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The Impact of Partners in Doubles Racquet Sports and Interpersonal Emotional Regulation

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Kinesiology

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Abstract

The overall purpose of this dissertation was to understand the impact that partner play has in doubles racquet sports (tennis, badminton and squash) on emotions, coping and emotional regulation. Study 1 laid the groundwork to understanding the impact (positive or negative) that the different types of partner play (playing well, playing normal, or playing poorly) has in these dyads. Participants (N=103) were randomized into one of three scenarios (written vignettes) designed to manipulate partners play and asked to fill out a questionnaire packet based on the scenario read. Findings of Study 1 showed that there was a difference in the impact on emotions and subjective performance based on whether a partner was playing well, playing poorly, or playing their usual game.

Study 2 was designed to further understand the impact of partner play through a qualitative approach, as well as how these athletes cope or regulate their emotions in these situations and how effective it is. Seventeen athletes, varying in gender, age, and sport (tennis, badminton, and squash) participated in semi-structured interviews. Athletes indicated that their partner did impact their own play and that they used various coping strategies similar to previous literature (emotion focused coping and problem focused coping). Moreover, to help regulate their own emotions, athletes discussed using both interpersonal and intrapersonal emotion regulation. Athletes use strategies that help their partner regulate their emotions in order to regulate their own emotions in difficult situations (interpersonal emotion regulation; IER).

Study 3 aimed to further understand if and how partners use IER when their partner is playing poorly, and how this use or lack thereof is related to social support and trust within these dyads. Using a cross-sectional survey design, participants (N=113) read the poor play vignette used in Study 1 and answered questionnaires measuring IER, social support and trust. These findings did

differentiate the type of IER used by the athletes including both the efficacy and tendency of use. Ratings of partner trust were lower than might be expected, implying that trust can fluctuate based on partner play. In addition, despite the moderate use of IER by these racquet sport athletes, this did not predict their trust in their partner.

Overall, these studies are the first looking at the impact of partner play in racquet sport dyads and how it relates to different emotions, types of coping, and types of emotional regulation. Taken together, this research shows that athletes are impacted when their partner is playing poorly and use both interpersonal and intrapersonal emotion regulation strategies.

Keywords: Dyads, Emotions, Sport, Coping, Emotion Regulation, Interpersonal

Lay Summary

The general purpose of this dissertation was to examine the impact that one partner's play has on their teammate in doubles racquet sports (badminton, squash, and tennis). Further, this study aimed to understand how these athletes cope, especially if their partner is playing poorly, and if these athletes use interpersonal emotional regulation. Emotions involve both psychological and physiological changes within individuals, and have been shown to have a significant, yet complicated relationship with sport performance. Coping is the use of resources, whether that be psychological (reframing of an incident in one's mind) or physical (changing the environment), to help deal with a stressful situation and is widely used by athletes but may not always be effective. There are also two main types of emotional regulation. Intrapersonal emotion regulation is when individuals attempt to regulate their own emotions from within, and interpersonal emotion regulation is drawing on another person to regulate their emotions or to regulate your own emotions.

This dissertation was comprised of three studies. Study 1 examined how athletes react to different types of partner play (i.e., poor performance, a good performance, and usual performance). Athletes read one of possible three different scenarios depicting their partner's play, and then were given a survey that asked about the overall impact of their partner's play, especially with respect to emotions. Athletes believed that when their partner is playing poorly, this has the most significant impact, and revealed the most 'negative' emotions (e.g., anger and anxiety).

To further examine partner impact, Study 2 gave athletes a voice by qualitatively exploring the impact of partner play and how individuals may cope. Seventeen athletes (three badminton, nine squash, and five tennis) were interviewed and asked about the impact of their

partner's play, how they cope, and whether their coping methods are effective. Most athletes indicated that partner play did impact them, especially when their partner was playing poorly. There were a few athletes that believed their partner had no effect on their play, and all athletes used similar methods of coping (e.g., over-compensation, positive talk, and strategizing). Athletes also discussed how they regulated their own emotions by attempting to regulate their partner's emotions (interpersonal emotion regulation) which led to the design and implementation the third study.

Study 3 aimed to further understand the use of interpersonal emotion regulation, and how this may relate to the trust and social support within these partnerships. Athletes were asked to fill out a questionnaire asking about their use of interpersonal emotion regulation, trust in their teammate, and their perceived social support. It was found that participants did indicate using different types of interpersonal emotion regulation measured by the different instruments. A cut-off point was made for those using interpersonal emotion regulation as measured by the Interpersonal Regulation Questionnaire, and those high in interpersonal emotion regulation were found to use more informational support than any other type of support (emotional, esteem, or tangible) compared to those in the lower interpersonal emotion regulation group. In addition, partner overall trust was rated low. Given the scenario, this indicates that trust may fluctuate during these different situations or scenarios (partner playing poorly). Although these results showed a weak link between interpersonal emotion regulation and trust, the use of interpersonal emotion regulation seems like a worthy avenue for research to continue to explore, especially within dyads, to understand the possible positive impact it has on both emotions and performance.

Overall, this dissertation found that partner play does impact athletes in double racquet sports, and these athletes use both interpersonal and intrapersonal emotion regulation strategies. Employing interpersonal emotion regulation may be useful in enhancing improvements in both individual and team performance.

Co-Authorship Statement

This dissertation is my original work. However, I would like to acknowledge my co-authors on this research. For without them, this thesis would have not been completed. First, I would like to acknowledge my supervisor Dr. Craig Hall for all his guidance and contribution to all three of my studies. I would also like to acknowledge Dr. Kouali from the European University of Cyprus, and Brianna DeSantis, PhD Candidate from Western University for their contributions to Study 2. Lastly, to Dr. Philip Wilson for all his advice and his contribution to Study 1.

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Lastly, I would like to acknowledge the people that aided with the recruitment of participants for all my studies, and of course all the athletes that dedicated their time to participate in my studies. Interacting with participants was one of the greatest experiences to come from this work.

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Introduction

Sport provides numerous benefits including increasing confidence, and creating larger social circles, on top of the physical benefits (Oja et al., 2015; Wankel & Berger, 1990). Despite these benefits, sport can also create pressure and stress for athletes. Stress from both the physical and cognitive demands of training for sport have been associated with burnout and drop out in athletes (Raedeke & Smith, 2004). In addition to training, there is both pressure and stressors that are apparent during competition. It is a common tactic for an athlete to try to psyche an opponent out, get under their skin and upset their opponent emotionally (Kikumoto & Mayr, 2019). There are also times when a teammate may unintentionally do the same. This may be the result of a teammate not playing up to their potential. Furthermore, players have noted that teammates playing poorly is a distress during games; resulting in their attention being diverted in order to cope with this situation (Nicholls, Polman, Levy, Taylor, & Copley, 2007). Despite there being a considerable amount of research on emotions and coping in sport, there is very little conducted with smaller teams, such as dyads, and minimal research has been undertaken examining racquet sports. The present research examined the impact of partner play in dyads who play racquet sports, how these players cope (effectively or not) in different scenarios, and their use (or lack) of interpersonal emotion regulation (IER).

Emotions in Sport

Emotions are a cognitively appraised response to an event, which “triggers a cascade of response tendencies that manifest across loosely coupled component systems, such as subjective experience, facial expression, cognitive processing and physiological changes (Frederickson, 2001, p.218). Emotions are experienced subjectively and can be a response to an event that is real or imagined (Deci, 1980). Based on Lazarus’ Cognitive Motivational Relational Theory

(CMRT), Lazarus (1991) identifies emotions as first being cognitive, meaning they involve appraisals. Second, that emotions are motivational, meaning that they involve one's goals. Third, they are relational, meaning that emotions are social in nature and involve both the person and the environment. Another central assertion of CMRT is that each emotion has a core relational theme (how one generally perceives their environment), and an action tendency that coincides with this theme (Lazarus, 1991). For example, the core relational theme for anger would be to perceive a commitment of offence, and the action tendency for anger is lashing out. Given these premises, sport is an ideal context for looking at the impact of different emotions, their themes and their action tendencies.

Emotions have been widely studied in sport and on performance. They have been shown to significantly impact sport performance (Woodman et al., 2009). Athletes experience a number of emotions during competition (Martinent & Ferrand, 2015). These include, but are not limited to happiness, joy, pride, serenity, relief, hope, disappointment and anger (Martinent & Ferrand, 2015). Based on an athlete's appraisal of a given situation, an emotional response (positive or negative) will be elicited. Emotions are associated with an action tendency (Lazarus, 2000), and therefore these emotional responses may be beneficial or harmful based on both the activity and the type of emotion (Woodman et al., 2009). When these emotion action tendencies are in line with the task, performance can be facilitated (Rathschlag & Memmert, 2013; Woodman et al., 2009); however, this may not always occur (Rathschlag & Memmert, 2013; Woodman et al., 2009) and the relationship between emotions and performance still remains unclear.

In addition to the impact on performance, emotions have also been shown to be important for outcomes such as relationship quality (Gonzaga, Campos, & Bradbury, 2007), social cohesion (Anderson, Keltner & John, 2003), and communication (Zammuner, 1996). The

triggering of different emotions arises from the meaning given to a situation, and how one appraises the situation in relation to what is at stake and whether any loss can be prevented, or any benefits can be gained (Lazarus, 1991). These appraisals, the emotions and the types of coping that follow are said to have a reciprocal relationship (Lazarus & Folkman, 1987).

Meaning these different emotions can also impact athletes in different ways based on how they cope. Therefore, understanding how athletes cope with different emotions can have implications for performance and associated outcomes such as team cohesion (Allen, Jones, & Sheffield, 2009).

Coping in Sport

Coping is the cognitive and behavioural actions used to respond to internal and external demands placed on an individual (Lazarus & Folkman, 1987). Coping has been widely researched and examined within the sport literature. One of the more common grounded theories for coping is Lazarus' cognitive-motivational-relational theory (CMRT; Lazarus & Folkman, 1987) that is based on first and secondary appraisals. In each situation a person is placed in, CMRT says that a person will first do a primary appraisal to assesses whether there is harm or a benefit coming from the current environment. A person decides 'what is at stake?' These events are appraised by how relevant they are to one's goals; whether they are congruent with their goals or not, and what kind of goal is at stake in the situation. Following this, a secondary appraisal is done, where the individual decides whether there can be anything done to prevent the harm or take advantage of the current environment using different coping techniques (Folkman, Lazarus, Dunke-Schetter, DeLongis, & Gruen, 1986). In this appraisal, an individual decides whether there is blame or credit to be assigned, or who is responsible for the harm or benefit. An individual then decides whether they can influence or change the person-environment, and

finally the future expectations of the possible changes are assessed. Using CMRT, researchers have looked at both team (e.g., rugby, soccer, and water polo) and individual (e.g., golf, squash, and tennis) sports. Many of the studies show that very similar coping skills are employed by athletes regardless of their sport such as positive self-talk, distraction (e.g., listening to music, talking to a friend or teammate), and strategic planning (Kim & Duda, 2003).

These types of coping techniques can be divided into the two main categories of emotion focused coping and problem focused coping. Emotion focused coping aims to change or influence the mind of an athlete, whereas problem focused coping aims to change some aspect of the person-environment relationship (Lazarus, 2000). There is an additional form of coping known as vigilant coping. When an individual directs all their attention toward a problem in order to prevent or control it, this is termed vigilant coping (Lazarus & Folkman, 1987). This form of coping, although generally viewed as 'harmful' is sometimes used within sport and can even increase the amount of distress and emotion that is already occurring (Lazarus & Folkman, 1987). Recently there has been consideration in sport given to IER, which considers how athletes regulate both their own emotions and the emotions of their teammates (Friesen, Devonport, Sellars, Stanley, & Beedie, 2013; Tamminen & Gaudreau, 2014).

Interpersonal Emotion Regulation

Through emotional regulation one attempts to change the trajectory of either positive or negative emotions or emotional experiences (Ochsner & Gross, 2005) similar to that of coping. However, emotion regulation is the automatic or deliberate use of strategies to increase, decrease or maintain emotional experiences, whereas coping efforts generally do not include involuntary emotional responses (Tamminen & Gaudreau, 2014). Therefore, coping and emotional regulation play a distinct role in how one self-regulates different person-environment situations (Tamminen

& Gaudreau, 2014) Emotional regulation includes attempts to reduce ‘negative’ emotion, but also attempts to bring about, prolong or make these emotional experiences (generally ‘positive’ ones) greater (Uphill, McCarthy, & Jones, 2009). Some of these attempts may be made through resorting to a friend or another individual to help one manage these emotions or situations. This type of support is found through IER; individuals drawing on others to reduce stress (Lazarus & Folkman, 1984; Zaki & Williams 2013). IER can be used to regulate the emotions of the one seeking help, or by the individual providing help. These two forms are termed extrinsic IER and intrinsic IER, respectively. Forms of extrinsic IER include ways in which one attempts to regulate another’s emotions through feedback or prosocial acts (Liddel & Williams, 2019; Zaki & Williams, 2013). Forms of intrinsic IER include using others to regulate one’s own emotions, such as labelling, where one labels their own emotions to help describe their emotions to someone else, which then helps acknowledge and assess their own internal feelings. Individuals may also use others to help gain perspective on a difficult situation by observing what others may have previously done in a similar situation or having another person aid in reframing the situation (Hofmann et al., 2016; Liddle & Williams, 2019; Zaki & Williams, 2013).

Individuals may regard their use of IER as showing support to a friend, family member or teammate. A key difference between social support and IER is the socio-cognitive process involved (Williams et al., 2018). Social support refers to not only the size and existence of social networks for individuals, but how support is exchanged between individuals and how the support is perceived (Tamminen & Gaudreau, 2014). IER involves goal directed attempts to regulate emotions through specific strategies (Gross, 1998) similar to intrapersonal emotion regulation but also requires the presence of other individuals (they happen within social interactions; Williams et al., 2018).

Within social psychology, research to help us understand IER has recently become more prevalent. Researchers have examined the use of IER, how to measure the different forms of IER, and how IER relates to well-being, prosocial behaviour, empathy, and social support (Zaki & Williams, 2013). These studies have focused on either the individual seeking help, or the person providing help (Zaki & Oschner, 2009; Zaki & Williams, 2013), and overall have found that people who favor IER are more open, prosocial and have greater social connections (Zaki et al., 2018).

Zaki and Williams (2013) created a 2x2 framework outlining the use of IER where they differentiate first between response dependent (rely on feedback from others) and response independent (do not require a response during an interaction) emotional regulation, and second between extrinsic IER (i.e., when one attempts to regulate another's emotions) and intrinsic IER (i.e., one initiates social contact to regulate their own emotions or experience). Employing this framework Zaki and Williams (2013) 'map' interpersonal regulation through specifying when regulation is interpersonal, separating interpersonal regulation from affective consequences of regular interactions, making broad classes of whether interactions are being used to regulate one's own or other emotions, and drawing a boundary between different processes that make up interpersonal regulation. Also utilizing this framework, Williams and colleagues developed the most recent measure of IER, The Interpersonal Regulation Questionnaire (IRQ; Williams et al., 2018). The IRQ measures individuals' inclination to use intrinsic IER strategies and how effective these IER strategies are. Unfortunately to date, there are no current instruments that measure all aspects of the 2x2 model. Previous measures of IER include The Emotion Regulation of Others and Self Scale (EROS; Niven et al., 2011) which is used to measure a wide range of types of affect regulation strategies in individuals, and The Interpersonal Emotion

Regulation questionnaire (IER; Hoffman et al., 2016) which measures enhancing positive affect, perspective taking, soothing, and social modelling in individuals. Currently, there are no sport specific measures or adapted sport measures of IER.

The sport literature has also shown interest and highlighted the importance of understanding interpersonal regulation strategies within teams. Research has shown that players use both intrapersonal and interpersonal strategies to regulate their own, and other's emotions (Campo et al., 2017; Palmateer & Tamminen, 2018; Tamminen et al., 2016). These studies, through interviews with athletes, have shown that the use of IER is moderated by the relationships and roles within teams, as well as social norms within teams. More recently, Tamminen et al. (2019) looked at the use of IER (affect worsening and affect improving) by athletes over a ten-day period. Athletes were found to vary on their use of IER; decreasing affect worsening before a match and decreasing affect improving following a match. Use of different types of IER during matches, including type of match (regular season vs. playoffs), type of play (poor vs. well), and current outcome of the match have yet to be explored. As this research is only in its infancy, and has primarily used qualitative methods, more research in sport is needed. IER has important implications for social and emotional well-being (Williams et al., 2018), and through the use of IER athletes may be better able to communicate with their teammates. This could be important for team dynamics, cohesion, trust, perceived support, and performance.

Dyads

The current research is based, in large part, on the literature looking at partners (dyads) outside of sport, such as romantic partners, spouses and roommates. This research has found that partners can contribute to the change of one's emotions and emotional reactions over time (e.g., Anderson, Keltner, & John, 2003; Katz, Beach, & Joiner, 1999). Among dating partners, couples who stayed together over the course of as little as six months have displayed emotional

convergence (Anderson et al., 2003), and despite having different personalities, the emotional responses to positive and negative situations for these partners became more similar to each other (Anderson et al., 2003). In regard to IER specifically, the use of positive humor employed daily has been shown to help change both one's own and one's partner's affect (Horn, Samson, Debrot, & Perrezz, 2019).

