance – AB	-.01 (.04)	-.09 to .08

Note. SOP = Self-oriented perfectionism; SPP = Socially prescribed perfectionism; OOP = Other-oriented perfectionism; AB = Antisocial acts during competition.

Overall, the results of this analysis revealed that the tendency to react with anger when personal performance is poor predicted antisocial acts during competition. However, the relationships between dimensions of perfectionism and antisocial behaviour toward teammates and opponents were not mediated by angry reactions to poor personal performance. This was due to the small, non-significant associations between the perfectionism and angry reactions to poor personal performance variables.
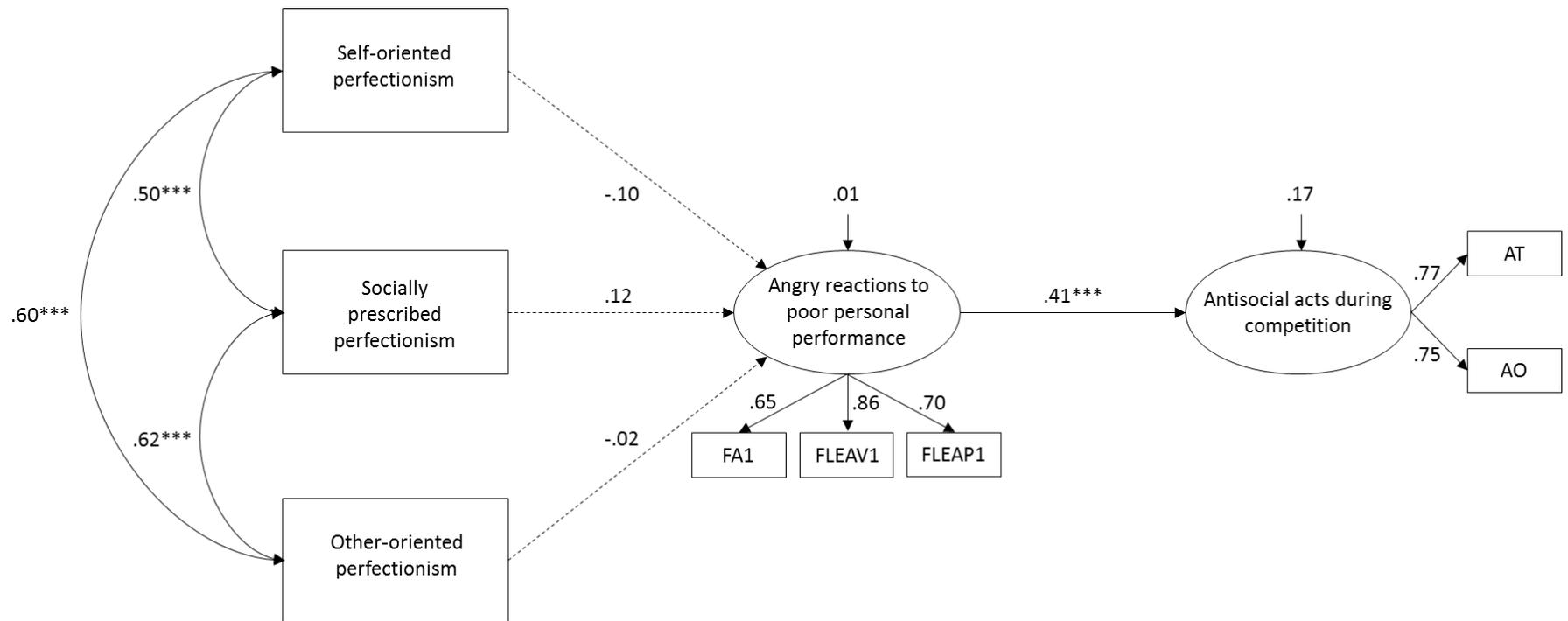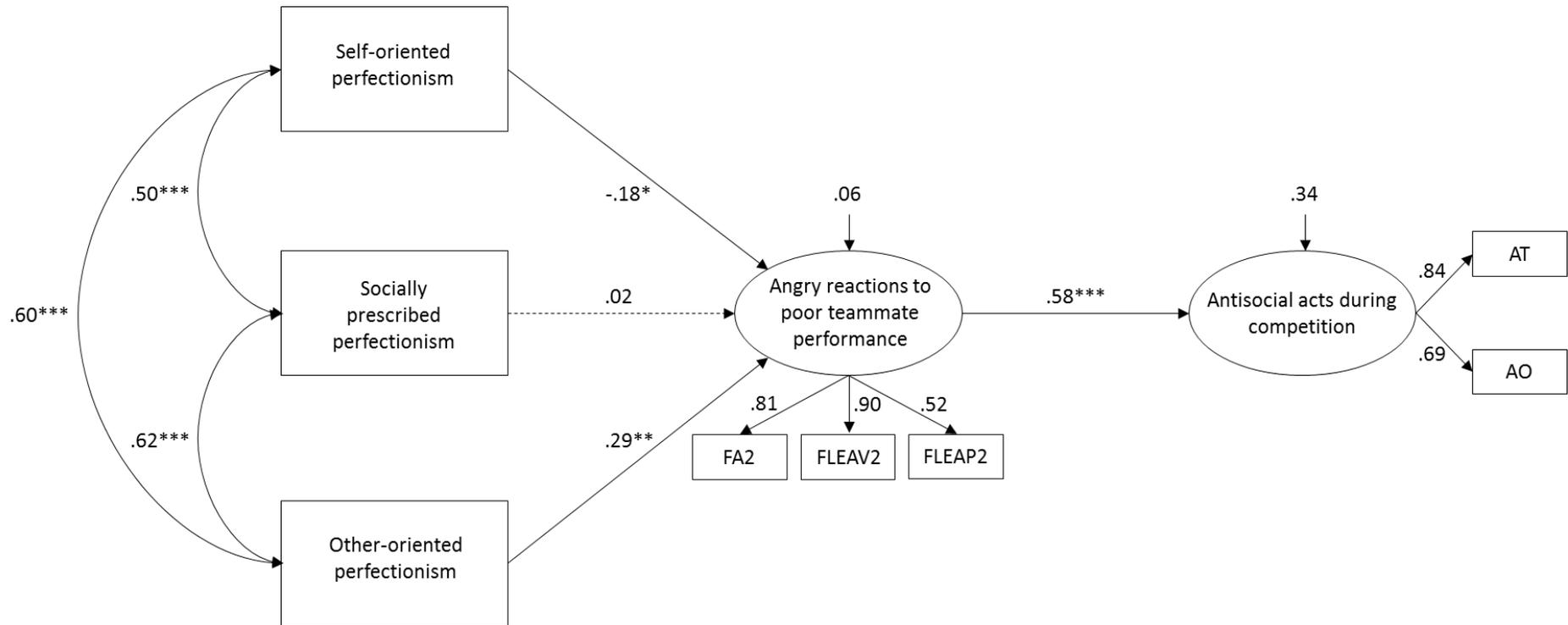
Figure 7. Final structural equation model (HM3): The associations between multidimensional perfectionism, angry reactions to poor teammate performance, and antisocial acts during competition. *Note*. FA = Feeling angry; FLEAV = Feel like expressing anger verbally; FLEAP = Feel like expressing anger physically; AT = antisocial teammate behaviour; AO = Antisocial opponent behaviour. The number following each angry reaction variable denotes the scenario being assessed; 2 = Angry reactions to poor teammate performance. All pathways are standardized, n = 241, dashed line = non-significant, * *p* < .05; ** *p* < .01; ***p* < .001.