Within the sport literature, there is research looking at dyads, both athlete to athlete and coach to athlete relationships. This work has revealed that verbal encouragement from an athletic partner can help to increase self-efficacy (Jackson et al., 2008), and that the perception of another's previous performance can inform the perceptions of others' self-efficacy (Jackson & Beauchamp, 2010). The literature specifically within doubles racquet sports has explored communication patterns between dyads (Lausic, Tennebaum, Eccles, Jeong, & Johnson, 2009). This literature has found there to be differences in communication patterns based on whether a team's record is winning or losing. Winning teams communicate more frequently and used more communication patterns with action statements (a statement with one's preferred action plan; Lausic et al., 2009). Whereas losing teams communicate much less frequently with a smaller number of communication patterns compared to winning teams, implying that losing teams may be less likely to communicate and solve problems together (Lausic et al., 2009). Emotions may play a role in how one communicates, whether it be frequency or intensity of communication patterns. Understanding how these dyads react and regulate their emotions may help us to better understand the differences in communication and performance patterns.

Overview for Present Research

The overall purpose of this dissertation was to first understand, both quantitatively and qualitatively, the impact that partner performance has on an athlete's emotions, and to

understand how these athletes cope effectively. Secondly, given IER is used by these doubles racquet athletes, how this relates to trust and perceived social support within these partners. Squash, tennis, and badminton were chosen as they are played in dyads and are very similar in terms of type of play, equipment, and rules. The purpose of Study 1 was to understand quantitatively the impact of partner play in three different scenarios; partner playing well, partner playing poorly, and partner playing their usual game. The purpose of Study 2 was to understand qualitatively the impact of partner play on emotions, as well as how athletes cope (or do not) with these different scenarios. Based on information gained through both Study 1 and 2, the purpose of Study 3 was to understand the use of IER and how this relates to trust and perceived social support within these dyads. These three studies in this dissertation follow an integrated-article format. Based on this format, redundancy does exist between the content of the general introduction and the following papers presented.

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Study 1

The Impact of Partner Performance on Emotions in Doubles Racquet Sports¹

Emotion is a cognitively appraised response to an event, which triggers a cascade of responses, such as subjective experience, facial expression, cognitive processing, and physiological changes (Frederickson, 2001). In sport, emotion has been shown to be an important component of such things as performance, behaviour, motivation and collective efficacy in teams (Allen, Jones, & Sheffield, 2009; Frederickson, 2001; Martinent & Ferrand, 2015). Athletes have reported experiencing a number of emotions during competition, such as, joy, serenity, relief, hope, disappointment and pride (Martinent & Ferrand, 2015). These different emotions have been shown to be beneficial for different tasks, such as anger for physical tasks and joy or happiness for fine motor tasks (Rathschlag & Memmert, 2013). In addition, emotions have been found to be more or less motivational based on the difficulty of the task (Erez & Isen, 2002). This study aimed to identify how athletes in dyads (e.g., doubles tennis) react and experience different emotions to different situations based on their partner's play to help develop a line of research aimed at improving the emotional state and coping of these athletes.

Lazarus' (1991) cognitive motivational relational theory (CMRT) has widely been used in sport research to explain how an athlete's emotions may be guided by the core relational theme (the meaning associated with a given emotion), which in turn is guided by the interaction between the person and the environment. Appraisals (the subjective experience and interpretation by the athlete) influences the emotional response, and together with emotions they effect sport performance (Lazarus, 1991; 2000).

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It is a person's meaning of the situation that potentially triggers an emotion rather than the situation itself (Lazarus, 1991). These situations (or emotional encounters) may often share common meaning, even in the same person, but no two situations are ever identical (Lazarus, 2000). For every situation, Lazarus (1991) identifies two types of appraisals; primary appraisals and secondary appraisals. In the primary appraisal, a person will decide whether there is anything at stake (i.e., is there a harm or benefit to the current situation), whereas in the secondary appraisal the person is evaluating what can be done to either prevent the harm (or loss) or to draw from the benefit (take advantage; Folkman, Lazarus, Dunke-Schetter, DeLongis, & Gruen, 1986).

In each appraisal, there are different ways that the stimuli are assessed or evaluated. In the primary appraisal, stimuli are appraised by their goal relevance (i.e., what is at stake?), their goal congruence or incongruence (i.e., is this beneficial or not?), and their goal content (i.e., what kind of goal is at stake; Jones, 2003). For example, when a partner in tennis is playing poorly, an athlete may see winning the game to be at stake, or the potential loss could offset the team goal of making it into the championship game. In the secondary appraisal, which is concerned with coping options, the stimuli are appraised in three ways. First, whether blame or credit is to be given (i.e., can responsibility be made for the harm or benefit that has occurred?). Second, the coping potential of one's self is made (i.e., is it possible to influence or change the person-environment?). Third, the future expectations following the changes (or lack of) that are made (i.e., whether things will improve or not; Jones, 2003). The athlete may blame their partner for the poor play, and think using certain coping strategies, such as strategizing and problem solving with their partner will help to improve the outcome of play and potentially the final outcome of the game. Therefore, based on both appraisals, how the situation is interpreted, whether it is a

harm or benefit, and whether a person perceives it is surmountable, will contribute to the emotional reaction. For the current study, the results will be discussed based on primary appraisals the athlete have of the given situation to help understand how athletes interpret or react based on their partner's type of play (i.e., playing poorly or having a good performance).

In addition to appraisals, Lazarus (1991) proposes action tendencies that accompany different emotions (i.e., lashing out is the associated action tendency with anger). Based on the appraisal and interpretation, these action tendencies will occur. These actions are based off core relational themes, which is the main harm or benefit that underlies each emotion, positive or negative (Smith & Lazarus, 1993). If these actions coincide with the task, they may be able to enhance performance, whereas if the action draws from other resources needed for the task, performance can be negatively impacted (Lazarus, 1991; 2000). Previous research has found CMRT to be a useful theory for investigating the emotion-performance relationship (Woodman et al., 2009). The aim of the present study was to help understand the emotion-performance relationship, subjectively, using this framework. Before considering the actions that follow a particular situation, it is important to consider how the situation is appraised by the individual and what emotions are elicited.

The impact of emotions on partnerships have been studied in daily life in social and clinical psychology through dating partners, roommates (i.e., Anderson, Keltner, & John, 2003; Katz, Beach, & Joiner, 1999) and marriages (i.e., Lyubomirsky, King, & Diener, 2005). Among dating partners, Anderson et al. (2003) found that over the course of six months, couples who stayed together displayed emotional convergence; their emotional responses to positive and negative situations became more similar to each other despite still having different personality traits at both assessments. The partner with less power in each relationship seemed to change

more (or become more similar) to the partner with more power (measured subjectively by each partner with three items; Anderson et al., 2003). Consistent findings were also found in same-sex college roommates, who, when first examined were not emotionally similar at the beginning of their relationship. Over the course of an academic year, emotional responses but not personality traits became significantly similar to one another, and those roommates who became more emotionally similar in their responses were closer friends than those who did not (Anderson et al., 2003), demonstrating a possible important function of emotions in facilitating and promoting social cohesion in long term relationships or dyads.

Further showing the importance of emotional similarity, Gonzaga, Campos, and Bradbury (2007) found that among married couples and dating couples, personality similarity and emotion similarity were positively correlated with relationship quality. In addition, despite the context of a situation, emotion similarity is independent; meaning that the benefits of being similar in couples does not depend on the type of interaction these partners engage in (i.e., positive or negative; Gonzaga et al. 2007). Although this type of relationship between variables has been established in these specific dyads (married and dating couples), it is unknown if these findings will translate into the sport setting between two athletic partners. Gonzaga and colleagues (2007) also acknowledge that couples who may be able to regulate the expression of negative affect may prevent a 'negative affect cycle' before it begins. This could be an important implication in sport; emotions felt compared to emotions expressed could have a very different impact.

In sport, there is some literature investigating dyads, considering both athlete to athlete and coach to athlete relationships. Through interviews, strong support for the development of relational efficacy was revealed, where people in close relationships draw different sources of

efficacy information from these relationships (Jackson, Knapp, & Beauchamp, 2008). Jackson et al. (2008) first established that verbal encouragement from an athletic partner increases self-efficacy, and self-efficacy for future performance is not only based on the past performance of the individual but the past performance of the both athletes in the dyad. Jackson and Beauchamp (2010) continued this line of research and found that perception of others', in such things as past performance, informed the perceptions of others self-efficacy. Specifically, within doubles racquet sports, Lausic and colleagues (2009) found differences in communication patterns between winning and losing teams in female doubles tennis players. Winning teams communicated messages more frequently and used more communication patterns with action statements (a statement with one's preferred action plan; Lausic, Tennebaum, Eccles, Jeong, & Johnson, 2009). In athlete and coach dyads, personality traits have been related to relationship commitment (Jackson, Dimmock, Gucciardi, & Grove, 2011). Increased conscientiousness, agreeableness, and being more extravert were associated with greater commitment. While sport research has considered dyads and investigated constructs such as self-efficacy and verbal communication, to our knowledge, there is no literature focusing on the relationship between partner performance and emotions.

Eccles and Tenebaum (2004) have articulated the importance of team communication and coordination in order for teams of any number to acquire shared knowledge and optimal performance (for a review and proposed model see Eccles & Tenebaum, 2004). Given that different emotions can be communicated differently or more intensely than others (Zammuner, 1996), this line of research may help to improve communication patterns and therefore performance.

In addition, previous research looking at emotional appraisals in specific sports is limited (i.e., Graham, Kowalski, & Crocker, 2002; Uphill & Jones, 2007) and has employed small homogenous samples. Guided by CMRT, researchers have established that the sport environment, including social components, can impact emotions and emotional regulation (Campo, Mellalieu, Ferrand, Martinet, & Rosnet, 2012). In international golfers, physical error, mental error, weather conditions, and observing an opponent play well accounted for 75% of all stressors (Nicholls, Holt, Polman, & James, 2005). Since golf is primarily an individual sport, the stress of observing your own teammate (or partner) play well or poorly was not included as a factor. However, in larger team sports, Nicholls, Polman, Levy, Taylor, and Cobley (2007) found that team-mistakes were reported as a stressor by both males and females, and at every playing level (e.g., club, university, national). Players have identified strategies in which they use to regulate emotions, but unintentional emotional expressions can also impact teammates emotions (Tamminen & Crocker, 2013). With respect to racquet sports, the focus of the present research, there has been limited research investigating emotions. In competitive squash, self-reported mood was assessed in tournament play and significant differences between winner's and losers of matches were found (Cox & Kerr, 1990). Winners stress levels decreased across the match, whereas the losers did not, suggesting that there is an interaction between performance (winning or losing) and the affective responses.

To further our understanding of emotions in sport, the purpose of the present study was to understand the role of partner performance in dyad teams, more specifically, subjectively how the performance of one partner may influence and effect the emotions of the other. It was hypothesized that athletes perceiving their partner having a good performance, compared to how he/she typically plays, would have a positive impact on their own emotions, but if they perceived

their partner to be playing poorly it would have a negative impact. More specifically, that positive emotions such as happiness and joy would be higher for when their partner having a good performance, compared to higher levels of anger and dejection when their partner is playing poorly. This hypothesis was derived, in part, from previous research that found that performance outcomes were effected by subjective states, mood, and cohesion (Lowther & Lane, 2002; Matthews et al., 2002). Using the CMRT perspective, identifying the types of emotions experienced by athletes while competing may lead to effective interventions that could help athletes remain at an appropriate emotional state during competition (i.e., effective coping; Jones, 2009; Lazarus, 2000). This line of research is important for practitioners and coaches who work with athletes to help them understand these specific situations (or stressors) in order to help regulate athletes' emotions to reduce negative impact.

Methods

Participants

A purposeful sample of participants were recruited from university racquet sport teams, as well as local sport clubs and leagues, most (97%) from within Ontario, Canada. Participants were recruited based on the following inclusion/exclusion criteria: (a) eighteen years of age and above, (b) must be able to read and write in English, (c) must consent to participate, (d) must play a racquet sport with a partner of the same gender, and (e) must have played with current partner for at least one year. A minimum of one year playing experience with their current partner was required to ensure participants had experienced a range of different situations with their partner in order to relate to one of the vignettes provided. Co-ed partners may have a very different dynamic, especially within sport. Males and females have shown to have different non-verbal behaviors between their own genders (Kneidinger, Maple, & Tross, 2001), as well as, different coping behaviours (Bonneville-Roussy, Evans, Verner-Filion, Vallerand, & Bouffard, 2017;

Nicholls et al., 2007). Therefore same-sex partners were used for the current study to remain consistent.

One hundred and three participants (Males = 74, Females = 29) took part in the study. The age of the participants ranged from 19-85 ($M = 49$, $SD = 9$). The majority of the participants were Caucasian (78%), married (67%), employed (68%), and graduated from university (59%). Participants varied in sport (tennis=33, squash=53, badminton=17), as well as level of play (club = 41%, national = 48%). The number of years played ranged from 3-67 years ($M = 16$, $SD = 6$), and the number of years with each athlete's current playing partner ranged from 1-30 years ($M = 10$, $SD = 4$).

Instrumentation

Demographics. Descriptive information of the sample was obtained through self-report.

Manipulation Check. Three questions were used as a manipulation check in order to determine that the manipulation (vignettes read by participants) was successful (i.e., differences found between each vignette). These items included: (1) Please rate how you think this situation would impact your performance, (2) Please rate how you think this situation would impact your motivation, and (3) Please rate how you think this situation would impact your emotions. Participants were asked to rate these questions on a 5-Point Likert Scale from 1 (Negative Impact) to 5 (Positive Impact) based on the narrative they read. Also, performance and motivation were examined to determine if the different emotions experienced in each scenario were related to these variables, thereby supporting previous work of the impact of emotions on performance and motivation (Frederickson, 2001; Woodman et al., 2009).

Sport Emotion Questionnaire (SEQ; Jones et al., 2005). This instrument was developed specifically for sport to measure discrete emotions rather than mood or affect. Accordingly, it

covers more emotions experienced by athletes than either the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) or the Profile of Mood States (POMS; McNair, Lorr, & Dropplemen, 1971). In sport settings, the SEQ has been used successfully to evaluate recalled emotions (Vast, Young, & Thomas, 2010); the current stem was revised from ‘how do you feel right now’ to ‘how would you feel in the given scenario’. There are 22 items that measure emotion (grounded in the experience of athletes). More specifically, this instrument assesses the following subscales; Anger, Anxiety, Dejection, Excitement, and Happiness. The SEQ was created based on these unpleasant and pleasant emotions, on empirical evidence, and on the emotions comprising Lazarus’ core relational themes (Jones et al., 2005; Lazarus 200). Participants rate emotions on a 4-point Likert scale from 0 (not at all) to 4 (extremely) based on how they would feel in the given scenario. Examples of items are; Unexcited, Enthusiastic, and Anxious. The SEQ has been shown to be both reliable and valid previously (Bishop, Karageorghis, & Loizou, 2007).

Vignettes. The partner play scenarios were first created by the first and second author based on previous knowledge of both the sports and the type of play that was to be portrayed. Each scenario was then pilot tested with three athletes from all three sports (nine athletes in total) to ensure that the scenarios were both realistic and likely to happen and that the correct terms were used for each different sport. Testing scripts, similar to pilot interviews in qualitative research, can allow for necessary modifications by addressing flaws or missing pieces (Kvale, 2008). Athletes indicated whether the scenarios had happened to them and if they were realistic. Minor wording changes were made based on the feedback given.

Research Design and Data Collection

A randomized experimental design with multiple groups and post-test only measures was used (Trochim, 2006). Following ethics approval, and after initial contact was made with the participant through distribution of posters and email contact; the participant met with the investigators at their given sporting facility, tournament facility, or at the first author's university lab. Only 10% of participants met at the research lab. Participants were met with individually with the lead author to avoid possible discussion about the different scenarios between athletes. All participants received a Letter of Invitation and gave informed consent before proceeding to data collection. After written consent was obtained, the participants were given a copy of one of the three possible vignettes (see Appendix A for all examples), and asked to read it twice, while imagining the scenario taking place. The first scenario depicted their partner playing very poorly, causing them to most likely lose the current match. The second scenario depicted their partner playing having a good performance, causing them to most likely win the current match. The third scenario (which acted as the control group) depicted their partner playing their normal or 'usual' performance, making the current match a very close call but giving no end result. Following reading the vignette, participants completed the questionnaire package comprised of demographic questions, three items measuring perceived impact (manipulation check), and the SEQ. Following completion of the study, participants were thanked for their contribution and the three different scenarios were shared.

Results

A total of 112 participants agreed to take part in the study. Data were screened for missing values first with visual inspection in SPSS© statistical software and two cases were deleted due to incomplete data (i.e., missing an entire subscale). A significant (.01) Little's

(1988) Missing Completely at Random (MCAR) was found for the remaining missing values, indicating that the values were not missing completely at random. Therefore, a further six cases with missing data were deleted leaving 103 cases to analyze (Poor Performance = 37, Usual Performance = 34, Good Performance = 32). Coefficient alpha (Cronbach, 1951) was estimated for each subscale of the SEQ (Anxiety = .78, Dejection = .89, Excitement = .86, Anger = .86, Happiness = .84), suggesting that a large portion of the variance could be attributed to both general and group factors (i.e., the internal consistency of the items; Cortina, 1993).