3.6. Structural Model HM3

Structural equation model HM3 was developed in order to examine the independent effects of each perfectionism dimension in relation to angry reactions to poor teammate performance and antisocial acts during competition. The model was designed and tested in order to ascertain whether angry reactions triggered by poor teammate performance mediated the relationships between dimensions of perfectionism and antisocial acts during competition.

Assessment of measurement model. The confirmatory factor analysis revealed that the measurement model provided acceptable fit to the data, χ^2_{13} = 30.18, p < .01; χ^2 /df = 2.32, CFI = .97, TLI = .94, SRMR = .04, RMSEA = .07, 90% CI = .04 to .11. All standardized factor loadings for the measured variables on their respective latent factors were also significant (p < .001) (angry reactions to poor teammate performance β range = 0.52 to 0.90; antisocial acts during competition β range = 0.69 to 0.84). Additionally, each of the latent factors demonstrated composite reliabilities (ρc) scores that support the measurement model: angry reactions to poor teammate performance = .80 and antisocial acts during competition = .74.

Assessment of structural model. Structural equation modelling indicated that the hypothesised model provided good fit to the data, χ^2_{16} = 31.60, p < .05; χ^2 /df = 1.98, CFI = .98, TLI = .96, SRMR = .04, RMSEA = .06, 90% CI = .03 to .10. The standardised path coefficients between each of the variables are reported in Figure 7. This figure also demonstrates that the combination of multidimensional perfectionism dimensions accounted for 5.7% of variance in angry reactions to poor teammate performance. Furthermore, the three perfectionism dimensions in combination with angry reactions to poor teammate performance accounted for 33.5% of variance in antisocial acts during competition.

Bootstrap analysis. The stability of the parameter estimates in the structural model was tested using bootstrapping with 5000 iterations. Once again, the parameter estimates

derived from this analysis are highly analogous with those obtained from the maximum

likelihood estimation technique. These similarities are indicative of high parameter stability.

The results of this analysis are displayed in Table 5.

Table 5. Standardised coefficients from hypothesised model (HM3) and associated bootstrap
analysis

Path	Hypothesised model	Bootstrap analysis	
	Standardised coefficient	Mean standardised coefficient (SE)	Bias corrected 95% CI
SOP – Angry reactions to poor teammate performance	-.18	-.18 (.10)	-.35 to -.00
SPP – Angry reactions to poor teammate performance	.02	.02 (.09)	-.18 to .21
OOP – Angry reactions to poor teammate performance	.29	.28 (.09)	.10 to .46
Angry reactions to poor teammate performance – AB	.58	.58 (.07)	.43 to .71

Note. SOP = Self-oriented perfectionism; SPP = Socially prescribed perfectionism; OOP = Other-oriented perfectionism; AB = Antisocial acts during competition.

Assessment of mediation. The indirect effects of each pathway in the final structural

equation model are displayed in Table 6. The confidence interval for the specific indirect effect

of socially prescribed perfectionism on antisocial acts during competition via angry reactions to

teammate performance was not significant. By contrast, the confidence intervals for the

specific indirect effects of self-oriented and other-oriented perfectionism on antisocial acts

during competition via angry reactions to teammate performance were significant. Self-

oriented perfectionism shared an inverse indirect association with antisocial acts during

competition (ab = -.10, 95% CI = -.22 to -.01, *SE* = .05), whereas other-oriented perfectionism

shared a positive indirect association with antisocial acts during competition (ab = .17, 95% CI

= .06 to .29, *SE* = .06).

Table 6. Standardised indirect effects of perfectionism dimensions on antisocial acts during competition via angry reactions to poor teammate performance

	Indirect effect	95% CI
SOP – Angry reactions to poor teammate performance – AB	-.10 (.05)	-.22 to -.01
SPP – Angry reactions to poor teammate performance – AB	.01 (.06)	-.09 to .13
OOP – Angry reactions to poor teammate performance – AB	.17 (.06)	.06 to .29

Note. SOP = Self-oriented perfectionism; SPP = Socially prescribed perfectionism; OOP = Other-oriented perfectionism; AB = Antisocial acts during competition.

Overall, the results of this analysis revealed that angry reactions to poor teammate performance mediated the relationships between perfectionism (i.e., other-oriented and self-oriented perfectionism) and antisocial acts during competition. The tendency to experience anger when teammates perform poorly explained the positive relationship between other-oriented perfectionism and antisocial behaviour. By contrast, the absence of angry feelings experienced when teammates perform poorly explained the negative relationship between self-oriented perfectionism and antisocial behaviour.

4. Discussion

The current study had two main aims. The first aim was to examine the associations shared between dimensions of multidimensional perfectionism and antisocial athlete behaviour. This aim was achieved by assessing each perfectionism component in relation to antisocial behaviours focussed on gaining a competitive advantage over others and achieving personal success in sport (i.e., dark striving antisocial behaviour; Kaye & Hoar, 2015), as well as the frequency of antisocial acts reported during competition (Kavussanu & Boardley, 2009). The second aim was to examine whether the associations between multidimensional perfectionism and antisocial acts during competition could be explained by a tendency to respond to poor personal and or teammate performance with angry reactions.