Bivariate Correlations

Further analysis was conducted between the subscales of the SEQ (i.e., the different types of emotions) and perceived relationship with performance and motivation of the athletes. All subscales (Happiness = .59, Excitement = .59, Anger = -.56, Dejection = -.64 and Anxiety = -.30) were significantly correlated ($p < .01$) with performance. In addition, all except Anxiety were significantly correlated ($p < .01$) with motivation. Specifically, Anger (-.46), Dejection (-.57) and Anxiety (-.11) were negatively correlated with motivation, whereas Happiness (.47) and Excitement (.64) were positively correlated with motivation.

Manipulation Check

To ensure that the manipulation had its intended effect for each scenario, multiple one-way ANOVAS were run using the three items (i.e., impact on performance, motivation and emotions) as the independent variables. Significant effects were found for all three, impact on performance $F(2,36) = 42.15, p < .001$, impact on motivation $F(2,19) = 17.38, p < .001$, and impact on emotions $F(2,40) = 55.45, p < .001$ (see Table 1 for group descriptive statistics for each scenario). Follow up Tukey HD post hoc tests showed that differences were significant between motivation, emotions and performance for the poor performance play scenario

compared to both the usual performance and good performance scenario (all $p < .05$). Scores were lower for poor performance, indicating that participants believed that this would have a negative impact on motivation, emotions and performance. Comparing the good performance scenario to the usual performance, only significant results occurred for performance ($p = 0.005$), and not for emotions or motivation. This also indicated that usual performance of the athletic partner would have a more negative impact on performance compared to when the partner is having a good performance. Therefore, the manipulation (i.e., each scenario) had its intended effect (participants believed the scenarios would have a different impact) and data analysis continued.

Table 1
Mean Values for Scenarios within each SEQ Subscale

SEQ Subscale	Scenario	M	SD	N
Anxiety	Poor Performance	1.74	.84	37
	Usual Performance	1.43	.75	34
	Good Performance	.88	.77	32
Dejection	Poor Performance	1.34	.90	37
	Usual Performance	.29	.45	34
	Good Performance	.08	.23	32
Excitement	Poor Performance	1.32	.95	37
	Usual Performance	2.62	1.02	34
	Good Performance	2.91	.75	32
Anger	Poor Performance	.97	.90	37
	Usual Performance	.24	.49	34
	Good Performance	.07	.29	32
Happiness	Poor Performance	.48	.78	37
	Usual Performance	2.29	1.14	34
	Good Performance	2.84	.83	32

Main Analysis

For the main analysis, a MANOVA was conducted using the SEQ subscales as the dependent variables and the partner scenarios as the independent variable. However, Box's test of equality of covariance matrices was significant ($p < .001$) and Levene's test of equal variances was found to be significant for two of the five subscales (anger and dejection). Box's test can be unstable when sample sizes are equal (Fidell, 2012); to ensure robustness, Pillai's statistic was used for interpretation. In addition, when homogeneity of variance cannot be assumed for a dependent variable, a stricter alpha level is suggested (Allen & Bennet, 2007). Therefore, significance was set at $p = .01$. Results of the MANOVA showed there was a significant effect of group on self-reported emotion using Pillai's trace $V = .70$, $F(10, 194) = 10.54$, $p < .001$, $\eta = .35$. Due to the uneven sample distribution, analyses between sport (and associated vignettes) were not undertaken.

Three covariates were assessed to compare whether emotional reaction for each scenario differed when controlling for Years in Sport, Age, or Years with their current partner. As there was a large difference in male to female participation, gender as a covariate was not assessed. Years in sport was significant ($F(4, 96) = 3.99$, $p = .005$, $\eta = .14$), and further analysis for years in sport revealed a difference for Happiness ($F = 4.1$, $M = 3.4$, $p < .05$, $\eta = .04$); Dejection ($F = 5.6$, $M = 20$, $p < .05$, $\eta = .05$), and Anxiety ($F = 10.4$, $M = 5.9$, $p < .05$, $\eta = .10$). These differences were not significant at the cut-off value set ($p = .01$) and, therefore, should be interpreted with caution. After adjusting for Years in Sport, follow-up post hoc tests revealed that for Happiness, there were significant differences between all three scenarios; for Dejection there were significant differences between poor performance and good performance or their usual performance. There were no differences between good performance and poor performance. For

Anxiety there were significant differences between good performance and poor performance or their usual performance. There were no differences between poor performance and usual performance.

Follow-up Analyses

A follow-up ANOVA and Games-Howell post-hoc tests were performed after a significant difference was found on the MANOVA (partner performance x SEQ). The ANOVA was significant for each subscale of the SEQ ($p < .001$). More specifically, significant differences were found between poor performance and good performance, where poor performance had higher mean scores for Anxiety ($p < .001$, $M = 1.7$, $SD = .84$) with a 95% confidence interval of the difference between means from -1.3 to -.4, Dejection ($p < .001$, $M = 1.3$, $SD = .90$) with a 95% confidence interval of the difference between means from -1.4 to -.6, and Anger ($p < .001$, $M = .97$, $SD = .90$) with a 95% confidence interval of the difference between means from .52 to 1.3. In addition, poor performance had significantly higher mean scores than usual performance (control condition) for Dejection ($p < .001$) with a 95% confidence interval of the difference between means from .65 to 1.4, and Anger ($p < .001$) with a 95% confidence interval of the difference between means from .32 to 1.1.

Athletes who were given the scenario where the partner is having a good performance felt that their emotions, motivation and performance would be impacted more positively. More specifically, a follow-up ANOVA and Games-Howell post-hoc tests revealed that compared to when a partner is having a good performance, athletes felt significantly higher mean levels of Excitement ($p < .001$, $M = 2.9$, $SD = .75$) and Happiness ($p < .001$, $M = 2.8$, $SD = .83$). In addition, there was a significant difference between when partner is having a good performance

and when their partner is portrayed as playing their usual performance (control condition) for Excitement ($p < .001$).

Discriminant Analysis

Discriminant analysis was undertaken as an exploratory analysis to find the linear combinations of the SEQ subscales that best separated the groups, to further support the differences between our groups/each scenario. This analysis revealed two discriminant functions. The first explained 97% of the variance, canonical $R^2 = .64$, whereas the second explained only 3%, canonical $R^2 = .06$. In combination, these discriminant functions significantly differentiate the partner scenario groups, $(V) = .33$, $X^2(10) = 107.61$, $p < .001$, but removing the first function indicated that the second function did not significantly differentiate the scenario groups, $(V) = .94$, $X^2(4) = 5.89$, $p = .21$. The correlations between outcomes and the discriminant functions revealed that Happiness ($r = .830$; $r = -.04$), Dejection ($r = -.685$, $r = -.22$), Excitement ($r = .573$, $r = .13$), and Anger ($r = -.470$, $r = -.10$) loaded more highly on the first function, whereas, Anxiety ($r = -.30$, $r = .82$) loaded more highly on the second function. The first function discriminated the poor performance scenario from both the usual performance and good performance scenarios, and the second function differentiated the usual performance scenario from the good performance and poor performance scenarios. These results generally support our hypotheses that partner play (poor performance, usual performance, or good performance) can influence the emotions felt during a game.

Discussion

Guided by CMRT (Lazarus, 1991), the purpose of this study was to evaluate the impact of partner performance on different types of emotions. Although the role of emotions in sport performance has been widely recognized (Jones, 2009), to the best of our knowledge no studies

have looked at the impact of a partner's performance and the type of emotions experienced in these situations, especially in racquet sports. To address this, data were collected from a heterogenous sample of athletes who play doubles racquet sports (i.e., badminton, tennis, and squash). Through the use of vignettes, level of play of the partner was manipulated. In line with the tenets of CMRT (Lazarus, 1991), it was believed that the poor performance scenario would have a negative impact on emotions (measured with the SEQ). More specifically, we believed that athletes would have higher levels of Anger, Anxiety and Dejection on the subscales of the SEQ. When the athletic partner was portrayed as playing well (good performance), it was believed that this would have a positive impact on the athlete's emotions, indicated by having higher scores on the Happiness and Excitement subscales of the SEQ. Overall, our results supported this and suggest that partner play (poor performance, usual performance, or good performance) can influence the type of emotions felt during a game.

Although not surprising, based on our results, athletes feel higher levels of anger when their partner is playing poorly (poor performance scenario). According to Lazarus (2000), anger can be a dangerous emotion, as one is inclined to counter-attack to gain revenge, and in sport, the object or person of one's anger is whom one wants to exact revenge. Lazarus (2000) discusses how an opponent, the referee, the spectators, or the coach may be the object of anger, but in team sports, more specifically doubles racquet sports, when the person identified as the object of one's anger is the only other person who can contribute to help win, how this anger may inhibit or facilitate performance is unknown and further investigation is needed in this area.

In addition to anger, athletes feel a higher level of anxiety in the poor performance scenario (partner playing poorly); not surprisingly, as the core relational theme for anxiety is facing an uncertain threat (Lazarus & Averill, 1972). In the scenarios given to the participants,

the outcome of the match is uncertain but does not look promising, as would typically be the case in a match when a partner is not playing well. As shown by Woodman et al. (2009), anxiety, like anger, may be able to facilitate performance when there is sustained effort and continuing concentration on one's performance task. In the given scenario to participants, they believed the poor performance scenario would have a negative impact, suggesting that both the higher levels of anxiety and anger would have a negative impact on their own performance. It can only be speculated as to why, but if an athlete is distracted by their partner's play and is unable to maintain concentration and effort, this could explain how anxiety and anger may not facilitate subjective performance in these situations. Additional research looking at secondary appraisals of the athletes in these situations (how they cope and how effective it may be) would be beneficial for athletes, coaches and practitioners working with athletes to regulate their emotions in different, high anxiety situations.

In contrast, when an athlete's partner is having a good performance, there were higher levels of happiness and excitement. Lazarus (2000) defines happiness as an extended process of making progress toward a goal or goals, and in the given scenarios, where an important match will be won, these results were anticipated. Although, due to the more complicated nature of happiness, it may be harder to understand the impact of these emotions (happiness and excitement) on actual performance; as seen in previous contradictory results (Woodman et al. 2009; Rathschlag & Memmert, 2013). According to Lazarus (2000), this may have more to do with morale and sustaining motivation. Based on the three items measuring perceived impact, our results support this assumption, that athletes believe their motivation will be positively impacted in the good performance scenario, compared to the usual performance or poor

performance scenarios. Measures of motivation and performance during play would be beneficial to understanding the impact of these emotions during the course of an entire match.

Interestingly, number of years with their current partner, or the athletes age, did not have a significant effect as covariates, but rather numbers of years in sport did. When controlled for, lower mean scores were revealed for each of the subscales. This could indicate that those who play longer in their sport experience say they experience less emotions (are impacted less) based on how their partner is playing. More experience in their given sport may make them less reactive (or used to) these different types of situations occurring. Future research should explore whether athletes still feel these emotions and do not express them, or whether their coping strategies work better than those who may be newer to the sport. Researchers may find that one's primary appraisals may be different due to number of years in sport, or more interesting, researchers could find that those who have played longer in sport have different secondary appraisals and more effective coping strategies to deal with any change in the person/environment.

Due to the nature of emotions and the individual differences in interpretation and subjective experience, conclusions cannot be drawn as to which scenario (or emotions) may be best to enhance performance. However, based on the three items measuring perceived impact, the good performance scenario, subjectively, had the greater positive impact compared to the poor performance scenario. Both types of anger (i.e., anger-in and anger-out) and strength of emotions should be looked at in order to help determine their impact on play. Research has supported Lazarus' (2000) assertion that when the emotions are aligned with the task demands, performance is facilitated (Rathschlag & Memmert, 2013; Woodman et al., 2009). Woodman et al. (2009) found that anger facilitated the physical aspects (i.e., strength) of performance, and

that both hope and anger increased effort compared to an emotional neutral condition. Given in these doubles' sports, the swing of the racquet could be viewed as a similar action to lashing out that is associated with anger, whether there is extra effort because of this anger and the impact that it may have (positive or negative) should be explored further. In addition, Lazarus (2000) suggests that both (anger centred on the self or anger centred on another) are capable of impairing performance effectiveness. It may be possible that poor performance of a partner in racquet sport that generates anger centred on another person (not self-blaming), could either promote or inhibit positive performance outcomes.

In addition, emotions and emotional reactions have been shown to influence behaviour (Vallerand & Blanchard, 1999), including how emotions are verbally communicated (Zammuner, 1996). Both verbal and non-verbal communication patterns have also been shown to be related to effective performance (Lausic et al., 2009). Taken together, with the results of this study, partner play which can influence emotional reaction may influence verbal (or non-verbal) communication style and frequency, which then can influence effective performance within these dyads.

A strength of the current study is that it is the first of its kind to look at the impact of a partner's performance on emotions in doubles racquet sports; expanding the literature on emotions in sports to a very specific sample of athletes (and situations). Rather than having participants recall a former situation in which their partner was having a good performance or poor performance, vignettes were provided to the athletes to imagine the scenario happening at that exact point in time. The vignettes provided were created with the help of athletes in each sport to ensure the proper wording was used, in addition to making the scenarios as realistic as possible. Participants confirmed that the different scenarios had occurred to them on at least one

occasion. Finally, the sample of athletes obtained was very diverse, from three different sports, ranging in age, years played, level of play, and number of years with their current partner.

Therefore, within these three sports despite differences (i.e., age and gender) it may be possible to make generalizations.

Despite these strengths, there are some limitations which we need to be acknowledged and discussed in order to provide future directions for researchers to look at this phenomenon. First, the sample size is relatively small. Replicating the current study in a larger, more diverse population will help confirm and strengthen the results found. It would also allow us to look at the difference between the different sports and genders. In addition, targeting a specific sample (i.e., professional athletes) would help strengthen the external validity and generalizability of these findings. Second, the methods used (vignettes and subjective quantitative measurements) may fall under some scrutiny. Capturing state-like emotions during competitions has posed difficulties for researchers. Using vignettes may cause participants to use cultural stereotypes in predicting emotions felt or experienced, but on the other hand using participants own scenarios or past events relies on their long-term memory (Scherer & Ceschi, 1997). Therefore, we believe by asking the participants to imagine or create the scenario given to them in their mind, it is much easier than trying to recall a given situation, and their emotions are more ‘real’ or ‘competition-like’. The vignettes given to participants also described the outcome or likely outcome of the game (i.e., winning in the good performance scenario compared to losing in the poor performance scenario). Although participants were specifically asked how they felt about their partner’s play, due to the nature of the scenarios, it may be possible that the emotions elicited by athletes, could in part be due to the outcome of the game described. To understand this more, future research should use the current scenarios with alternative endings for each, or

with no description of the current outcome of the game. For example, a partner playing poorly but you are still currently winning, compared to a partner playing poorly but you are currently losing. Lastly, the number of participants that were a part of the same dyad was not taken into account during data collection. As the literature has shown, dyads tend to become more similar across time (Andersen et al., 2003; Gonzaga et al. 2007), and we have treated these athletes as independent in our sample. Future research should use methods to ensure the independence of the sample for statistical analyses.

Furthermore, future research should consider using a mixed methods approach (follow-up qualitative case studies) would enhance our understandings and strengthen the results of the current research. In addition, a qualitative approach will gain further insight into the types of emotions evoked and the impact of the playing partner on performance. Qualitative interviews will allow for athletes to be able to recall situations and further discuss more descriptively the emotional and motivational impact based on their partner's play (i.e., poor, good, or usual). Future studies using qualitative approaches could additionally investigate whether perceptions of each emotion are helpful or harmful, as some athletes may perceive different emotions or induced states as useful and welcoming before or during a competition. Lastly, the current measure of emotion (SEQ) was originally designed to measure precompetitive emotion in sport. The current study uses the instrument to measure emotions (subjectively) that would happen during competition, rather than before. A measure to assess in-competition emotions would be better when undertaking this type of study.

In conclusion, the following study contributes to the sport emotion literature; expanding into an area (doubles racquet sports) that has received limited attention. The study begins to help to understand the impact on emotions that an athletic partner's play might have on an athlete,

which in turn can inform practitioners, coaches and researchers working with larger teams. From an applied perspective, first understanding how an athlete typically reacts emotionally will be beneficial for consultants to help athletes cope in a given situation and regulate their emotions. Building on this work, researchers can begin to understand the positive or negative effects these emotions may have and develop the most effective coping methods to avoid detrimental effects to an athlete's performance.

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Study 2

A Qualitative Approach to Understanding the Impact of Partner Play in Doubles Racquet Sports²

There are a wide variety of stressors faced by athletes from poor practice performance and late travel arrangements, to an unfavorable competition format and weak teammates. If athletes do not feel they have the resources to deal with these stressors, they are more likely to experience negative emotions. Athletes report experiencing a number of emotions during competition, such as joy, serenity, relief, hope, disappointment, and pride (Martinent & Ferrand, 2015). Emotions have been widely recognized to have positive and negative impact in sports and understanding how athletes deal with different emotions (i.e., cope with these emotions) has been important for such outcomes as performance, cohesion, and collective efficacy (Allen, Jones, & Sheffield, 2009; Martinent & Ferrand, 2015).

Much of the research considering emotions in sport has employed the cognitive-motivational-relational (CMR) theory of emotions (Lazarus, 2000). This research has examined the stressors faced by athletes, the appraisals and the emotional response associated with appraisals, and subsequent coping strategies to stressors. According to Lazarus (1991), the subjective experience of an athlete or their interpretation of the interaction with their environment is termed an appraisal. Based on how athletes appraise this interaction (whether they deem it a threat or not) determines their emotional response, which in turn can affect their performance (Lazarus, 1991; 2000). For each situation (or interaction), Lazarus (1991) identifies two types of appraisals. In the primary appraisal, the athlete will decide whether this situation or change to the environment is a harm or benefit.

²A version of this study has been submitted to the *Journal of Clinical Sport Psychology* and is currently under review.

In the secondary appraisal, the person is determining how and if anything can be done to prevent the harm or draw from the benefit (i.e., coping; Folkman, Lazarus, Dunke-Schetter, DeLongis, & Gruen, 1986). In team sports, Nicholls et al. (2007) found that team-mistakes were reported as an important stressor by both males and females, and at every playing level (e.g., club, university, national). On larger teams (e.g., basketball, football) the performance of one player is not likely have the same impact on teammates as in doubles racquet sports where the partner is contributing about 50% to team performance. Accordingly, this study considers partner's performance as a stressor, and the impact on a player's performance, emotions, and coping strategies.

Lazarus and Folkman (1987) defined coping as the cognitive and behavioural actions used in response to both internal and external demands that exceeds an individual's resources. These actions are continuously changing with the re-appraisal of the situation/environment, which is also continuously changing (Lazarus & Folkman, 1987). The research on coping with emotions is considerable (Lazarus, 2000a; Lazarus, 2000b; Tamminen et al., 2016), especially within sport. Studies in this area have highlighted the ways athletes cope. For instance, in Crocker and Graham's (2005) study, competitive athletes from various sports indicated using coping strategies such as increasing effort, planning, active coping, suppression of competing activities, and self-blame to manage performance difficulties and performance pressure (i.e., performance goal incongruence). Additionally, Jordet and Elferink-Gemser (2012) conducted interviews with elite professional soccer players and their results indicated that athletes employed various coping strategies (e.g., problem-focused, emotion-focused) during their participation in a stressful competitive event (i.e., major European Championships penalty shootout).

Lazarus (2000) classified coping strategies into one of either two categories. Problem-focused coping involves taking action to change some aspect of the person–environment relationship, either by altering an aspect of the environment itself or by changing one’s situation within it. For example, a figure skater in training could decide to work on an easier jump to cope with his disappointment of continually not being able to land the more difficult jump he has been attempting. Emotion-focused coping, on the other hand, influences only what is in the mind of an athlete. Specifically, strategies to cope with a particular event may involve either a re-direction of attention or a re-interpretation (re-appraisal) of the person–environment relationship. A tennis player, for example, who gets an unfavorable call from a referee on a critical point may reduce her anger by re-focusing attention to task-relevant cues.

Although Lazarus’ classification (2000) has been widely used, there are also a number of other classifications of coping within the sport context. Roth and Cohen (1986) classified coping into approach (i.e., strategies that confront the stressors and eliminate them by taking action directly) and avoidance (i.e., strategies that attempt to disengage from stressful situations) strategies. Moreover, Gaudreau and Blondin (2004) categorized coping as task-oriented (i.e., trying to master stressful situations), disengagement-oriented (i.e., stop trying in attaining personal goals), and distraction-oriented coping (i.e., focusing on cues that are not related with sport). More recently, Nicholls, Taylor, Carroll, and Perry (2016) developed a new sport-specific classification of coping; mastery that involves control of stressful situations and elimination of the stressors (e.g., problem-focused coping, coping with adversity), internal regulation that involves management of internal stress responses (e.g., emotion-focused coping, avoidance coping), and goal withdrawal that involves no longer attempting to achieve a goal (disengagement-oriented coping, venting emotion).

The use of a coping strategy may be ineffective in some situations for an athlete (e.g., not reducing the stressor, causing more stress). If the coping strategy is ineffective this is known as maladaptive coping or may also be termed 'vigilant' coping. Vigilant coping happens when the person-environment is uncontrollable and this can increase the intensity of emotions and increase distress (Lazarus & Folkman, 1987). Vigilance may happen when there is nothing that can be done to alter the person-environment situation (Lazarus & Folkman, 1987). For example, a person who tries to solve a problem that does not have an answer. Other strategies such as avoidance coping have also been shown to be less adaptive and yet are still deployed by individuals and athletes (Lazarus & Folkman, 1987; Nicholls et al., 2007).

Coping has both inter-individual and intra-individual differences (Lazarus, 2000). Inter-individual means that there are unique differences between individuals in how they assess a situation, environment, or stressor. This in turn determines how they cope, and moreover, cope effectively. For example, Nicholls and colleagues (2007) found that the most common stressors reported by rugby players were physical ones. One rugby player may cope with a physical stressor by using violence, while another may use positive self-talk, yet both coping strategies may be cited as similarly effective by athletes (Nicholls et al., 2007). Intra-individual differences are the changing of how one copes from situation to situation, in addition to how the individual copes when the same situation arises again. For example, a rugby player who chooses to use violence to overcome a physical stressor may use a different strategy (i.e., positive self-talk) if violence proved to be ineffective. Alternatively, if the player was successful in overcoming the stressor, the athlete may again cope the same way.

The ways in which athletes can cope with emotions is almost limitless (Richards & Gross, 2000). For instance, Filaire, Maso, Sagnol, Ferrand, and Lac (2001) had judo competitors

complete a measure of coping strategies just prior to a major competition. The competitors were classified as winners or losers depending on the number of fights they won. It was found that winners employed more positive reappraisal (i.e., reinterpreting a stimulus in ways that change its emotional ‘punch’), whereas losers employed more avoidance-oriented coping, self-blame, and sought more social support. In another study with professional rugby players (Nicholls et al., 2007), more than 20 different coping strategies were identified by the players. Increased concentration was the most frequently cited coping strategy on training days, whereas blocking was the most frequently cited coping strategy on match days. Coping effectiveness was significantly higher during training compared with matches. Also, as would be expected, higher levels of emotional intensity were significantly related to lower levels of coping effectiveness.

Research has shown the importance of the interdependence between sport performers in both individual and team sports (Evans, Eys, & Bruner, 2012). In larger teams (e.g., soccer, hockey), in comparison to smaller ones, when a player is not performing their best, there is usually less of an impact on team performance. Players can be moved into different positions or substituted to help with team performance. Additionally, team members use psychological support by their teammates as a means of coping with personal difficulties (McEwan & Beauchamp, 2014). In very small teams such as dyads (e.g., badminton, squash), athletes are unable to be removed or replaced from the game to compensate for poor play and therefore must endure their partners poor play, or use other strategies (i.e., psychological support) to help with the impact of their partner’s poor performance. Accordingly, these athletes represent the ideal situation in which to examine the impact of a player’s performance on the team. The specific purpose of the present study was to investigate the impact of a partner’s play (playing well,

normally, or poorly) on the performance, emotions, and coping strategies of doubles racquet sport athletes. The theoretical basis for the study was the CMR.

Methods

Participants and Context

We adopted a one-on-one interview approach, interviewing athletes without their partner, as we were asking questions pertaining to their partner's play. Following ethics approval, tennis, badminton and squash players were recruited based on the following inclusion criteria; (1) 18 years of age and older, (2) playing with the same partner of the same gender for a minimum of one year, and (3) able to read and write in English. Players who play with a partner of the same gender were recruited because the partner-partner dynamic in mixed doubles (male and female partners) may be very different. Tennis, badminton and squash were chosen as the context of this study as they are played as doubles and are similar in nature (e.g., played with a strung racquet). Players were recruited from university varsity teams and racquet sport clubs. Recruitment and data collection were completed once saturation was reached, and distribution of sports were more even. Consistent themes were seen when three athletes had been interviewed from all three sports.

There was a total of 17 players interviewed (9 males; 5 badminton, 5 squash, and 7 tennis). They ranged in age from 18 to 66, with an average of 30 years of playing experience and 2 years playing with their current partner. Therefore, these players provided a diverse and rich sample that ranged in age, number of total years playing their sport, and years with their current partner. Moreover, while they were all competitive players, their level of play varied from local or recreational to provincial and national.

Data Collection

Coaches and club managers were first contacted to gain permission to visit their venues during tournament or practice play. After talking with perspective participants, interview times were set with players who were interested in participating in the study. Interviews were performed at a location most convenient for the athletes (e.g., their home club). Data collection involved one-on-one semi-structured interviews with the first author. The interviews were conducted over a six-month period (during this time, squash players had just finished their competitive season; outdoor tennis players were at the end of their competitive season, and badminton players were beginning their competitive season).

Interviews lasted from 25 – 53 min; they were recorded and transcribed verbatim, which produced 143 pages of typed data. First, interviews explored background information. Participants were asked about their current sport, how long they have played, and how long they have been playing with their current partner. Participants were then asked about the impact of partner's play (e.g., how does your partners play affect you?), and the impact of partner's play on emotions (e.g., how does your partner's play affect or change your emotions?). Lastly the interview explored coping (e.g., how do you handle the situation when your partner is playing poorly?). Participants were asked how they cope and whether they find these methods effective. Probes were used to explore participant's responses, and the semi-structure design allowed for flexibility to further explore some topics that varied between participants (Patton, 2002).

Data Analysis

A post-positivist perspective recognizing the contextually bound nature of the findings to understand the meaning of human experiences was adopted (Greenfield, Greene, & Johansson,

2007). Following a guide for qualitative analysis delivered by O'Connor and Gibson (2003), the following process took place:

1. *Organizing Data.* Interviews were transcribed into Microsoft Word and imported into AtlasTi8 © for analysis. All participants were anonymous and only asked to identify their age, gender, and sport. As questions were generally blocked together, interviews were kept in order to identify themes within these blocks (i.e., impact on emotions, performance and the role of coping).
2. *Finding and Organizing Ideas and Concepts.* Inductive coding analysis was used during the primary stages of data analysis. To create the coding schematic, data was read line-by-line by the first author to identify concepts and themes by looking for frequently used words or phrases and finding meaning in the language used by participants.
3. *Building over-arching themes in the data.* This inductive analysis was followed by a combination of both inductive and deductive analysis in the later stages as the coding scheme evolved to develop the themes and sub-themes. More specifically, deductive analysis was based on CMR (Lazarus, 1991) to categorize coping strategies that athletes identified (i.e., problem focused strategies vs. emotion focused strategies).
4. *Ensuring reliability and validity in the data analysis and in the findings.* This coding schema was then used by a second author to analyze the interviews; the second author offered alternative interpretations of certain data which improved the overall analysis. The third author reviewed the transcripts and added an additional perspective to the data. Each author coded data independently before coming together to compare codes. Discrepancies in coding were discussed by the first two authors in order to reach an agreement. Although it was not needed, the third author was available if any

discrepancies between the first two authors could not be reconciled. Triangulation from different researchers is a good way to test validity and corroborate the findings so that they are both valid and reliable (O'Connor & Gibson, 2003).

5. *Finding possible and plausible explanation of the findings.* Findings that were both expected and unexpected were discussed among authors. The discussion section of the current paper is based on the conversation between authors and our comparison to the current literature, as well as the implications of these findings.

Methodological Rigour

To enhance our methodological rigour, we sampled a wide variety of athletes (differing in gender, age, years in sport, and type of sport) to allow for a more generalized and in-depth analysis. Interviews were also read by the first three authors which offered a more comprehensive examination, as well as potential alternative interpretations (Holts & Sparkes, 2001). Congruence between more than two authors about the relevance and meaning provided confirmability of the data (Polit & Beck, 2006). The first author also used memo writing during data collection and analysis that provides an audit trail (Sandelwski, 2000), as well as a detailed research design that allows for dependability and this research to be repeated (Shenton, 2004). As data was collected over several months (different points of the season for different athletes), data collection and transcription were performed concurrently, helping us to identify emerging themes which could be confirmed or denied in later interviews. This is another form of verification that could not have been done in a cross-sectional design (Corbin & Strauss, 2008), and aligns with our post-positivist perspective to reduce personal bias using multiple research techniques (Phillips, 1990).

Results

Analyses produced the main themes of performance (i.e., negative impact, no impact, and positive impact; see Figure 1), emotional reactions (i.e., negative, positive, and no impact; see Figure 2), and coping (i.e., emotion focused and problem focused coping; see Figure 3). The sub-themes under positive performance were increased motivation/confidence/energy, being relaxed, and being more aggressive. Under negative impact they were performance, participants identified loss of confidence, a decrease in focus/confidence/energy/motivation, and over thinking or overcompensation. When participants believed that their partners' play had no impact, the themes of being in the zone, just playing for fun, and focused on their own performance were cited most. Under emotions, the negative emotions identified were frustration, anger, being annoyed, and anxious. Under positive emotions, participants identified being excited, happy, and energetic. Lastly, the theme of coping was further broken down into strategy, distraction and focus on own play for problem focused coping. Emotion focused coping was broken down to acceptance, relaxation/breathing, humor and social support. In addition, one main type of maladaptive coping, overcompensation, was found to be used by many athletes. The sub-themes are further discussed below.

Performance

The athletes recognized the impact their partner had on their own performance. Most participants identified that when their partner was playing poorly, this had a negative impact on their own performance due to (1) pressure to perform (e.g., Participant 9 said "...when your partner acts like that it adds a lot of pressure and for me, I usually play a lot worse"), (2) loss of confidence, energy and focus or concentration (e.g., Participant 4 said "You do not have enough confidence that your partner is going to back up your next shot"), and (3) over thinking or over

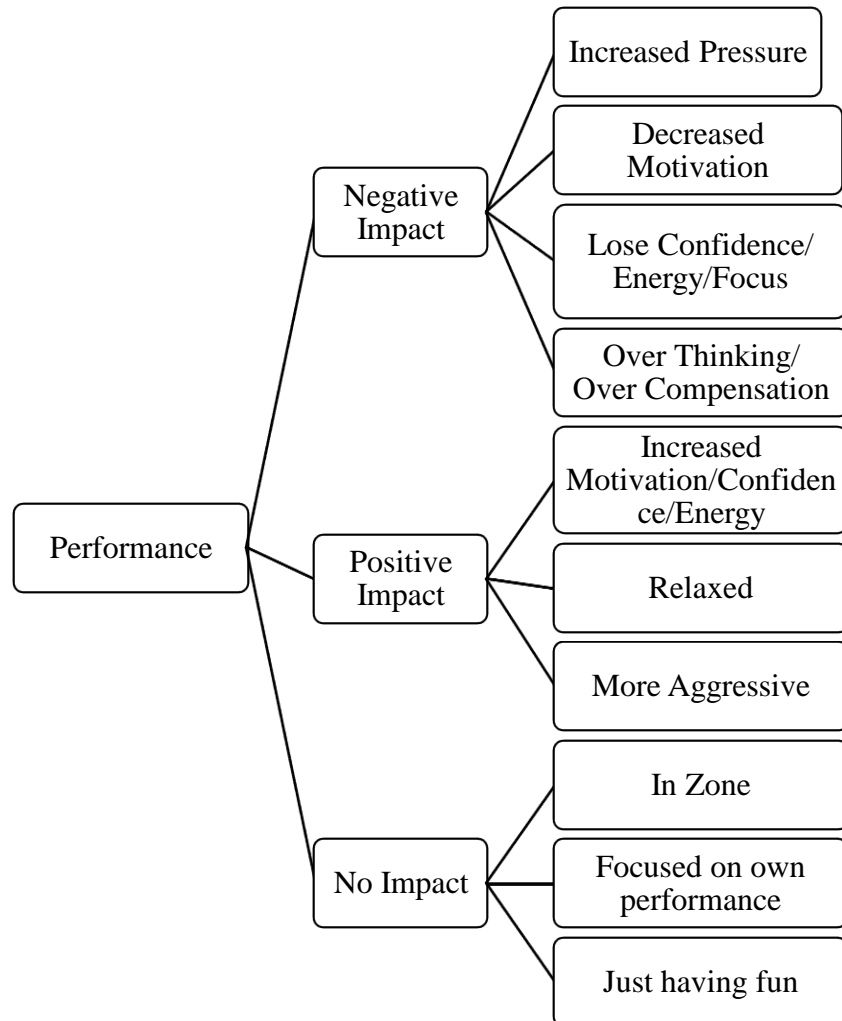
compensation (e.g., Participant 7 said “When [your partner is playing poorly] you try to put in extra effort to try and compensate and when you try to compensate, you are prone to making more errors because you are trying to cover”). In comparison, athletes believed that when their partner was playing well it had a positive impact (or increase) on their own performance.

Athletes noted that this type of situation (partner playing well), (1) helps them relax, (e.g., Participant 1 said “[my partner playing well] makes me relax and feel like there is not so much pressure”), (2) gives them increased confidence, motivation and energy (e.g., Participant 6 said “Its motivating, it makes me play better and its more enjoyable when everything is going well”), and (3) allows them to play more aggressive (e.g., Participant 8 said “If he is hitting consistent shots and is picking me up a lot and moving really well, that would encourage me to be a little more aggressive with my shot making, so I know I can hit more winners and if I miss them a little bit, he can get them back”). Interestingly, there were a couple athletes that noted when their partner is playing well, “it puts more pressure on me to play to the level they are playing” (Participant 5). There were a few athletes that felt that their partner’s performance or play did not impact their own performance due to (1) being in the zone, (2) being focused on their own performance, and (3) that they are just having fun. This lack of impact can be summarized by Participant 2, who said “you’re not thinking necessarily, I find, about the game as much, your kind of doing what comes naturally.”

Overall, the athletes did believe that their performance was influenced by their own partners. Thus, the idea of an impact or change in performance (contagion) based on their partner’s play is evident and may be due to a number of different factors, such as emotions and coping (described below).