4.1. Multidimensional Perfectionism and Dark Striving Antisocial Behaviour in Sport

The first structural model (HM1) examined the associations between each perfectionism dimension and antisocial behaviour used by athletes in order to gain a competitive advantage over others and facilitate personal success in sport (i.e., dark striving antisocial behaviour). In accordance with the study hypotheses, socially prescribed perfectionism positively predicted dark striving antisocial behaviour (Hypothesis 1). Contrary to expectations, however, self-oriented perfectionism did not. In terms of socially prescribed perfectionism, the finding is supportive of Flett and Hewitt's (2016) assertion that:

> The need to be great and win at all costs according to demands and pressures to be perfect is leading some hypercompetitive perfectionists to overcompensate by engaging in illegal and immoral behaviours that 'cross the line' and reflect this need to win and be great no matter what is required. (p. 312)

Importantly, however, this finding also extends this particular proposition by indicating that when it comes to dark striving antisocial behaviour, it is the experience of extreme external pressure to be perfect, in particular, that may compel perfectionistic athletes to behave immorally. Athletes demonstrating high levels of socially prescribed perfectionism are motivated by a strong desire to gain the recognition of others (Hall, 2006), yet are plagued by a perpetual feeling that others are impossible to please (Flett et al., 2016). This distressing existence may lead these perfectionistic athletes to behave in ways that help them to outperform others, achieve success, and make up for their perceived shortcomings (Hewitt et al., 2017; Mushquash & Sherry, 2012). From this perspective, the use of dark striving antisocial behaviour is interpersonally motivated and focussed on gaining approval or avoiding disapproval from others (Mushquash & Sherry, 2012). This finding therefore compliments previous research (e.g., A. P. Hill, Robson, & Stamp, 2015) which suggests that individuals reporting high levels of socially prescribed perfectionism often "feel that they must

overcompensate for deficits in their own selves by portraying a false image and trying to be as perfect as possible" (Besser, Flett, & Hewitt, 2010, p. 2129). While the use of dark striving antisocial behaviour may not necessarily contribute to a sense of true accomplishment, it may help to portray a more thoroughly competent image to others (e.g., teammates or coaches).

An unexpected finding was that self-oriented perfectionism demonstrated a small, negative, and non-significant association with dark striving antisocial behaviour. There are a number of potential explanations for this finding. For instance, acting antisocially as a means to achieve success may be incongruent with the motivation to demonstrate competence in sport (Stoeber, 2011). Athletes demonstrating high levels of self-oriented perfectionism may therefore favour alternative behaviours in their pursuit to be perfect and experience a true sense of competence (e.g., compulsive overtraining; Flett & Hewitt, 2016). Nevertheless, there may be certain circumstances in which these individuals abandon this approach and resort to more deviant achievement striving behaviour. In particular, sporting experiences which remind these perfectionistic athletes that the ultimate goal of perfection is no longer attainable (e.g., reoccurring failures or losses) may be a catalyst that triggers dark striving antisocial behaviour (Flett & Hewitt, 2016). This idea is illustrated by the hypothetical example of the ageing athlete, who is under extreme pressure to be perfect, but is no longer able to compete at the same exacting standard, and instead relies on performance enhancing drugs (see Flett & Hewitt, 2014). Based on this discussion, it would be interesting to examine the relationships between perfectionism (particularly self-oriented perfectionism) and dark striving antisocial behaviour in a sample of athletes experiencing ongoing performance difficulties in sport (e.g., athletes on teams who are fighting to avoid relegation).

The first structural model also revealed that other-oriented perfectionism shared a small, positive association with dark striving antisocial behaviour. Although the association was non-significant, the direction and magnitude of this finding is perhaps unexpected given that

the primary focus of other-oriented perfectionism is on others pursuing and attaining success, rather than the self (Hewitt & Flett, 1991). However, "an interesting feature of other-oriented perfectionists is their tendency to be hypercompetitive" (Hewitt et al., 2017, p. 42). In explaining how these individuals are likely to struggle with situations in which they perceive to have been outperformed, Hewitt and his colleagues highlight that:

> Other-oriented perfectionists tend to be narcissistic and find it highly threatening when they are outperformed by others. Most embrace a 'win at all costs' approach to life, and being outperformed becomes a source of narcissistic injury that can evoke rage and aggressive behaviour. (p. 42)

The notion that individuals high in other-oriented perfectionism often have narcissistic tendencies may help to explain the direction of the association between other-oriented perfectionism and dark striving antisocial behaviour. For narcissistic perfectionists, the tendency to require perfection of others reflects efforts to maintain a sense of self-importance and perceived superiority (Nealis, Sherry, Lee-Baggley, Stewart, & Macneil, 2016). Team sport athletes characterised by a constellation of these personality traits may "require others to be perfect, as any imperfections may reflect badly on them" (Hewitt et al., 2017, p.41). This may be especially likely in contexts where others are integral to achieving personal success (e.g., team sport competition). These athletes are likely to therefore attach an extreme level of importance to themselves and others achieving personal success in sport. Nonetheless, given that the association between other-oriented perfectionism and dark striving antisocial behaviour was non-significant, further research is required to establish these links in sport.

4.2. Multidimensional Perfectionism and Antisocial Acts During Competition: The Mediating Influence of Angry Reactions to Poor Performance

4.2.1. Poor personal performance.

The second structural equation model (HM2) examined the mediating influence of

angry reactions to poor personal performance in the relationships between each perfectionism dimension and antisocial acts during competition. However, contrary to expectations, socially prescribed perfectionism did not share a positive association with antisocial acts during competition at the bivariate level, and no significant indirect effects emerged in the structural equation model (Hypotheses 2 and 3, respectively). Ultimately, the structural model revealed that the tendency to react angrily to poor personal performance was significantly associated with the frequency of antisocial acts reported during competition. However, all perfectionism dimensions demonstrated small, non-significant associations with angry reactions to poor personal performance. These findings are in contrast to Dunn et al.'s (2006) study, which revealed positive associations between angry reactions to poor personal performance and dimensions of perfectionism (i.e., high personal standards, concern over mistakes, and perceived coach pressure).