Figure 1

Performance Themes



Emotional Reaction

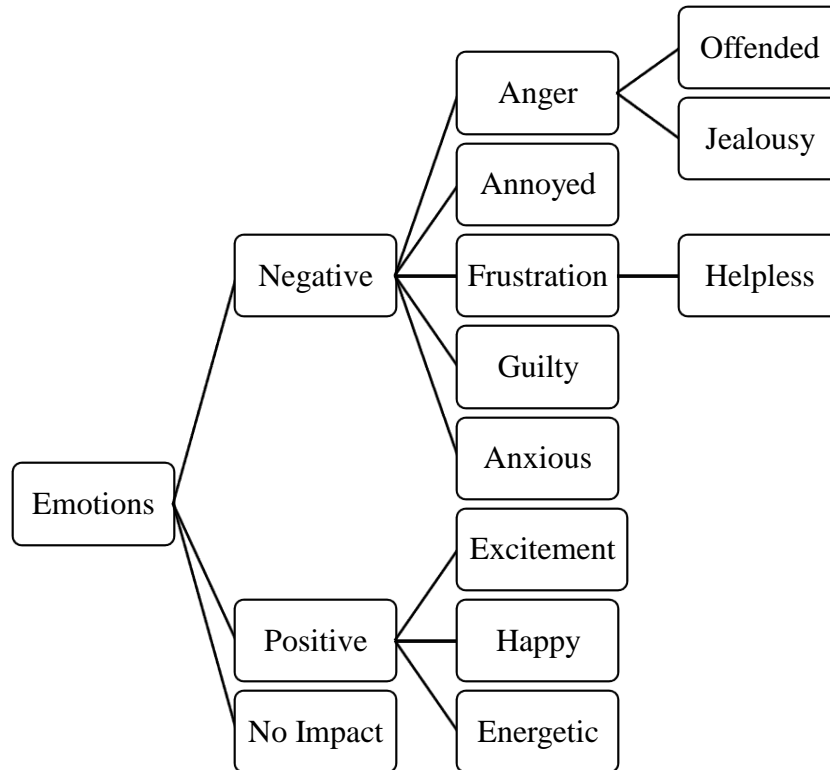
Athletes identified a variety of emotions both ‘positive’ and ‘negative’ when discussing their partners play. The most common ‘negative’ emotions were frustration and anger, while the most common ‘positive’ emotion was excitement. Anger as an emotion was often accompanied/brought on by being offended or jealousy, while frustration as coupled with feelings of helplessness. Additional ‘negative’ emotions included feeling anxious, annoyed, and guilty. Athletes indicated feeling frustrated and angry when their partner was playing poorly

(e.g., Participant 11 said “When they are playing poorly, sometimes you can feel a little angry and a little frustrated”). Fewer positive emotions were listed by athletes but included feeling happy and energetic. When their partner was playing well, they indicated feeling excited (e.g., Participant 1 said “It definitely excites me when she makes some amazing shots”). Interestingly, a few athletes indicated the opposite emotions in these situations; where when their partner is playing well, Participant 16 expressed “feels more frustrated because it’s like I’m letting them down”, or Participant 14 indicated feeling jealous and thinking “I should be playing better”. Empathy was also identified, where participants ‘felt bad’ for their partner, knowing what they were going through when they were playing poorly. For instance, Participant 11 said that “...it can make you feel badly” and Participant 13 related with their own play, saying that “When I play poorly, I am thinking that I am letting her down,” which also shows signs of guilt in these scenarios.

Similarly, to performance, the same athletes that felt that their partner’s performance or play did not impact their performance, also felt that it did not impact their emotions. These athletes noted, that “I just do not get upset or worked up, I just play” (Participant 2).

Figure 2

Emotion Themes



Coping

For the theme of coping, athletes identified many ways of coping, falling under three main themes; problem focused, emotion focused, and maladaptive.

Problem focused coping. The most cited problem focused strategies that athletes used were, (1) strategy, and (2) overcompensation. Athletes consistently brought up strategizing to help their partner when playing poorly, demonstrated by Participant 2 “we converse and try to adapt”, Participant 7 “we need to talk and strategize as to what we can do”, and Participant 10 “we talk about simple strategy”.

The most salient coping mechanism identified that was described as unsuccessful was ‘overcompensation’. The athletes reluctantly admitted that when their partner was playing

poorly, they would try to make up for their poor play by playing better themselves or trying to cover for them on the court. When attempts to try and ‘boost’ or ‘pump up’ their partner failed, they would resort to compensating, but most of the time this was unsuccessful and instead they may have needed to accept that nothing could be done to change the current state of their partners play. Participant 4 stated “I try to cover more shots and do more, but it is not effective”, and Participant 6 said “sometimes you try to take more balls and you extend yourself too much and you become worse.”

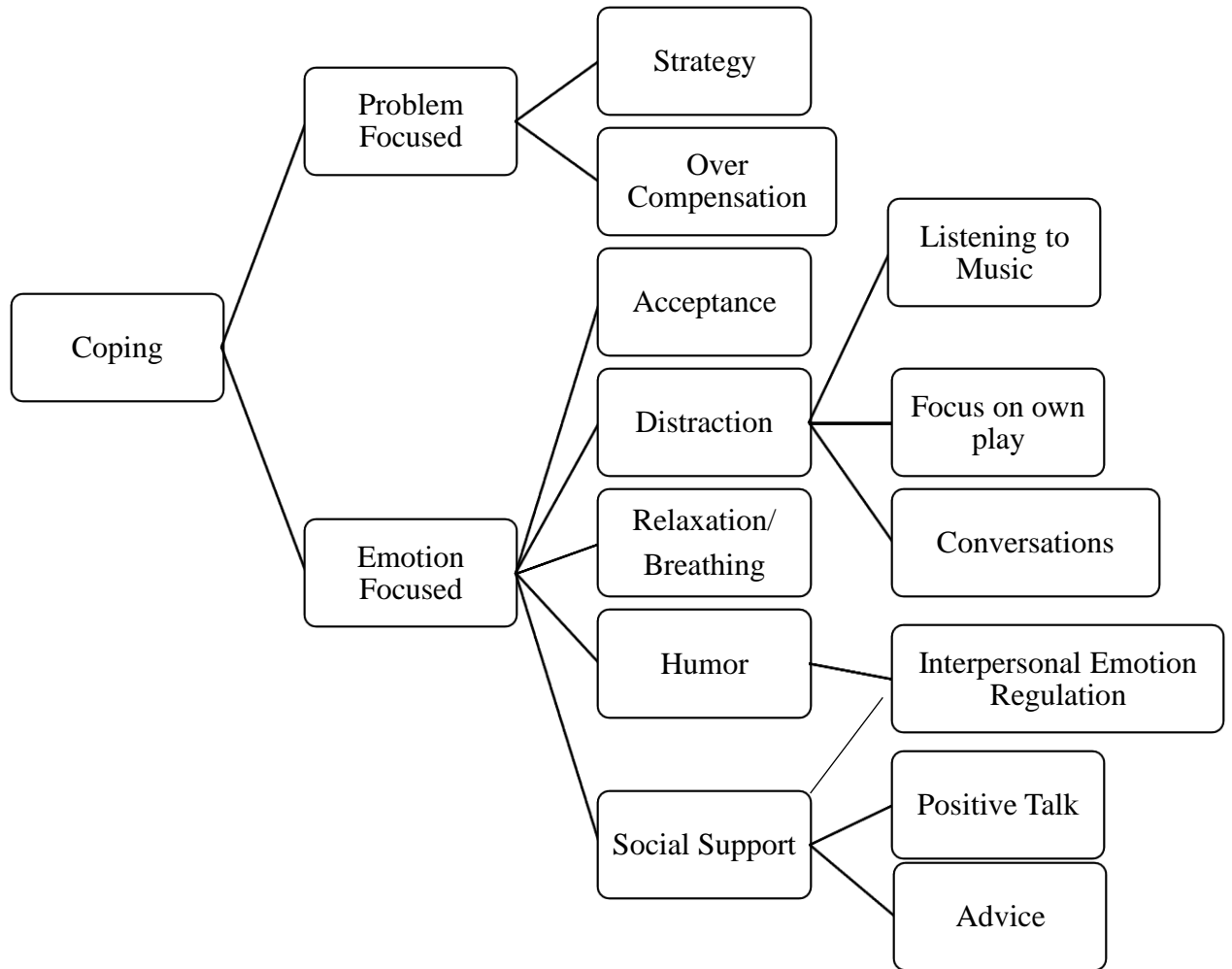
Emotion focused coping. Techniques that athletes used most were (1) relaxation/breathing, (2) social support (advice, and positive talk), (3) acceptance, (4) distraction and (5) humor. Participants found that “Taking a deep breath” (Participants 1 and 2) helped them to relax, and just “playing [their] game” (Participant 1) when their partner was playing poorly helped them deal with their emotions. Participant 14 reported using breathing consistently; “I have mantra of focusing in and trying to breathe”. Other athletes also cited using breathing and relaxing when their partner was playing well, to avoid getting too excited and keep themselves calm. For example, Participant 2 indicated that “I just breathe, relax, and play my game then”. To help partners deal with their own emotions, in situations where they are playing bad, many participants try to give advice, use positive self-talk messages, or even use humor to return them back to a steady state or good mental state of play. Participant 8 said, when their partner “is not as consistent, he lets himself get up and down a bit mentally, he is learning to shake stuff off, so sometimes I have to talk him down, say no worries, and just crack a joke.” Similarly, Participant 11 said that ‘Humor plays a big role, you got to be humoring each other. Especially when you know the person well enough, then it sort of becomes an inside joke and you resort to those [to help]’. Advice, such as social support (and emotional coping), may also

be connected and part of strategizing (or problem focused) coping, displaying the use of both concededly. When trying to ignore the problem, some athletes use distraction such as music, Participant 2 noting “I listen to music to tune out”, use conversations with others (i.e., partner, coaches), or others try not to focus or overthink, such as Participant 7 “I don’t focus on any of my emotions when this happens (partner playing poorly)”.

Interpersonal Emotion Regulation. Many of the coping strategies used were also noted to be used on their partner to help regulate the athlete’s own emotions. By using these strategies on their partners to help reduce their stress and/or help reduce their own stress, these athletes were engaging in interpersonal emotion regulation. Participant 8 demonstrates the use of IER by saying “I know my partner needs to laugh, this helps them relax, and then I can relax and usually we can both start playing better”.

Figure 3

Coping Themes



Discussion

The purpose of the current study was to further understand the impact that partner play has in athletic dyads (badminton, tennis, and squash players) on performance and emotions. Furthermore, the study aimed to understand how athletes cope in various scenarios (e.g., partner playing poorly) and whether their coping strategies were effective (or not), both immediately and long term. Previous research has looked at both coping and emotions in sport but has mainly

focused on individual or larger team sports. This previous research has also focused on overall emotions and coping, rather than identifying specific stressors, such as a teammate's poor play (Nicholls et al., 2007). Given that in doubles racquet sport partners accounts for about 50% of play and performance, this represented an ideal situation in which to examine these issues. The present study revealed that athletes are aware that how their partner plays (playing well and playing poorly) influences their own performance and emotions. Athletes identified several ways in which they cope with their partner's negative performance (and even positive performance). These results suggest that there is a relationship (or contagion) between how one partner is playing and how the other partner is playing, emphasizing the importance of proper and effective coping to regulate emotions and reduce any negative impact on performance.

Through semi-structured interviews, themes were identified relating to partner's performance; the impact of performance, what emotions are evoked during these different stressors, the different choices of coping strategies, and which strategies athletes thought were effective (or not). When an athlete's partner is playing well, themes of positive impact on play and positive emotions arose. Participants identified feeling happy, excited, and energetic in these types of situations. Most athletes believed that their partner's positive performance influences their own, by increasing their motivation, confidence, and energy, allowing them to play more aggressive and become more relaxed. In a meta-analysis, Woodman and Hardy (2003) found that self-confidence is more strongly related to performance than cognitive anxiety. Since self-confidence seems to play a critical role in the success of athletes (Feltz, 1988), partners play could be an important moderating variable between self-confidence and athlete success.

When an athlete's partner is playing poorly, themes of negative impact on performance and negative emotions were identified; emotions such as anger, anxious and frustration were the

most cited, followed by participants ‘being annoyed’, and feeling guilty. Research has shown that these types of emotions can have a negative impact on performance, depending on the task and situation (Lazarus, 2000b; Woodman et al., 2009). Participants believed that when their partner was playing poorly, and they were feeling these emotions, they also began to play poorly due to increased pressure, a decrease in motivation/energy/focus, and overthinking or overcompensation. There were a few athletes who identified ‘feeling bad’ rather than angry and upset when their partner was playing poorly. Empathy, knowing or understanding what your partner is going through, coincides with the definition given by Lazarus (1991), that empathy is “another’s feelings by placing oneself psychologically in that person’s circumstances”. Through empathy, emotions are believed to be shared (Lazarus, 1991), therefore possibly showing more support of emotional contagion between these athletes.

There were a few participants who believed the opposite to be true; that their athletic partner’s performance did not impact their own. They believed that they are able to tune out their partner’s play and stay in the ‘zone’. These participants stated that they were not distracted and remained focused on their own game. This demonstrates the inter-individual differences between athletes when reacting to different situations and choosing (or not choosing) different emotional regulation strategies. It would be interesting for future research to explore these athletes, and perhaps identify the factors that may influence this behaviour (staying calm and not reacting to their partners play). Factors such as personality, age, experience, or length of time with their current partner may play a role in how one reacts (or reacts differently) to certain situations.

Most participants listed typical coping strategies of athletes found in the literature (Tamminen & Crocker, 2013; Nicholls, Polman, Levy, Taylor, & Copley, 2007), such as

emotion focused coping (social support, distraction and acceptance), and problem focused coping (strategizing, 'back to basics', and overcompensation). Emotion focused coping manages the emotional responses to the stressor, usually when the self or environment cannot be manipulated, whereas problem focused coping are actions, both cognitive and behavioural, directed at managing the self and/or the environment to change the problem that is causing the distress. One strategy that participants believed was not effective but still admitted to using frequently was over-compensation (trying to make up for the partners play), which has been characterized as a maladaptive coping strategy (Lazarus, 1991), and most of the time is an unsuccessful way to cope with different situations. Participants, despite the lack of success of trying to make up for the partner's poor play, still have this reaction or call on this coping strategy each time their partner is 'off' their game. Coping using overcompensation is to try and fight the situation as though the opposite is true (i.e., your partner is not playing poorly). This happens when vigilance leads to information that things are worse than what was first thought or that nothing can be done to alter the situation, similar to what these athletes indicated. Based on the literature, when a coping strategy is unsuccessful in a given situation, a new coping strategy will be chosen to overcome the stressor (Lazarus & Folkman, 1987). Despite this, athletes continually use vigilant coping when their partner is playing poorly, in hope that it will help them perform better or help them to win.

Coping strategies for both problem and emotion focused coping seemed to intertwine, such as strategizing (problem focused) and social support (emotion focused). These two types of coping went hand-in-hand when discussed by participants; they discussed offering supportive, positive words, but also advice, criticism, and game plan strategy. Both types of coping were also used for each scenario (partner playing well and partner playing poorly), indicating that

emotional regulation is not only needed to handle negative stressors but positive stressors as well. Although there is less research on ‘positive’ stressors in sport, previous research has indicated that positive stressors have less of a detrimental effect on health-related outcomes or measures (Sarason, Johnson, & Siegel, 1978). Specifically, in sport Passer and Seese (1983) found that only negative stressors were associated with greater risk of injury. This positive stress, or athletes who view different environments or scenarios as positive versus negative could be an interesting avenue for future research to understand how this may affect performance, game outcomes, future injuries, and even future coping.

During the interviews, acceptance, as a main aspect of mindfulness, was evident from multiple athletes. Many players indicated using acceptance as a form of coping. They believed that realizing when things were out of their hand and accepting the game/outcome as how it was, offered the best way to cope and reduce a stronger (perhaps more negative) emotional reaction, in addition to helping not to impact their own performance. In recent years, the use of different mindfulness techniques such as yoga, meditation and relaxation breathing has become more popular, and has shown positive benefits in many different fields (e.g., Noetel, Ciarrochi, Van Zanden, & Lonsdale, 2017). Mindfulness enhances the athlete’s sensitivity to different cues in the environment and is then able to promote greater behavioural flexibility (Gardner & Moore, 2007). This has led to an area of growing research in the sport literature; the idea and concepts of mindfulness, including the mindfulness-acceptance-commitment (MAC) protocol (e.g., Gardner & Moore, 2007). The idea of reducing the physiological response to stress through a relaxation response, however, is not new to the coping literature. Benson and Klipper (1975) demonstrated how physiological changes are associated with the relaxation response, achieved through meditation, progressive muscle relaxation, body scans, and guided imagery.

Psychophysiological changes take place as a result of these type of stress responses (or coping mechanisms); both lowered blood pressure and respirations rates have been observed when these strategies are employed (Dusek et al., 2008). The present findings suggest that further investigation into the benefits of acceptance and relaxation as a coping mechanism to enhance performance and avoid negative performance (e.g., overcompensation) would be valuable. Another worthy avenue of research would be implementing the MAC protocol to determine if it is helpful in coping when your athletic partner is playing poorly, and it is beyond your own control.

Many of the strategies that were listed and discussed by athletes for both problem and emotion coping were focused around helping their partner's emotions. This type of coping is termed interpersonal emotional regulation (IER; Lazarus & Folkman, 1984). Through IER one attempts to manage emotional or stressful situations by either drawing on others to reduce their own stress or using different coping strategies to provide help in reducing the stress of another individual (Lazarus & Folkman, 1984; Zaki & Williams, 2013). A worthy avenue of research would be to further understand the impact of IER in sport, especially between these dyads who indicate when their partner is poorly, they use coping strategize to regulate their partner's emotions, which in turn, helps themselves.

The current study highlights the reciprocal relationship between performance, emotions and coping in sport. Overall, these athletes believed that their partners performance impacts their emotions, and thus changes their choice of coping strategies. Consistent with the literature (Lazarus & Folkman, 1987), athletes demonstrated individual differences in their choice of not only coping strategies, but also their reaction to different situations (i.e., partner playing poorly versus partner playing well).

A strength of the current study is that it is the first looking qualitatively at the impact of partner play in dyads on performance, emotions and coping strategies. In addition, a variety of athletes were used for the interviews; athletes differed in gender, age, sport, years in the sport, as well as length of time playing with their current partner thus providing a more in-depth and generalized perspective of the issues examined. Using same-sex dyads, rather than mixed-sex dyads also adds a strength to the current study, it allows us to understand the impact of partners play without sex differences within teams being a factor. It would be interesting to consider any differences in the sex of the teams (male teams vs. female teams), as well as within mixed sex dyads. With respect to the analysis, another strength was the data were read and critiqued by three investigators to allow for alternative interpretations and confirmability.

Despite these strengths, there are some limitations that need to be considered when interpreting the data. The small sample size and the examination of only three sports limits the generalization to other sports (e.g., doubles volleyball), and the use of qualitative methods prevented further analysis of age, gender, personality and skill level that all may be factors in the impact of partner performance. Future research should consider using the recommendations of Smith (2018) to explore the influence of age and gender on the impact these athletes feel. In addition, only dyads consisting of the same sex were considered. Mixed doubles is very popular and it would be interesting to determine if the emotions and coping strategies differ when your partner is of the opposite sex.

In conclusion, the present study contributes to the sport emotion and coping literature, expanding into an area (doubles racquet sports) that has received limited attention. The study furthers our understanding of the impact on emotions and performance that an athletic partner's play can have on an athlete. In addition, the information from the athletes about coping (both

effective and non-effective ways) are important for both researchers and practitioners. Building on this work, researchers can begin to create interventions aimed at improving the emotional state and coping strategies of athletes, especially those participating in doubles racquet sports.

Practical Implications

From an applied perspective, understanding how an athlete typically reacts emotionally will be beneficial for consultants to help athletes cope in each situation and regulate their emotions. Specifically, for those who work with athlete dyads in racquet sports, understanding how an athlete's partner can impact their own play, emotional reactions and choice of coping strategies will help coaches, trainers, or practitioners educate athletes who may be using unsuccessful strategies, such as vigilant coping, in order to assist in overcoming these stressful situations.

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Study 3 Interpersonal Emotion Regulation³

High demands and pressure to perform are often placed on athletes competing in sport. To combat this, athletes use a variety of coping and emotional regulation strategies (Lane, Beedie, Devonport, & Stanley, 2011). Through emotional regulation one attempts to change the trajectory of either positive or negative emotions or emotional experiences (Ochsner & Gross, 2005). Some of these attempts may be made through resorting to a friend or another individual to help one manage these emotions or situations. This type of support is found through interpersonal emotion regulation (IER); individuals drawing on others to reduce stress (Zaki & Williams 2013; Lazarus & Folkman, 1984). IER can be used to regulate the emotions of the one seeking help, or the one providing help. To date, outside of sport, there is little known about how often individuals pursue IER, its effectiveness, and how it relates to other social constructs (Williams, Morelli, Desmon, & Zaki, 2018). In addition, even less is known within the sport context, as the majority of the sport literature has focused on intrapersonal emotion regulation (i.e., athletes use coping strategies to help regulate their own emotions) rather than IER.

In social psychology, Zaki and colleagues (2018) found that individuals do vary in their tendency to engage in IER. Whether attempting to decrease negative or increase positive emotions, IER has been shown to be associated with empathy, social support, well-being, and prosocial behaviour (Zaki & Williams, 2013; Williams et al., 2018). An individual's use of IER shows improved social and emotional well-being (Zaki & Williams, 2013). During their pursuit to further understand the psychological structure of IER, Zaki and Williams created a 2x2 framework. This framework outlines the use of IER to help researchers provide information on

³A version of this study has been submitted to *Psychology of Sport and Exercise*

the interplay of both the person providing help and the person seeking help (Zaki & Oschner, 2009; Zaki & Williams, 2013), as well as how often people use IER and how effective it is (Williams et al., 2018). This framework differentiates between response dependent (relying on feedback from others) and response independent (not requiring a response during an interaction) emotional regulation. It also distinguishes between extrinsic interpersonal regulation (when one attempts to regulate another's emotions) and intrinsic interpersonal regulation (one initiates social contact to regulate their own emotions or experience), creating four distinct categories within the 2x2 model: 1) extrinsic IER response dependent, 2) intrinsic IER response dependent, 3) extrinsic IER response independent, and 4) intrinsic IER response independent. Through this framework, Zaki and Williams (2013) 'map' interpersonal regulation through specifying when regulation is interpersonal, separating interpersonal regulation from affective consequences of regular interactions, making broad classes of whether interactions are being used to regulate one's own or other emotions, and drawing a boundary between different processes that make up interpersonal regulation. According to Zaki and Williams (2013), interpersonal regulation occurs in the context of live social interaction (e.g., during or after a game with their teammate) and represents the pursuit of a regulatory goal (e.g., calming oneself or one's teammate).

Unfortunately, to date there are no current instruments that measure all aspects of the 2x2 model, and there are also no sport specific measures of IER.

As noted above, the emotion regulation literature in sport has focused on intrapersonal regulation, where athletes, coaches and referees use different coping strategies to help regulate their own emotions, such as anxiety, anger, and excitement (Lane et al., 2011; Davis & Davis, 2016). This literature has identified and considered the complexity of emotions, in addition to the many different strategies that can help athletes regulate their emotions. These strategies include

situation modification, imagery, goal setting and reappraisal (Uphill, 2009), and various interventions have been suggested for use by practitioners. For the most part, these interventions have been successful in considering the subjective experience of an athlete, as well as the many different consequences (cognitive, motivational and physiological; Jones, 2003; Uphill, 2009). Yet, little research has considered how a coach, parent or teammate may use these strategies with other athletes to regulate that individuals or their own emotions.

Only more recently, over the last decade, has the interest and literature reflected the importance of understanding interpersonal regulation strategies within teams. It has been demonstrated that players use both intrapersonal and interpersonal strategies to regulate their own, and other's emotions (Camp et al., 2017; Palmateer & Tamminen, 2018; Tamminen et al., 2016). In both hockey (Friesen et al., 2015) and racquet sport players (Deck et al., Study 2), research has found that these players use deception, humor and positive appraisals to regulate their teammates emotions, and in turn, their own. For hockey players, the type of IER used was found to be moderated by the relationship of teammates, the role of the athletes, and the timing of IER delivery (Friesen et al., 2015). These athletes indicated that although they used IER, there are times when another athlete tried to regulate their emotions that were not appreciated due to factors such as personality or timing of delivery (e.g., during the game rather than on the bench; Friesen et al., 2015). Palmateer and Tamminen (2018) interviewed volleyball players and confirmed that interpersonal factors, social norms, and athlete's role impact IER use. These results echoed those of intrapersonal emotion regulation, demonstrating further complexities and considerations for future research in emotion regulation in sport settings.

Within racquet sport dyads, Deck et al. (Study 2) have shown that these athletes report using IER during games (e.g., providing advice, social support, strategies) when one's partner is

playing poorly. The aforementioned studies on IER primarily have used qualitative methods to understand the types and use of IER, and although it is suggested that qualitative methods may be preferred to understand the complexity of emotions and emotion regulation (Stean, 1998), quantitative research can add additional insight into the use and efficacy of these strategies in different sports and for different players. Thus, more research is needed to understand IER within teams, and more specifically to extend the work done in very small teams (i.e., dyads) to understand when and how IER is used in different situations (Deck et al., Study 2).

Further demonstrating the need to consider IER, especially within these dyads, Levy-Gigi, and Shamay-Tsoory (2017) found lower distress levels in couples when employing interpersonal strategies compared to intrapersonal strategies. Romantic partners (together for a minimum of one year), were asked to choose regulation strategies (reappraisal or distraction) for their partner after seeing the same distressing image. For these individuals, distress was significantly lower when their partner chose the emotion regulation strategy (interpersonal) compared to when they chose their own (intrapersonal; Levy-Gigi & Tsoory, 2017). These results imply that an outside perspective can have an advantage as the direct emotional involvement can effect cognitive resources and the ability to choose the most efficient strategy (Bishop et al., 2004; Levy-Gigi & Shamay-Tsoory, 2017; Opitz, Lee, Gross, & Urry, 2004). Considering the high-stakes, stress and emotions that can occur during sport competition (Neil, Hanton, Mallalieu, & Fletcher, 2011), having a more effective way to regulate emotions (e.g., having your teammate choose the strategy) could be helpful and serve as a potential way to increase overall performance.

The broad purpose of the current study was to use the framework provided by Zaki and Williams (2013) to explore interpersonal regulation in sport, and more specifically in dyads. It

aimed to determine what type of IER double racquets sport athletes prefer and find effective when their partner is under performing. A secondary purpose was to explore how the use of IER in this partner playing poorly scenario is related to trust and perceived social support within these dyads. Based on previous work, those high in IER as measured by the Interpersonal Emotion Regulation Questionnaire (IRQ), will seek out their peers more to share news or look for advice (higher in social support) and think more highly of their partner (higher in trust; Williams et al., 2018). IER has also been correlated with social connectedness, social sharing and pro social behaviour (Williams et al., 2018). Given these findings, one might also predict a positive relationship between IER and both perceived social support and trust in the present study, but because the scenario that the athletes were asked to read was about their partner playing poorly, it was uncertain how this might change these relationships. Therefore, no specific hypotheses were forwarded.

Methods

Participants

Participants were recruited based on the following criteria; (a) eighteen years of age and above, (b) must be able to read and write in English, (c) must consent to participate, (d) must play a racquet sport with a partner of the same gender, and (e) must have played with current partner for at least one year. A minimum of one year playing experience with their current partner was required to ensure participants had experienced a range of different situations with their partner in order to relate to the vignette provided. Participants were provided a link to the online questionnaire where they first read a vignette describing a situation where their partner is playing poorly in an important match.

One hundred and thirteen participants (Males = 78, Females = 35) took part in the study. The age of the participants ranged from 18-76 ($M = 36$, $SD = 11$). The majority of the

participants were Caucasian (83%), married (62%), and currently employed (79%). Participants varied in sport (tennis=23, squash=81, badminton=9), as well as level of play (club/recreational = 72%, provincial/national = 28%).

Instrumentation

Demographics. Descriptive information of the sample was obtained through self-report questions pertaining to age, sex, employment, and athletic ability (level).

Interpersonal Emotion Regulation Questionnaire (IERQ; Hoffman et al., 2016.) The questionnaire contains four subscales with 5 items each (a total of 20 items) measuring Enhancing Positive Affect, Perspective Taking, Soothing, and Social Modelling. Participants were asked how true each statement is from 1 – *Not True at All for Me*, to 5 – *Extremely True for Me*. An example item is, “Hearing another person’s thoughts on how to handle things helps me when I am worried”. All subscales have previously shown good internal consistency ($< .85$; Hoffman et al., 2016) and subscales were calculated by summing the total of the given items that represent each subscale.

Interpersonal Regulation Questionnaire (IRQ; Williams et al., 2018). The IRQ measures an individual’s tendency to use IER (intrinsic) and how effective IER is. It has four subscales with 4 items each (a total of 16 items) measuring Negative Tendency, Negative Efficacy, Positive Tendency, and Positive Efficacy. Participants are asked to rate the degree they agree with each item from 1 – *Strongly Disagree*, to 7 – *Strongly Agree*. An example item is, “When I’m having trouble, I cannot wait to tell someone about it”. Each subscale demonstrated high reliability during construction and reliability testing (Williams et al., 2018) and scores were calculated by summing the total of responses for designated items. A total score was calculated by summing all four subscale scores together.

The Emotion Regulation of Others and Self Scale (EROS; Niven et al., 2011). This instrument assesses a broad range of types of affect regulation strategies. Participants are asked to what extent they use the different strategies to influence the way they have felt over the previous two weeks from 1 – *Not at all*, to 5 – *A Great Deal*. There are two subscales (Extrinsic has 9 items and Intrinsic has 10 items), with a total of 19 items. An example item from the extrinsic subscale is, “I told someone about their shortcomings to try and make them feel worse”. An example item from the intrinsic subscale is, “I did something I enjoy to try to improve how I felt”. These subscales can each be divided into Affect Improving and Affect Worsening and have shown to demonstrate adequate reliability (ranging from .67 to .93). Mean scores are calculated for each subscale from the appropriate designated items.

Dyadic Trust Scale (Larzelere & Huston, 1980). This instrument measures interpersonal trust in close relationships (partners) using eight questions rated from 1 – *Strongly Disagree* to 7 – *Strongly Agree*, with higher scores indicating more trust between partners. An example item from this instrument is, “I feel that my partner can be counted on to help me”. When first developed, this instrument showed strong reliability for each item (< .72) and has continued to do so in the literature (Burke & Stets, 1999; Hatifield & Sprecher, 1986).

Perceived Available Support in Sport Questionnaire (PASS-Q; Freeman, Coffee, & Rees, 2011). The PASS-Q assesses emotional, esteem, informational and tangible support between partners through 16 items (four items per subscale). Participants are asked to rank how they feel their partner supports them on a scale from 0 – *Not at all*, to 4 – *Extremely So*. An example item following the stem, to what extent does your partner, is “give you tactical advice”. Mean scores are calculated for each of the four subscales. Internal validity and test re-test

reliability have been considered sound (Freeman et al., 2011; Gabana, Steinfeldt, Wong, & Chung, 2017).

Vignettes. A partner play scenario employed by Deck and colleagues (2020) was used in the current study. This scenario was originally created and piloted tested to ensure reliability.

Research Design and Data Collection

A cross-sectional survey design was used. Following university ethics approval, participants were contacted via email, social media, or face to face presentations. All participants were directed to a link for the online questionnaire. Before preceding to data collection, participants were provided a Letter of Information and gave informed consent online. After consent was obtained, the participants were shown a copy of the vignette and asked to read it twice, while imagining the scenario taking place. The scenario depicted their partner playing very poorly, causing them to most likely lose the current match. Following reading the vignette, participants completed the questionnaire comprised of demographic questions, the IERQ, the IRQ, the EROS, the dyadic trust scale, and the PASS-Q. These questionnaires were randomized in order to eliminate order bias. Following completion of the study, participants were thanked for their contribution.

Results

A total of 178 athletes consented to participate in the study. Data were first screened for missing values with visual inspection in SPSS© statistical software and 65 cases were deleted due to incomplete data (missing data entirely) leaving 113 cases to analyze. A non-significant (.82) Little's (1988) Missing Completely at Random (MCAR) was found for the remaining missing values, indicating that the values were missing completely at random. Therefore, using an expectation maximization algorithm (EM), the remaining missing values were replaced.

Coefficient alpha (Cronbach, 1951) was estimated for each subscale of each instrument (Table 2). These alphas ranged from .60 to .90 and demonstrated internal consistency of the items (Cortina, 1993).

Table 2

Coefficient Alphas for each subscale of each instrument

Instrument / Subscale	α
EROS Extrinsic Affect Improving	.86
EORS Extrinsic Affect Worsening	.60
EROS Intrinsic Affect Improving	.80
EROS Intrinsic Affect Worsening	.87
IRQ Negative Tendency	.72
IRQ Negative Efficacy	.78
IRQ Positive Tendency	.73
IRQ Positive Efficacy	.65
Dyadic Trust Instrument (8 items)	.88
IERQ Enhancing POS AFF	.89
IERQ Perspective Taking	.80
IERQ Soothing	.83
IERQ Social Modeling	.82
PASS Q Emotional Support	.86
PASS Q Esteem Support	.90
PASS Q Informational Support	.83
PASS Q Tangible Support	.82

Means and standard deviations are reported in Table 3 for each subscale. These athletes scored higher in both Negative Efficacy and Positive Efficacy than Negative Tendency and Positive Tendency, as well as higher in both extrinsic and intrinsic affect improving than extrinsic and intrinsic affect worsening. They also indicated higher mean scores for enhancing positive affect and social modelling compared to perspective taking and soothing. Trust in their partner was on the lower end ($M = 20.17$) where 8 is the lowest score and there is a total possible score of 56. Perceived social support from their athletic partner was average, where the highest was emotional support felt, and the lowest was tangible support. Bivariate correlations were run between the different subscales of the different instruments measuring IER (EROS, IRQ, IERQ) and the dyadic trust scale and the four subscales of perceived support (emotional, esteem, tangible, and informational). Trust was positively correlated with both intrinsic and extrinsic affect improving, as well as intrinsic affect worsening as measured by the EROS. Tendency to decrease negative emotions as measured by the IRQ was positively correlated with all subscales of social support, and tendency to increasing positive emotions were positively correlated with all subscales of social support except emotional. All subscales of perceived support and trust were negatively correlated. See Table 4 for all correlations.