One potential explanation for these divergent findings is that poor personal performance may elicit an alternative emotional response in athletes reporting high levels of perfectionism in the current sample. Flett and Hewitt (2016) list a range of affective reactions that are relevant to the perfectionistic athletes' perception of personal failure. In particular, Flett and Hewitt (2016) highlight that circumstances which result in the perception that efforts to achieve perfection have been futile may elicit self-conscious emotions (e.g., shame, guilt, and embarrassment). In support of this proposition, Sagar and Stoeber's (2009) findings indicate that perfectionistic athletes who are pre-occupied with failure and the implications of not being perfect are likely to experience negative emotions (e.g., shame, embarrassment, and guilt) following personal performance failures. From this perspective, the experience of poor personal performance may be predominantly embarrassing or humiliating, rather than infuriating.

4.2.2. Poor teammate performance.

The third structural equation model (HM3) examined the mediating influence of angry reactions to poor teammate performance in the relationships between each perfectionism dimension and antisocial acts during competition. In accordance with study hypotheses, the model revealed that other-oriented perfectionism shared a positive relationship with antisocial acts during competition via angry reactions to poor teammate performance (Hypotheses 2 and 4). This model therefore provides further support to the notion that athletes demonstrating high levels of other-oriented perfectionism will frequently be frustrated in situations when they perceive teammates to be underperforming (Hall, 2006). Specifically, the model indicates that athletes characterised by high levels of other-oriented perfectionism are likely to react to this scenario with angry feelings and urges to express anger using verbal and physically hostile behaviour. This finding therefore extends research that has previously illustrated positive associations between perfectionism and angry reactions to poor personal performance (e.g., Dunn et al., 2006; Vallance et al., 2006).

The third structural model also indicated that angry feelings triggered by poor teammate performance played a key role in explaining the antisocial behavioural tendencies of athletes reporting high levels of other-oriented perfectionism. This finding therefore provides support to the notion that athletes characterised by other-oriented perfectionism are likely to criticise and blame others when angered by their substandard achievement (Hewitt et al., 2017). In relation to the present findings, the tendency to direct antisocial acts toward teammates during competition may be a reflection of the contempt experienced whenever teammates perform poorly. Similarly, antisocial acts toward opponent athletes may reflect a tendency to direct this contempt toward other available targets (Denson, Pedersen, & Miller, 2006). That is, the angry feelings activated by poor teammate performance may make athletes characterised by high levels of other-oriented perfectionism susceptible to overreact in situations involving even minor irritation. From this perspective, the rivalry offered by opposition athletes during team sport competition may be enough to trigger antisocial

reactions from an athlete who is frequently angry and feels like acting hostile during competition (Hewitt et al., 2017).

Unexpectedly, the third structural model also provided evidence to indicate that self-oriented perfectionism is associated with antisocial acts during competition via a negative association with angry reactions to poor teammate performance. Firstly, this finding suggests that athletes demonstrating high levels of self-oriented perfectionism will rarely be angry in situations when they consider teammates to be underperforming. This finding is perhaps unsurprising given that the primary focus associated with self-oriented perfectionism is the pursuit and attainment of exceedingly high personal standards (Hewitt & Flett, 1991). Secondly, this finding also suggests that the absence of angry feelings and urges to act hostile whenever teammate performance is poor plays a key role in thwarting antisocial acts during competition. Overall, the findings in this model are consistent with studies showing that self-oriented perfectionism is far less problematic in terms of disagreeable and hostile interpersonal behaviour when compared to other-oriented perfectionism (e.g., Stoeber et al., 2017).

4.3. Practical Implications

The findings presented in the current thesis provide a novel contribution to existing research by identifying antisocial behavioural tendencies associated with perfectionism in the team sport context. In particular, the findings reported in relation to structural model HM1 suggest that athletes characterised by high levels of socially prescribed perfectionism are likely to exhibit antisocial behaviours that facilitate personal goals at the expense of others (i.e., dark striving antisocial behaviour). This finding may be important for coaches working with athletes in a team sport environment, particularly those who want to reduce antisocial athlete behaviour. One strategy a coach may employ in an attempt to eliminate such antisocial conduct is to avoid engaging in behaviours that reinforce the importance of normative success

and outperforming others (Duda, Papaioannou, Appleton, Quested, & Krommidas, 2014; Kavussanu, 2006). For instance, coaches could avoid punishing players for making mistakes, providing attention to only the most competent players, and promoting intra-team rivalry (Kavussanu, 2006). If athletes reporting high levels of socially prescribed perfectionism train and compete in an environment where personal mistakes go unpunished and all athletes are recognised regardless of ability, they may be less inclined to use antisocial behaviours in order to achieve success, avoid failure, and secure the recognition of others.

Examining the intervening role of angry reactions to poor performance in the perfectionism-antisocial athlete behaviour relationship also helped to provide some insightful findings. In particular, the findings reported in relation to structural model HM3 indicated that angry reactions to poor teammate performance play a key role in determining whether athletes reporting high levels of perfectionism behave antisocially during competition. The findings suggest that athletes who are frequently infuriated in situations when teammates are underperforming may be at risk of acting antisocially. Coaches who are aware of this may be able to intervene (e.g., substitute the angry player) and help prevent the occurrence of antisocial acts that threaten team success (e.g., punishable acts such as deliberately fouling an opponent) and team cohesion (e.g., conflictual behaviours such as arguing with a teammate). In the long term, however, coaches may look to employ role-playing techniques to help athletes reporting high levels of other-oriented perfectionism to control their competitive anger (Brunelle, Janelle, & Tennant, 1999). This technique would involve enacting common anger-provoking situations (e.g., poor teammate performance) and practicing appropriate response strategies. The research study conducted by Brunelle et al. (1999) identified that this method was effective in dealing with anger-provoking scenarios in real game situations.

4.4. Limitations

The findings presented in this thesis must be considered in respect to a number of

study limitations. One noteworthy limitation relates to the cross-sectional research design that was adopted. The study was able to provide an indication of the multidimensional perfectionism-antisocial athlete behaviour relationship, as well as the way in which angry reactions to poor performance can be useful in explaining this relationship. The hypothesised causal relationships between each of these variables was based largely on theory and reflected in the construction of three structural models. However, it was not possible to make any inferences regarding causality. For example, it is not possible to determine from the results reported in this study whether perfectionism causes athletes to behave antisocially. An important step for future research will therefore be to test the relationships suggested in this cross-sectional study using a longitudinal research design. This approach has been recommended by perfectionism researchers (e.g., Stoeber, 2014c) as it has the benefit of identifying information relating to the temporal order of events and can be used to make stronger inferences regarding causality (Marsh, 2007; Taris, 2000).