Table 3*Subscale Means and Standard Deviations*

Instrument/Subscale	M	SD
EROS Extrinsic Affect Improving	3.38	.79
EROS Extrinsic Affect Worsening	1.26	.43
EROS Intrinsic Affect Improving	2.84	.74
EROS Intrinsic Affect Worsening	1.44	.67
IRQ Negative Tendency	15.23	3.81
IRQ Negative Efficacy	18.85	4.13
IRQ Positive Tendency	16.88	4.3
IRQ Positive Efficacy	18.98	3.75
Dyadic Trust	20.17	7.51
IERQ Enhancing Positive Affect	13.50	3.60
IERQ Perspective Taking	10.48	3.70
IERQ Soothing	10.11	3.36
IERQ Social Modeling	13.38	3.89
PASS Q Emotional Support	2.81	1.00
PASS Q Esteem Support	2.42	.84
PASS Q Informational Support	2.10	.94
PASS Q Tangible Support	1.63	1.02

Table 4*Bivariate Correlations*

Instrument/Subscale	Dyadic Scale	Pass Q EM Supp	Pass Q ES Supp	Pass Q Inform Supp	Pass Q Tang Supp
EROS EX AF IM	.24*	.18	.15	.14	.16
EROS EX AF WOR	.08	.22*	.10	.07	.09
EROS IN AF IM	.20*	.10	.06	.06	.10
EROS IN AF WOR	.30**	.03	.15	.17	.20*
IRQ Neg Tend	-.06	.27**	.26**	.38**	.31**
IRQ Neg Eff	.10	.01	.15	.23*	.16
IRQ Pos Tend	.04	.13	.25**	.43**	.24**
IRQ Pos Eff	-.11	.20*	.29**	.28**	.11
Dyadic Trust (8 items)	--	-.44**	-.40**	-.21	-.11

IERQ Enh Pos Aff	.10	.23*	.24*	.15	.17
IERQ Pers Tak	.17	-.01	-.15	-.08	-.04
IERQ Soothing	.02	.16	.21*	.36**	.24**
IERQ Social Modeling	.17	-.05	0.07	.01	1.3
PASS Q EM Supp	-.51**	--	.71**	.40**	.51**
PASS Q ES Supp	-.46**	.71**	--	.65**	.51**
PASS Q Inform Supp	-.29**	.40**	.65**	--	.43**
PASS Q Tang Supp	-.24*	.51**	.51**	.43**	--

To look at the differences between those high in IER as measured by the IRQ and those low in IER (Williams et al., 2018), we added all the positive IRQ subscales and the negative IRQ subscales together, and then set a cut-off point (maximum score is 112, therefore the cut-off point was set at 75 for the high IER group to be in the top quarter). We ran independent T-tests between IRQ and trust ($t(107) = -.84, p = .94$), and IRQ and the perceived social support

subscales. Only Informational support was significant between the high IRQ ($M=2.41$, $SD = 0.93$) and low IRQ ($M=1.92$, $SD=0.90$) conditions; $t(111) = -2.68$, $p = .01$.

To try to help to further understand the relationship between the use of IER, perceived social support and trust within these dyads, linear regression models were used. Four models were run with the subscales of each instrument (IRQ, IERQ, EROS, and PASS-Q) entered as predictors for trust.

This first model with IRQ (Negative Tendency, Negative Efficacy, Positive Tendency, and Positive Efficacy) approached significance ($F(4, 104) = 2.215$, $p = .07$) with an R^2 of 0.08. Particularly, both negative efficacy ($B = .60$, $SE B = .25$, $\beta = .34$, $p = .02$) and positive efficacy ($B = -.56$, $SE B = .75$, $\beta = -.28$, $p = .04$) were significant.

The EROS (Extrinsic Affect Worsening / Improving and Intrinsic Affect Worsening / Improving) model was significant, accounting for 14% of the variance ($F(4,104) = 4.1$, $p = .01$) with an R^2 of 0.14. Intrinsic Affect Improving was nearing significance ($B = 1.80$, $SE B = 1.07$, $\beta = .18$, $p = .09$), and Intrinsic Affect Worsening was significant in this model ($B = 3.20$, $SE B = 1.13$, $\beta = .28$, $p = .01$).

The IERQ (perspective taking, soothing, social modelling, and enhancing positive affect) did not produce a significant model ($F(4,104) = 1.31$, $p = .27$, $R^2 = .05$). Finally, the PASS Q (emotional, esteem, informational, and tangible support) was significant and accounted for 28% of the variance ($R = .53$, $R^2 = .28$, $p = .01$). Emotional support was the only significant predictor of trust within this model ($B = -3.09$, $SE B = .84$, $\beta = -.42$, $p = .01$). See Table 5 for summaries of the model for the IRQ, the EROS, and the PASS Q.

Table 5
 Linear Regression Models to Predict Trust

Instrument/Scale	b	SE B	β	<i>p</i>
IRQ				
Constant	21.18	3.82		.00
Neg Tend	-.41	.28	-.21	.15
Neg Eff	.60	.25	.37	.02
Pos Tend	.26	.24	.15	.27
Pos Eff	-.56	.27	-.28	.04
EROS				
Constant	8.2	3.74		.03
EX AF IMP	.62	1.07	.07	.56
EX AF WOR	.11	1.62	.01	.95
IN AF IM	1.80	1.07	.18	.09
IN AF WOR	1.13	1.13	.28	.01
PASS Q				
Constant	32.30	2.05		.00
Emotional	-3.09	.94	-.42	.01
Esteem	-1.59	1.36	-.18	.25
Informational	-.25	.91	-.03	.78
Tangible	.57	.74	.08	.44

One large linear model was conducted with all the predictor variables of IER and perceived support for the outcome variable of trust. The model ($F(16, 92) = 6.62, p = .01, R^2 = .54$) revealed that significant predictors were PASS Q Emotional Support ($B = -2.61, SE B = .90, \beta = -.35, p = .01$) and EROS Intrinsic Affect Worsening ($B = 3.24, SE B = .96, \beta = .29, p = .01$). Nearing significance were EROS Intrinsic Affect Improving ($B = 1.79, SE B = 1.01, \beta = .18, p = .08$), and IRQ Positive Efficacy ($B = -.43, SE B = .24, \beta = -.22, p = .07$). Histogram and plots inspections showed a normal distribution.

Lastly, a linear model looking at social support and IER use (as measured by the IRQ) was undertaken. The PASS Q (emotional, esteem, informational, and tangible support) was significant and accounted for 12.8% of the variance ($R = .16, R^2 = .13, p = .01$). Informational support was the only significant predictor of IER within this model ($B = 4.96, SE B = 1.72, \beta = .34, p < .05$).

Discussion

The main purpose of the current study was to look at the use of IER by doubles racquet athletes when their partner is playing poorly. A secondary purpose was to see how IER use was related to perceived social support and trust within these racquet sport dyads. To date, in the sport literature, there is limited research investigating IER in athletes, and the studies that have are mostly qualitative in nature. This study attempted to understand the use of IER (measured with several different instruments; IRQ; IERQ; EROS) by racquet sport athletes, and how their use (or lack) of may relate to perceived support (as measured by the PASS-Q) and trust (as measured by the Dyad Trust Scale). Overall, we found there to be average use of IER by these dyads with some variation across the different measures. This corresponds with work in social psychology that individuals vary in their use of IER (Zaki & Williams, 2013), as well as work in

sport psychology that found athletes vary in their use of affect improving and affect worsening before and after competition (Tamminen et al., 2019). These double racket athletes indicated higher positive and negative efficacy compared to positive and negative tendency to pursue IER, respectively. In addition, average scores were found for perceived support but lower than average scores for trust, probably reflecting the impact of the poor performance scenario given to the participants to read. Those individuals higher in IER as measured by the IRQ showed differences in informational social support, which was also predictive of IER but no differences were found in emotional, esteem, or tangible social support. Lastly, there were no differences between high IER users as measured by the IRQ and low IER users in trust of their partner.

For IER (based on all the various scales), athletes in this sample had higher mean scores for extrinsic and intrinsic affect improving compared to affect worsening. They were higher in negative efficacy and positive efficacy compared to negative tendency and positive tendency, and higher in enhancing positive affect and social modelling compared to soothing and perspective taking. Deliberately improving one's own feelings as well as another person's feeling via extrinsic and intrinsic affect improving was expected (Zaki & Williams, 2013). Improving one's own, as well as their partner's affect, is an effective way to increase performance. In addition, these athletes had higher efficacy to decrease negative emotion and increase positive emotion compared to their tendency (or inclination) to do so. This supports the notion of Williams et al. (2018) that efficacy and tendency are distinct factors, and that efficacy (or one's desire) to decrease negative emotion and increase positive emotion may be higher than the individual's actual tendency (or inclination) to do so. These athletes' actions, therefore, may suggest that they are not attempting to decrease negative emotion and increase positive emotion, despite wanting or desiring to. Unlike Williams et al. (2018) who showed that those in high

negative-efficacy perceive social support for adverse events more favorably, and that negative-tendency tracks participants ratings of support for negative events, our results only showed a correlation between negative-tendency and all subscales of perceived social support and not negative efficacy. Of course, our results relate to when their partner is playing poorly, but this still supports the notion that IER may be predictive of social support, as individuals are more likely to use IER in emotional circumstances, which would likely be the case when their partner is playing poorly.

The scenario given to the participants indicated that the outlook of the game did not look promising (most likely a loss due to their partner's play). This may be an indication of why these athletes would be higher in affect improving both intrinsically and extrinsically on the EROS, as well as seeking for soothing messages to help them feel comfort in a time of loss, or asking others how they may cope in the current less ideal environment (social modelling) as measured by the IERQ. Similar results have been reported by Lane et al. (2011) for athletes when assessed using the EROS; higher scores to increase pleasant emotions than scores to increase unpleasant ones. Over a ten day period, Tamminen and colleagues (2019) found that prior to a competition, athletes had a tendency to decrease in their affect worsening toward teammates, and following a competition athletes decreased in their affect improving. It would be interesting for future research to see how the use of the different types of IER may change based on the different scenarios that the athletes may be in, and furthermore the outcomes of the game. For example, when their partner is playing really well or when they are winning an important game, determining if these athletes gravitate toward affect worsening in order to keep emotions such as excitement at a minimum, or after a loss if the tendency for affect improving both extrinsically and intrinsically would be increased. Deck and colleagues (2020) found differences in the impact

on emotions based on the different scenarios of partner play. When a partner was described as playing poorly, emotions such as anger and anxiety were high compared to when a partner was described as playing well. In the playing well scenario, emotions such as joy and happiness were much higher. These participants also indicated that there was a negative and positive impact on emotions and motivation based on whether their partner was playing poorly or well, respectively. Environment and appraisal are both important components of the coping and emotion regulation process that need to be considered (Lazarus, 2000).

A particularly salient finding was the rating of trust of their partners by the study participants. Where the lowest score possible is 8, the average score on the dyad trust scale was 20 out of a possible total score of 56. As trust is related to the success of close relationships (Rempel, Holmes, & Zanna, 1985), in teammates is important for performance (Mach, Dolan, & Tzafrir, 2010) and factors influencing performance such as confidence (Hays, Maynard, Thomas & Bawden, 2007), understanding this lack of trust is important. Given these dyads had played together for some time and thus must have felt generally satisfied with the partnership, the present results suggest that trust can fluctuate between partnerships based on a partner's play. When their partner is playing poorly, these athletes have less trust in their partner. This aligns with research done on romantic couples and assertions that trust can be undermined or built upon based on recurring events or situations (Miller & Rempel, 2004; Rempel et al., 1985). Our cross-sectional design did not allow for us to have baseline measures of trust. Future research should consider the possible fluctuations in trust over the course of a season by measuring trust on multiple occasions, which would provide a better understanding of the dynamic nature of trust between these partnerships.

In terms of perceived social support from their athletic partner, these athletes felt they received emotional support the most, whereas tangible support was rated the lowest. Emotional support also predicted and was negatively correlated with trust within these dyads. Those who felt they had the most emotional support from their partner, tended to rate their relationship with their partner as less trusting, an interesting contradiction to previous work in partnerships such as marriage. Social support has been shown to have the opposite relationship with trust in marriage partners, where an increase in social support is associated with increased trust (Pamuk & Durmus, 2015). These results may follow from our explanation of fluctuations in trust due to their partner playing poorly. Emotional support from their partner may be perceived to stay the same or even increase in this situation. Research has demonstrated that emotional communication can bring about reciprocal emotions in others that can help one to respond better to significant social situations (Keltner & Haidt, 1999). Therefore, although trust may be decreasing, support (especially emotional) may be increasing, as these athletes may be giving emotional support to their partner and their partner is now reciprocating this support or giving them even more emotional support due to their own lack of technical support or poor play.

Given the lack of support we found for the outcome of trust predicted by IER and social support, it may also be argued that the relationship between trust and social support, as well as trust and IER may be reciprocal. Mach, Dolan, and Tzafrir (2010) also noted the complexities when looking at different targets of trust and their effect on performance. Future research could explore how trust may be predictive of IER, or how these two may interact to influence not only each other but performance throughout a season.

These results add to the current IER literature, specifically advancing this area in the domain of sport which has mainly focused on intrapersonal emotion regulation. In addition, the

variety of athletes that were surveyed (different gender, age, level of play, and type of racquet sport) strengthen the results found. This study, however, was limited by the cross-sectional design employed, and future research would benefit from taking a longitudinal approach similar to Tamminen et al. (2019) with baseline measures to make comparisons between baseline IER, trust, perceived support, and different situations during a season (e.g., partner playing poorly or partner playing very well). It is also important to note that the use of three racquet sports limits the generalizability to other sports but may have implications for other dyad teams (e.g., diving). Another limitation is that some of the measures employed in the current study were taken from social psychology. Although reliable and valid within the social psychology literature, there are no studies that have supported the use of these measures within the sport population. Athletes experience intense emotions, both negative and positive (Jones, Lane, Bray, Uphill, & Catlin, 2005) and given this atmosphere, sport specific measures that aim to capture this unique climate should be developed and may be received better by athletes.

As IER holds implications for both social and emotional well-being (Williams et al., 2018), it is a worthy avenue for future research. Such research would foster the initiation and development of interventions to improve athlete and team dyad emotion regulation. It is important for athletes, coaches and practitioners to understand one's use of IER as those who favor IER may share their emotions more easily, which helps others interpret and understand these feelings (Williams et al., 2018). Coaches have been shown to vary in their use of extrinsic IER strategies with their athletes (Braun & Tamminen, 2018). Being simply better understood could help with team dynamics, cohesion and perhaps increase trust, especially during adverse events/situations. Future research should also examine whether one partner in a sport dyad is more successful than the other in choosing effective emotion regulation strategies in stressful

competition scenarios and why (Levy-Gigi & Tsoory, 2017). It may also be that one partner could influence the use of intrinsic strategies to help with emotion regulation through the use of their IER strategies, similar to what has been found for coaches (Braun & Tammenin, 2018).

In conclusion, the findings of the present study show that athletes differ in their tendency, efficacy, and use of different forms of IER building off and extended previous quantitative research within the sport domain (Tamminen et al. 2019). These differences may contribute to successful performance or lack thereof. Moreover, athletes, coaches and sport psychologists should be aware that the use of IER and the relationship of IER with perceived social support and trust may fluctuate depending on the situation the athletes find themselves in during a competition. Understanding this can be important to both coaches and athletes for team cohesion and dynamics. These findings provide merit for further exploration of the use of IER in athletes, how this use may change, and what other variables may impact, or be impacted by the use of IER.

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Summary

The purpose of this dissertation was to understand the impact on emotions of partner play between dyads who play doubles racquet sports and their use of coping and IER. The three studies comprising this research specifically examined: a) the impact of partner play on emotions through the use of vignettes in which the level of play of the partner was manipulated, b) the impact of partner play on emotions and coping employing a qualitative approach, and c) the use of IER and how this relates to social support and trust in these dyads when the partner is depicted as playing poorly.

Study 1 found that there was a different impact on emotions based on how a partner in these dyads is playing (i.e., poorly vs. well vs. their usual game). More specifically, athletes believed their motivation and emotions are impacted more positively when their partner is playing well. They have higher levels of happiness and excitement. When their partner is playing poorly, they have higher levels of dejection and anxiety compared to when their partner is playing well, and significantly higher levels of anger compared to when their partner is playing their usual game. These findings help to understand the impact of partner play and emotional reaction in different scenarios and support the need for appropriate coping and emotional regulation within and between these athletes.

Study 2 extended the findings of Study 1, asking participants about the subjective impact of their partner's play, how they cope, and whether this coping is effective or not. Typical coping strategies that are similar to those previously reported in the sport literature (Kim & Duda, 2003) were found, including strategizing, positive talk, and distraction. Athletes differed in their use of the different strategies based on their partner's play, as well as which strategies they believed were most effective. There was consensus for one ineffective or maladaptive strategy. Athletes

used over-compensation or vigilant coping to try to make up for their partner's poor play, despite acknowledging that it is not very effective in helping their partner or the final outcome of the game. These differences seem to vary based on previous use (participants indicated whether they used these strategies frequently or not), as well as their understanding or intuition for how they believed their partner would want help. This led to athletes discussing regulating their partners emotion, in addition to using their partner to help regulate their own emotions by first regulating their partner's emotions. Some athletes indicated understanding when their partner needed to hear or joke to calm down, which in turn helped the athlete to remain calm. Other athletes used strategy with their partner, giving advice to help them overcome their poor play, thus reducing the anger or anxiety felt from their partners poor play. This type of emotional regulation, IER, has only recently been researched and discussed in both social and sport psychology (Palmateer & Tamminen, 2018; Tamminen et al., 2019; Williams & Zaki, 2013; Williams et al., 2018). These results highlighted the need for sport research to further investigate IER between athletes, as well as provided direction for Study 3.