The data collection procedure adopted in the present study relied exclusively on self-report measures. One limitation associated with this methodological approach is the potential for mono-method bias (also known as common method variance). A common method approach to measurement can have a systematic influence on the observed associations among variables and make research findings ambiguous (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To help alleviate this issue and improve validity, future research could consider using alternate sources of measurement. For example, in addition to using self-report measures, it could be useful to obtain reports from a significant other (e.g., coach-reports of perfectionism) and adopt observational measurement techniques (e.g., observed reports of antisocial behaviour; Kavussanu et al., 2009). Utilising one of these alternate sources may be particularly important when it comes to measuring antisocial athlete behaviour. Responses to self-report measures of antisocial behaviour could be influenced by social desirability (Podsakoff et al., 2003). This could result in certain athletes underreporting their antisocial

tendencies, a possibility which could ultimately conceal the true relationship between perfectionism and antisocial athlete behaviour. Adopting one of the alternative measurement sources suggested above could help to mitigate this potential issue.

A further limitation pertains to the mixed model approach adopted in the construction of the three structural models. The focus of each model was on the independent effects of perfectionism in relation to antisocial behaviour and or angry reactions to poor performance. This focus meant that a latent multidimensional perfectionism factor represented by the three perfectionism subscales was not considered in any model. By contrast, the inclusion of three separate latent perfectionism factors (i.e., self-oriented. socially prescribed, and other-oriented perfectionism) represented by the five items from each respective subscale was considered. Models made up exclusively of latent variables would have the advantage of ensuring that measurement error was built into all variables (Kline, 2011). Unfortunately, however, such models would also be more complicated and include far more parameters (HM1 = 42 parameters versus 15 parameters; HM2 & HM3 = 47 parameters versus 20 parameters). According to Kline's (2011) guidelines, trustworthy results are generated when the participant to estimated parameter ratio is at least 10:1. In the context of the current sample, the mixed model approach was adopted in each case (ratio of participants to estimated parameters: HM1 ≈ 16:1; HM2 & HM3 ≈ 12:1). The major limitation of this approach is that measurement error was not built in to the observed predictor variables. Alternative techniques to construct latent variables should be considered to help overcome this limitation in future research. For instance, rather than using individual items as indicators of the three perfectionism predictor variables (i.e., an item-based approach), researchers may consider aggregating items into parcels to use as indicators of the three target constructs (Matsunaga, 2008).

One further limitation pertains to the combined focus on antisocial acts toward

opponents and teammates within the second and third structural equation models. It is possible that the antisocial behavioural tendencies associated with dimensions of perfectionism will vary depending on the specific target. In the team sport environment, for instance, athletes characterised by high levels of other-oriented perfectionism are likely to react negatively towards teammates for not performing perfectly (Stoeber, Otto, & Stoll, 2006). Therefore, it may have been worth focussing exclusively on antisocial teammate behaviour in the structural model focussing on angry reactions to poor teammate performance; or alternatively, modelling the two related antisocial subscales as separate latent variables (see Boardley & Kavussanu, 2010, for an example).

The implication of using structural equation modelling to examine the independent effects of perfectionism is an issue that also warrants attention. The associations reported in each structural model are difficult to interpret due to the presence of multiple predictor variables (Jowett et al., 2016). This is due to statistical partialling; a technique whereby the effects of one variable (e.g., self-oriented perfectionism) is examined after the shared variance with other independent variables (e.g., socially prescribed perfectionism and other-oriented perfectionism) is removed (Lynam, Hoyle, & Newman, 2006). The associations identified in each structural model are therefore based on the independent effects of three residualised perfectionism variables. The interpretational difficulties arise as the residualised variables may not be entirely representative of their respective original variables (Jowett et al., 2016). For this reason, it is important to be cautious when formulating conclusions regarding the findings for self-oriented, socially prescribed, and other-oriented perfectionism in each of the structural models.

4.5. Future Directions

The tendency to act antisocially may make it difficult for athletes demonstrating high levels of socially prescribed and other-oriented perfectionism to form and maintain social

relationships in the sporting environment. The Perfectionism Social Disconnection Model (Hewitt et al., 2006; Sherry et al., 2016) proposes that hostile and aggressive interpersonal tendencies associated with perfectionism generate objective social disconnection (i.e., actual damage to relationships). By extension, antisocial behaviours displayed by highly perfectionistic athletes may function in similar way, ultimately driving others way and generating interpersonal conflict. Future research may wish to test this possibility by examining the mediating influence of antisocial athlete behaviour in the relationship between perfectionism and social disconnection (e.g., peer acceptance). This research would allow for the first empirical test of the social disconnection model in the context of sport.

A further potentially important avenue for future research involves examining the influence of narcissistic perfectionism in relation to antisocial athlete behaviour. Individuals characterised by a constellation of perfectionistic and narcissistic traits (i.e., "grandiosity, entitlement, high standards for others, and other-oriented perfectionism"; Nealis et al., 2016, p. 494) have a tendency to retaliate with conflictual behaviour when they perceive others to have failed. Moreover, Nealis et al. (2015, 2016) have demonstrated that narcissistic perfectionism accounts for unique variance in social aversive behaviours and anger after controlling for individual measures of other-oriented perfectionism and narcissism. Based on this research, it may be worth examining the predictive utility of narcissistic perfectionism when predicting angry reactions to poor performance and antisocial athlete behaviour.

5. Conclusion

The present study was able to provide initial evidence of an association between multidimensional perfectionism and antisocial behaviour in team sports. In general, the study findings build upon research outside of sport, demonstrating that the problematic interpersonal expression of socially prescribed and other-oriented perfectionism extends to the competitive team sport context. With regards to the direct relationship between

multidimensional perfectionism and antisocial athlete behaviour, two notable findings emerged. Firstly, structural model HM1 revealed that socially prescribed perfectionism shared a positive association with dark striving antisocial behaviour. This finding is particularly important as it provides support to Flett and Hewitt's (2016) assertion that the pressure to be perfect will lead some highly perfectionistic athletes to engage in immoral behaviours that help them to outperform others and achieve success in sport. Secondly, other-oriented perfectionism demonstrated positive associations with antisocial acts directed toward teammates and opponents. This finding indicates that the hostile-dominant interpersonal expression of other-oriented perfectionism extends to the team sport context and manifests itself in a variety of antisocial acts during competition.

The present thesis also included the first line of research specifically examining how angry reactions to poor performance may help to explain the relationship perfectionism shares with antisocial acts during team sport competition. Specifically, two models were constructed and tested in order to examine the mediating influence of angry reactions to poor personal (structural model HM2) and poor teammate (structural model HM3) performance. An inspection of the two models revealed that it is the tendency to experience anger in response to poor teammate performance that is most likely to explain the frequency of antisocial acts displayed by perfectionistic athletes during competition. For instance, structural model HM3 revealed that the tendency to react with anger when teammate performance is considered poor may partly explain the positive relationship between other-oriented perfectionism and antisocial acts during competition. By contrast, the model revealed that an absence of angry feelings in response to poor teammate performance may help explain the lower levels of antisocial acts reported by athletes high in self-oriented perfectionism. These findings therefore build on existing research that has examined perfectionism and angry reactions to poor performance (e.g., Dunn et al., 2006), identifying that poor teammate performance is an important scenario to examine when attempting to understand the angry temperament and

antisocial conduct of perfectionistic athletes during team sport competition.

6. References

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7. Appendices

7.1. Appendix A – Study Questionnaire

Gender: <u>M/ F</u>   DOB: _____/_____/_____   Postcode: _____

Main sport (which you train and compete in most often): _____

In comparison to all other activities in which you engage, how important do you consider this sport to be for you? (Please circle a NUMBER on the scale below):

Extremely Unimportant		Moderately Unimportant		Neither Important nor Unimportant		Moderately Important		Extremely Important
1	2	3	4	5	6	7	8	9

Your highest level of competition in your main sport (e.g., International): _____

Number of hours spent training and competing per week: _____

Number of years competing in this sport: _____

<u>Section A:</u> *Brief Multidimensional Perfectionism Scale (Brief HF-MPS; Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008)*

Listed below are a number of statements regarding attitudes toward sport and sport performance. Please read each statement and decide to what degree this statement characterises *your attitudes toward sport*.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

In competitive sport …

1. One of my goals is to be perfect in everything I do.	1	2	3	4	5	6	7
2. Everything that others do must be of top-notch quality.	1	2	3	4	5	6	7
3. The better I do, the better I am expected to do.	1	2	3	4	5	6	7
4. I strive to be as perfect as I can be.	1	2	3	4	5	6	7
5. It is very important that I am perfect in everything that I attempt.	1	2	3	4	5	6	7
6. I have high expectations for people who are important to me.	1	2	3	4	5	6	7
7. I demand nothing less than perfection from myself.	1	2	3	4	5	6	7
8. I can't be bothered with people who won't strive to better themselves.	1	2	3	4	5	6	7
9. Success means that I must work even harder to please others.	1	2	3	4	5	6	7

Section A (continued):

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

10. If I ask someone to do something, I expect it to be done flawlessly.	1	2	3	4	5	6	7
11. I cannot stand to see people close to me make mistakes.	1	2	3	4	5	6	7
12. I must work to my full potential at all times.	1	2	3	4	5	6	7
13. My family expects me to be perfect.	1	2	3	4	5	6	7
14. People expect nothing less than perfection from me.	1	2	3	4	5	6	7
15. People expect more from me, than I am capable of giving.	1	2	3	4	5	6	7

Section B: *The Reactions-to-Mistakes Anger Scale (RTM-Anger; Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006)*

Listed below are a number of statements that people have used to describe how they feel. Please read each item and rate how frequently *you generally react with (or feel like expressing) anger when you are not playing well during competition*.

Never			Sometimes			Almost Always
1	2	3	4	5	6	7

When I am not playing well …

1. I am furious.	1	2	3	4	5	6	7
2. I feel irritated.	1	2	3	4	5	6	7
3. I feel angry.	1	2	3	4	5	6	7
4. I feel like yelling at somebody.	1	2	3	4	5	6	7
5. I feel like breaking things.	1	2	3	4	5	6	7
6. I am mad.	1	2	3	4	5	6	7
7. I feel like slamming my water bottle.	1	2	3	4	5	6	7
8. I feel like hitting someone.	1	2	3	4	5	6	7
9. I feel like swearing.	1	2	3	4	5	6	7
10. I feel annoyed.	1	2	3	4	5	6	7
11. I feel like kicking something.	1	2	3	4	5	6	7
12. I feel like cursing out loud.	1	2	3	4	5	6	7
13. I feel like screaming.	1	2	3	4	5	6	7
14. I feel like pounding somebody.	1	2	3	4	5	6	7
15. I feel like shouting out loud.	1	2	3	4	5	6	7

Section C: *The Reactions-to-Mistakes Anger Scale (RTM-Anger; Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006)*

Listed below are a number of statements that people have used to describe how they feel. Please read each item and rate how frequently *you generally react with (or feel like expressing) anger when one of your teammates is not playing well during competition.*

Never			Sometimes			Almost Always
1	2	3	4	5	6	7

When one of my teammates is not playing well …

1. I am furious.	1	2	3	4	5	6	7
2. I feel irritated.	1	2	3	4	5	6	7
3. I feel angry.	1	2	3	4	5	6	7
4. I feel like yelling at somebody.	1	2	3	4	5	6	7
5. I feel like breaking things.	1	2	3	4	5	6	7
6. I am mad.	1	2	3	4	5	6	7
7. I feel like slamming my water bottle.	1	2	3	4	5	6	7
8. I feel like hitting someone.	1	2	3	4	5	6	7
9. I feel like swearing.	1	2	3	4	5	6	7
10. I feel annoyed.	1	2	3	4	5	6	7
11. I feel like kicking something.	1	2	3	4	5	6	7
12. I feel like cursing out loud.	1	2	3	4	5	6	7
13. I feel like screaming.	1	2	3	4	5	6	7
14. I feel like pounding somebody.	1	2	3	4	5	6	7
15. I feel like shouting out loud.	1	2	3	4	5	6	7

Section D: *Prosocial and Antisocial Behaviour in Sport Scale* (PABSS; Kavussanu & Boardley, 2009)

Listed below are a number of statements describing sport-specific antisocial and prosocial behaviours. Please read each item and indicate how often *you have engaged in each behaviour this season.* If the season has not started, please indicate how often *you engaged in each behaviour last season.*