The purpose of Study 3 was to investigate the use of IER in dyads who play doubles racquet sports. A secondary purpose was to see how the use of IER and different types of IER relate to social support and trust within these dyads. These racquet sport athletes were found to use various forms of IER when their partner is playing poorly. The most frequently employed forms of IER measured by various instruments included Extrinsic Affect Improving (trying to improve their partners affect), Enhancing Positive Affect (seeking out others to increase positive emotions), and Social Modelling (looking to others to see how they might cope). Trust in their partner was found to be low (20.17 with possible scores ranging from 8 to 56), suggesting that trust may decrease or fluctuate when their partner is playing poorly. In addition, social support

may be related to use of IER; positive efficacy and tendency to use IER were correlated with most forms of social support, and some forms of IER (i.e., soothing) were correlated with social support. Interestingly, perceived emotional support was the only form found to be predictive of trust suggesting that the type of support may vary between these partners based on how one partner is playing. The perceived support indicated by these athletes may be intuitive to how they themselves would want to be supported when they are playing poorly, and despite not measuring the true support received, there is literature supporting that perceived support may be more salient and better at predicting outcomes than received support (Haber et al., 2007; Helgeson, 1993). Subsequent studies should consider different partner play scenarios and how these different variables may change. The current outcomes provide grounds for future intervention research within doubles, specifically with the use of IER and its influence on different variables such as trust, support, and even performance.

Overall the three studies combined extend the work done in emotions, coping, and emotional regulation in sport to a very unique and specific group of athletes, dyads. Both quantitatively and qualitatively, the results showed that there is an impact on emotions based on partner play, and further confirmed the existing coping strategies found within the sport psychology literature (e.g., emotion focused and problem focused coping). This dissertation also indicated how these athletes use IER, and how factors such as trust and social support may fluctuate based on partner's play. The third study, particularly, helps to fill the gaps in the IER sport literature which has been mostly qualitative and focused on larger team sport samples.

Strengths

The current dissertation is the first of its kind looking at the impact of partner play in these specific dyads (doubles racquet sports; badminton, squash and tennis). Some strengths of

this research include the multi-method approach and using an experimental quantitative design followed by qualitative interviews to understand the impact of partner play. All three studies used athletes of three sports, creating more generalizability to doubles racquet sports. We were also able to recruit a large number of athletes, especially for Study 2. Large sample sizes are usually not needed or obtained for qualitative research (Smith & McGannon, 2018); however, we were able to obtain 17 interviews and achieved what we believed was saturation or theme exhaustion (Guest, Bunce, & Johnson, 2006). The athletes in all three studies also represented a diverse group of individuals from different levels of play, age, and gender. This allowed us to generalize the results beyond one single age group, playing level, or gender. Our vignettes can be seen as a strength, as they have athletes imagine the scenario taking place rather than using recall and relying on long term memory. They were also created with the help of athletes in each sport to ensure the proper wording was used, in addition to making the scenarios as realistic as possible.

Limitations and Future Directions

We recognize there are some limitations to each individual study of this dissertation, and these were previously discussed. These limitations included using vignettes in both Study 1 and Study 3, rather than real-life scenarios. Despite being a strength of our studies not to rely on recall, the transfer effect from imaging these scenarios to the real sport environment is undetermined. There is strong evidence that mental imagery can induce emotional responses (Ji et al., 2016), and our goal with the vignettes made with the athletes was to create a competitive game-like situation that would evoke a response similar to the naturalistic response in real time. Future research should consider monitoring emotional reactions in real time to different scenarios during competition. This could be employed through in-person observation or by using

video observation, which would allow athletes to review their reactions and discuss with researchers what they were feeling ‘in the moment’. A limitation of Study 2 was interviewing athletes individually rather than interviewing doubles racquet partners together. Interviewing athletes together could produce a more in-depth look at the dynamics between the two and how they each respond (and see each other respond) to their partner’s play. Future research could extend the findings of this study by interviewing dyads together to help inform future interventions. The other limitations were a lack of sport specific measures and baseline measures in Study 3. Future research in doubles racquet sports could add to this literature by employing a longitudinal design similar to Tamminen et al. (2019) with baseline measures of trust and social support. Researchers may also consider other variables that may have an influence on the dynamic between partners and performance, such as quality of the relationship, the power dynamic, and emotional intelligence. This type of research would help understand the fluctuations in IER, trust, social support, and other important variables over a season, in addition to how an athlete’s partner is playing (poor versus well). Development of valid and reliable measures of IER in sport would help continue the work in this area, as well as making it accessible for coaches, athletes, and practitioners to use for their own assessment. Overall, despite being able to generalize across doubles racquet sports, it should be determined if this research can extend to other dyad sports, such as diving. Research needs to be continued within dyads and the significant impact a partner can play on the performance of their teammate, as well as the use of IER.

Implications

This dissertation provides insight about the effects of partner play on emotions, coping and IER in doubles racquet sports. Athletes in these dyads as well as coaches can use this

information to help understand and improve the emotion regulation process for themselves and their teammates. By taking into account how one's teammate affects their own performance and understanding how to cope is important for reducing the potentially negative impact on performance. Athletes and coaches may also want a deeper understanding of how and when they can use IER to improve a teammate's emotion during poor performance. This information is important for athletes, coaches, and mental performance consultants looking to produce or test interventions aimed at improving emotional regulation and performance. Future research investigating methods to understand the impact of partner play and the use of IER is still needed to help inform future interventions. These interventions could help reduce the negative impact of partner play on emotions, motivation, performance, and potential fluctuations in trust. Together, the present studies reiterate the importance of emotions and emotion regulation in sport and stress the importance of accounting for other individuals, not only for how they may perform, but how some athletes use outside sources (i.e., their partner) to regulate their own emotions.

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Tamminen, K. A., Page-Gould, E., Schellenberg, B., Palmateer, T., Thai, S., Sabiston, C. M., & Crocker, P. R. (2019). A daily diary study of interpersonal emotion regulation, the social environment, and team performance among university athletes. *Psychology of Sport and Exercise*, 45, 101566. <https://doi.org/10.1016/j.psychsport.2019.101566>

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Williams, W. C., Morelli, S. A., Ong, D. C., & Zaki, J. (2018). Interpersonal emotion regulation: Implications for affiliation, perceived support, relationships, and well-being. *Journal of personality and social psychology*, 115(2), 224. DOI: 10.1037/pspi0000132

Curriculum Vitae

Sarah Deck

EDUCATION

2009 - 2013	BSc, Sport and Exercise Science Minor in Psychology	Gannon University
2014 - 2016	MSc, Applied Health Science Thesis: Project MO.T.A. R: Motivation Towards Athlete Recovery	Brock University
2016 - 2020	PhD Candidate Thesis: The Impact of Partner Play in Doubles Sport & Interpersonal Emotional Regulation	Western University

RELEVANT CLASSES AND RESEARCH

- The Theory and Practice of University Teaching (Graduate Level)
- Measurement Issues in Applied Health Research (Graduate Level)
- Psychological Approaches to Health Behaviour Change (Graduate Level)
- Quantitative Data Analysis and Interpretation (Graduate Level)
- Psychological Interventions (Graduate Level)
- Selected Topics in Exercise and Health Psychology (Graduate Level)
- Sport Psychology: Theory & Application (Undergraduate Level)

Refereed Contributions

- R** **1. Deck, S.,** Hall, C., & Wilson, P. M. (2020) Impact of partner play in doubles sports. *Research Quarterly*. doi: 10.1080/02701367.2020.1726270
- R** **2. Deck, S.,** Ross, R., Hall, C., & Kouali, D. (2019). *Perfectionism, exercise behaviour and exercise enjoyment using the 2^x2 model*. *International Journal of Sport and Exercise Psychology*. 10.1080/1612197X.2019.1581830
- R** **3. Desantis, B., Deck, S.,** Hall, C., (2019). *Investigating the circumstances under which singers use imagery*. *Psychology of Music*. [10.1177/0305735619868299](https://doi.org/10.1177/0305735619868299) [Co-author role: data analysis; writing and revising manuscript]

- R** 4. Cooke, L., Duncan, L., **Deck, S.**, Hall, C., & Rodgers, W. (2019) *An examination of changes in exercise identity during a mental imagery Intervention for female exercise initiates*. *International Journal of Sport and Exercise Psychology*. 10.1080/1612197X.2019.1593216 [Co-author role: writing and revising manuscript]
- R** 5. **Deck, S.**, Wilson, P. M., & Mack, D. E., (2018). *Rehabilitation following a sports injury: Do the motives of athlete and athletic therapist matter?* *Archives of Physical Health and Sports Medicine*, 1(2), 1-7.
- R** 6. **Deck, S.**, Kouali, D., & Hall, C. (2018). *Effects of imagery and mindfulness on anxiety, confidence, mental well-being, and performance in shot putt throwers: A case study*. *The Journal of Emerging Sport Studies 1*, 1-13.
- R** 7. **Deck, S.** (2016). *Project M.O.T.A.R: Motivation toward athlete recovery* (Master's thesis). <http://hdl.handle.net/10464/10101>
- R** 8. Pope, J. P., Wilson, P. M., Mack, D. E., & **Deck, S.** (2015). *What is the role of perceived coach-athlete interactions in relation to markers of goal progress? An application of self-determination theory*. In P. Davis (Ed.), *The Psychology of Effective Coaching and Management* (pp. 183-202). Hauppauge, NY: Nova Science. [Co-author role: writing and revisions]

Other Refereed Contribution

- R** 1. Patil, S., **Deck, S.**, Doherty, A., Hall, C., Belfry, G., Schneider, A. (June 2020) *Faster, Higher, Stronger, Older: Benefits of Masters Sport and Implications for Older Adults' Participation*. Oral Presentation to be presented at the annual meeting of the North American Society for Sport Management, San Diego, California.
- R** 2. **Deck, S.**, Patil, S., Belfry, G., Doherty, A., Hall C., & Schneider, A. (October 2019) *The psychological and social benefits of being a master's athlete*. Poster presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, Vancouver, BC.
- R** 3. **Deck, S.**, Desantis, B., Kouali, D., & Hall, C. (May 2019) *Coping and Emotional Regulation in Doubles Racquet sports*. Poster presented at the annual meeting of the North American Society for the Psychology of Sport and Physical Activity, Baltimore, MD.
- R** 4. **Deck, S.**, Desantis, B., Kouali, D., & Hall, C. (2018) *A Qualitative approach to understanding the impact of partner play in doubles racquet sports*. Poster presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, Toronto, ON.

- R** **5. Deck, S.,** Kouali, D., & Hall, C. (2018) *Effects of mental imagery use on anxiety, confidence, mental well-being, and performance in track and field athletes*. Poster presentation at the Annual Kinesiology Symposium, Western University, ON. April 25th, 2018
- R** **6. Deck, S.,** Kouali, D., & Hall, C. (2018) *Effects of mental imagery use on anxiety, confidence, mental well-being, and performance in track and field athletes*. Poster presentation at the Western Research Forum, Western University, ON. March 16th, 2018
- R** **7. Deck, S.,** Mack, E., Kwan, Y. W., Gunnell, K.E., & Wilson, P. M. (2016) *Modifying the Treatment Self-Regulation Questionnaire to measure motives for rehabilitating from an athletic injury: Project M.O.T.A.R.* Poster presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, St. John's, NL.
- R** **8. Jacobs, K.,** Woehrle, E., **Deck, S.,** Kouali, D., Humphreys, D., Hall, C., & Shoemaker, K. (2017) *Pilot Study: Heart Rate Variability and Mental Health Outcomes in University Female Hockey Players*. Poster presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, St. John's, NL. [Co-author role: data analysis]
- R** **9. Deck, S.,** & Hall, C. (2017) *Emotions and Coping in Doubles Racquet Sports*. A proposal presentation at The Kinesiology Graduate Student Association Symposium, Western University.
- R** **10. Deck, S.,** Mack, E., Kwan, Y. W., & Wilson, P. M. (2016) *Rehabilitation following sports injury: Does it matter why the athlete and athletic therapist approach treatment?* Poster presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, Waterloo, ON.
- R** **11. Deck, S.,** & Wilson, P. M. (2016). *Social Contagion: Does the type of motivation matter when an athlete is trying to recover from an injury?* Paper presented at the annual meeting of Eastern Canada Sport and Exercise Psychology Symposium, Hamilton, ON.
- R** **12. Deck, S.,** Pope, J. P., Mack, D. E., & Wilson, P. M. (2015). *Preliminary evidence for the differential effects associated with identified and intrinsic regulations within competitive sport: A replication and extension study*. Paper presented at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology, Edmonton, AB
- R** **13. Deck, S.,** Pope, J. P., Mack, D. E., & Wilson, P. M. (2015). *How are National Rugby Players Motivated?* Poster presented at the Mapping New Knowledge Conference, Brock University, St. Catharines, ON.
- R** **14. Wilson, P. M.,** Mack, D. E., Gunnell, K. E., Pope, J. P., & **Deck, S.** (2014). *On the nature and function of Scoring Protocols Used in Sport Motivation Research: An Empirical Study of the Behavioural Regulation in Sport Questionnaire*. Paper presented

at the annual meeting of the Canadian Society of Psychomotor Learning and Sport Psychology, London, ON. [Co-author role: data analysis; presenter]

Non-Refereed Contributions

1. Co-supervisor for research project of Kinesiology Undergraduate Student (September 2019-April 2020) *Imagery Preference in Athletes*
2. Guest Lecture in undergraduate course *Psychological Interventions*, Western University (April 9th and April 11th, 2018): *Chapter 10 – Coping with Emotions in Sport*
3. Guest Lecture in graduate course *Psychological Interventions*, Western University (March 2018): *Impact of Partner Play in Doubles Sport*
4. Individual/Group Sessions and Lectures for *NextGen Athletes* Western Hub in partnership with Canada Sport Institute and Rowing Canada (March 2018 – present)
5. Co-supervisor for research project of Kinesiology Undergraduate Student (September 2017-April 2018) *Possible selves and imagery combined intervention*
6. Western University School of Medicine Guest Lecture/Workshop (September 2017) *The Road to Success: Learning Mental Skills to Enhance Performance*
7. Sport Psychology Sessions offered to varsity level athletes (September 2016 – present).
8. OHRSA Guest Lecture (April 2017) *Coping Strategies for Sport*

Forthcoming Contributions

1. **Deck, S.**, Ross, R., Hall, C., & Kouali, D. (2020 Resubmitted following revisions). *SPA and exercise using the 2^x2 model*. International Journal of Sport and Exercise Science.
2. **Deck, S.**, Desantis, B., Kouali, D., & Hall, C. (2019 Submitted) *A Qualitative understanding of the impact of partner play in doubles racquet sports*. Journal of Clinical Sport Psychology.
3. **Deck, S.**, Nagpal, T., Morava, A., Farhat, J., Sanchez, F., & Prapavessis, H. (2019 Submitted). *Tobacco use among varsity athletes – why do they do it and how do we make it stop: An exploratory mixed methods evaluation*. Journal of Smoking Cessation.
4. Smith, S., **Deck, S.**, Prapavessis, H. (2019 Submitted). *Student and faculty perceptions of standing and dynamic sitting in the university classroom*. Journal of Ergonomics. JER-19-1843 [Co-author role: data analysis and revising manuscript]

5. **Deck, S.,** Ross, R., & Hall, C. (In Progress). *Exercise dependency and exercise using the 2x2 model.*
6. **Deck, S.,** Belfry, G., Hall C., Doherty, A., Patil, S., & Schneider, A. (In Progress) *Time, frequency and perceived exertion of training and competition, and the subjective experience of master's athletes*
7. **Deck, S.,** Hall C., Doherty, A., Patil, S., Belfry, G., & Schneider, A. (In Progress) *Benefits of master's sport.*

AWARDS

- 2019 – 2020 Ontario Graduate Scholarship
- 2019 – 2020 Bert Carron Graduate Scholarship in Sport and Exercise Psychology
- 2016 – 2020 Western Graduate Research Scholarship
- 2016 – 2017 Ontario Graduate Scholarship
- 2009 – 2013 Athletic Scholarship received and maintained for collegiate soccer
- 2009 – 2013 Pennsylvania State Athletic Conference (PSAC) Scholar Athlete:
Maintained above a 3.0 GPA while playing a college level sport

TECHNICAL EXPERTISE

- Member of the Sport and Social Impact Research Group (SSIRG), Western University
- Research Assistant for SSIRG Master's Athlete Study (September 2018 – September 2019)
- Teaching Assistant (2014 – 2016; 2017-2018; 2020)
 - Research Design and Evaluation
 - Quantitative Analysis
 - Interventions in Sport, Exercise and Rehabilitation Psychology
 - Psychology of Exercise
 - A Survey of Physical Growth and Motor Development
- *Own Your Future* Professional Development Program
 - Teaching in the Intercultural Classroom
 - Developing Leader Character – Leader Contagion
 - Presenting your Research to Diverse Audience