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

During the season (so far), I have …

1. Helped an injured opponent.	1	2	3	4	5
2. Intentionally distracted an opponent.	1	2	3	4	5
3. Swore at a teammate.	1	2	3	4	5
4. Criticized a teammate.	1	2	3	4	5
5. Argued with a teammate.	1	2	3	4	5
6. Helped an opponent off the floor.	1	2	3	4	5
7. Showed frustration at a teammate's poor play.	1	2	3	4	5

Section D (continued):

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

8. Gave constructive feedback to a teammate.	1	2	3	4	5
9. Physically intimidated an opponent.	1	2	3	4	5
10. Intentionally broke the rules of the game.	1	2	3	4	5
11. Tried to injure an opponent.	1	2	3	4	5
12. Deliberately fouled an opponent.	1	2	3	4	5
13. Verbally abused a teammate.	1	2	3	4	5
14. Asked to stop play when an opponent was injured.	1	2	3	4	5
15. Criticized an opponent.	1	2	3	4	5
16. Congratulated a teammate for good play.	1	2	3	4	5
17. Encouraged a teammate.	1	2	3	4	5
18. Tried to wind up an opponent.	1	2	3	4	5
19. Gave positive feedback to a teammate.	1	2	3	4	5
20. Retaliated after a bad foul.	1	2	3	4	5

Section E: *Antisocial Sport Behaviour Survey (ASBS; Kaye & Hoar, 2015)*

Listed below are a number of statements describing sport-specific antisocial behaviours. Please read each item and indicate *how characteristic each behaviour is of you.*

Not at all	Slightly	Somewhat	Moderately	Extremely
1	2	3	4	5

1. In a competition, it is hard for me to put others' interests in succeeding before my own.	1	2	3	4	5
2. When winning is at stake, it is easy for me to deliberately inflict pain on others in a competition.	1	2	3	4	5
3. It is easy for me to compete selfishly to ensure I reach my goals.	1	2	3	4	5
4. It is easy for me to forfeit a competition to avoid sure defeat.	1	2	3	4	5
5. It is hard for me to protect my rights to a fair competition.	1	2	3	4	5
6. In a competition, it is easy for me to sabotage my performance to help someone else shine.	1	2	3	4	5
7. It is hard for me to stop myself from helping another person bend the rules in a competition.	1	2	3	4	5
8. It is hard for me to maintain my composure so I don't create a scene when winning is at stake.	1	2	3	4	5
9. When competing, it is easy for me put my personal success before that of others.	1	2	3	4	5
10. When winning is at stake, it is easy for me to threaten others who block my goals.	1	2	3	4	5
11. It is easy for me to resist cooperating with others in a competition.	1	2	3	4	5
12. In a close competition, it is easy for me to fake an injury to deny others the opportunity to outperform me.	1	2	3	4	5
13. It is hard for me to stand up for what I think is right during a competition.	1	2	3	4	5

Section E (continued):

Not at all	Slightly	Somewhat	Moderately	Extremely				
1	2	3	4	5				

14. It is easy for me to sacrifice my performance for the good of others in a competition.	1	2	3	4	5
15. It is hard for me to resist helping someone gain an unfair advantage in a competition.	1	2	3	4	5
16. When winning is at stake, it is hard for me to keep from attracting others attention with my emotional displays.	1	2	3	4	5
17. It is easy for me to strive for personal success at any cost in a competition.	1	2	3	4	5
18. When competing, it is easy for me to attempt to bully others to make calls in my favour.	1	2	3	4	5
19. It is easy for me to dismiss others' accomplishments in a competition.	1	2	3	4	5
20. It is easy for me to create obstacles for myself so I have ready excuses in case I lose a competition.	1	2	3	4	5
21. It is easy for me to overlook situations where opponents compete unfairly.	1	2	3	4	5
22. It is easy for me to neglect my performance in the interest of another competitor's success.	1	2	3	4	5
23. It is hard for me to exhibit self-control so I don't distract my opponent's attention in a competition.	1	2	3	4	5
24. In a competition, it is easy for me to put my chance for victory before the success of others.	1	2	3	4	5
25. In a competition, it is easy for me to upset an opponent to gain an advantage.	1	2	3	4	5
26. It is easy for me to ignore others' support to benefit my performance during a competition.	1	2	3	4	5
27. It is easy for me to make-up excuses for my losses.	1	2	3	4	5
28. It is easy for me to forfeit a match to let another competitor who needs the victory win.	1	2	3	4	5
29. It is hard for me to refrain from distracting my opponent by overreacting during competitions.	1	2	3	4	5
30. It is easy for me to exploit other competitors for personal gains in a competition.	1	2	3	4	5
31. It is easy for me to withhold effort in a competition to benefit another person.	1	2	3	4	5

Please check that you have responded to all items to which you intended to respond. Thank you for taking the time to complete this questionnaire.

7.2. Appendix B – Ethics Approval Notification

York St John
University

Faculty of Health and Life Sciences
Lord Mayor's Walk YORK YO31 7EX
Tel: (01904) 876734
Fax: (01904) 876500

Nathalie Noret
Chair of Faculty of Health & Life
Sciences Research Ethics
Committee
Direct Line 876311
E-mail: n.noret@yorksj.ac.uk

5th September, 2016

Dear Michael,

RE: Perfectionism and Antisocial Behaviour in Team-Sport

REF: 110018171_Gruggan_09082016

The research ethics committee has approved, without reservation, the above
research ethics submission of 9th August, 2016.

Yours sincerely

D. Noret

7.3. Appendix C – Gatekeeper Letter

Dear Coach

My name is Michael Grugan and I am a researcher at York St. John University (YSJ). As part of my work with the sport psychology research team at YSJ, I am currently running a research project on players' personalities and their interactions with others in their sport environment. More specifically, my research focusses on players' personalities and the prosocial behaviours (e.g., encouraging a teammate) and antisocial behaviours (e.g. getting angry with teammates and opponents) they often exhibit during competition. I am therefore seeking your help to recruit participants from team sport.

I would like to invite you and the players you work with to be a part of this project. The project involves the players filling out a questionnaire which takes approximately 15 minutes to complete. This could take place prior to or following a training session or match, during which time a researcher from YSJ would be on hand to provide the materials and answer any queries you or the players may have.

Prior to taking part in the study, the players (and parents where players are under the age of 18) will be provided with information regarding the requirements of the study, their role should they choose to participate, the voluntary nature of their participation, and their right to withdraw from the study. The findings of the study will be made available on request following completion of the study and the project has received full support from the Faculty of Health & Life Sciences' Research Ethics Committee at York St. John University.

I would be delighted if you decide to work with us on this research project. Please let me know via e-mail (m.grugan@yorksj.ac.uk) or mobile (07772959297) whether you would be interested in taking part.

Yours faithfully,
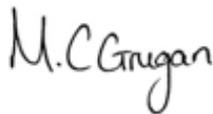
M.C Grugan

Michael Grugan BA (Hons)

7.4. Appendix D – Participant Information Sheet

<u>Information Sheet</u>

<u>Invitation to Participate</u>
You are invited to take part in a research study looking at the relationship between athletes' views about sport and sport performance and the different types of behaviour they often show during matches (e.g., encouraging a teammate, getting angry with teammates and opponents etc.). Before you decide whether or not to take part, it is important that you understand why the research is being done and what it will involve. Please take time to read this information carefully and discuss it with others if you wish.

<u>The study</u>
Title: Perfectionism and Sport-Specific Antisocial Behaviours

<u>Names of researchers</u>
Mr. Michael Grugan; Dr. Gareth Jowett; and, Professor Howard Hall

<u>Purpose of the study</u>
The aim of the study is to examine the relationship between perfectionism and prosocial/antisocial behaviour in a competitive team sport setting. Another purpose will be to examine how feeling angry when not playing well and thinking about anger during competition effects this relationship.

<u>What does the study involve?</u>
Taking part in the study involves filling out a short questionnaire that should take about 15 minutes to complete.

<u>Do I *have* to take part?</u>
No. It is up to you whether or not you take part in this study, although your participation would be very much appreciated. If you decide to take part, you may withdraw at any time before or during the data collection or within two weeks of the date on which data was collected.

<u>What happens if I withdraw from the research?</u>
You decide the level of your withdrawal. You have two choices:

1. You may decide that any data (questionnaire responses) you provide must be removed from the data collection and not be included in the study.
   OR
2. You may decide to make no further contributions but that your data (questionnaire responses) **can** be used in the analysis.

<u>What are the possible disadvantages/ risks of taking part?</u>
There is a small risk that some of the items (questions) included in the study questionnaire may cause some slight form of emotional sensitivity. If you do not want to respond to any of the items for this reason you do not have to, nor do you have to explain the reasoning behind your choice.

There is a small risk that some of the items (questions) included in the study questionnaire may cause some slight form of emotional sensitivity. If you do not want to respond to any of the items for this reason you do not have to, nor do you have to explain the reasoning behind your choice.

Will my taking part in this study be kept confidential?

Yes. All information obtained will be analyzed as group data and no reference or inference will be made to any individual. Once data have been collected, it will be stored on a personal computer accessible by a password known only to the researcher. The data will be stored for a period of 5 years post publication before it is destroyed.

What happens when the research study is over?

You do not have to do anything, although if you wish to receive a copy of the findings please e-mail the project director (m.grugan@yorksj.ac.uk), who will contact you once the project is completed.

What next?

You will be given a copy of the questionnaire to fill out. Once you've completed the questionnaire please take a minute to check you've completed all the questions that you planned to answer. On completion of the questionnaire please hand your copy in to the researcher.

Contact details for further information?

If you have any questions about the project, please contact Michael Grugan, Gareth Jowett, and/or Howard Hall.

Michael Grugan (Project Director)	
M.grugan@yorksj.ac.uk	
Gareth Jowett (Project Supervisor)	**Howard Hall (Project Supervisor)**
g.e.jowett@leedsbeckett.ac.uk	H.hall@yorksj.ac.uk

Thank you for reading this information!

7.5. Appendix E – Participant Informed Consent Form

Informed Consent Form

Study title: Perfectionism and Sport-Specific Antisocial Behavior

Please tick (☑) all boxes and date and sign where indicated below (X):

A. I confirm that I have read and understood the information sheet for the above study and understand what is expected of me ☐

B. I confirm that I have been given the opportunity to ask questions regarding the study and, if asked, my questions were answered to my full satisfaction ☐

C. I understand that my participation is voluntary. I also understand that I may withdraw at any time before or during the data collection or within two weeks of the date on which data was collected ☐

D. I understand that all information about me will be treated in strict confidence and that I will not be named in any written work arising from this study ☐

_____	_____	_____
Your name (PRINT)	**Date**	**Signature X**
_____	_____	_____
Researcher's name (PRINT)	Date	Signature

Data Protection Act

I understand that data collected about me during my participation in this study will be stored on a password-protected computer and that any files containing information about me will be made anonymous

Signature: X _____ **Date:** _____

7.6. Appendix F – Parental Informed Consent Form

Dear Parent/Guardian,

Your child's sport's team are involved in a research project that your child will be invited to participate in. The study focusses on players' personalities and their interactions with others in their sport environment. More specifically, my research focusses on players' personalities and the prosocial behaviours (e.g., encouraging a teammate) and antisocial behaviours (e.g. getting angry with teammates and opponents) they often exhibit during competition.
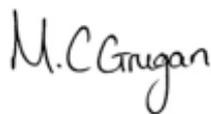
Your child will be invited to complete a short questionnaire at a training session or match. This questionnaire will take approximately 15 minutes to complete. The information provided by participants will help develop a better understanding of the factors that influence team sport athletes' behaviours during competition.

This project has received full support from the Faculty of Health & Life Sciences' Research Ethics Committee at York St. John University. The participation of your child is completely voluntary and they are able to withdraw from the study at any time before or during the data collection or within two weeks of the date on which data was collected. All players' responses will be completely anonymous and viewed only by myself the project director and the research project supervisors (Dr. Gareth Jowett and Prof. Howard Hall). Once all data is collected, it will be analysed at group level only (i.e., no reference or inference will be made to any individual). All data will be securely stored on York St. John University premises and hard-copy data will be destroyed within five years.

If you would rather that your child **did not** participate in this research project, please contact me (E-mail: m.grugan@yorksj.ac.uk); or alternatively, inform your child (or their coach) that you do not want them to participate in the study. If you have any questions regarding the study and/or would like any additional information, please do not hesitate to get in touch with me via e-mail.

I would like to thank you for your assistance with this project and taking the time to read this information.

Yours faithfully,

M.C Grugan
_____

Michael Grugan BA (Hons)