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Emotions in Sport:
The Effect of Conflict on Collegiate Athlete's
Emotional Contagion, Self-efficacy, and Cohesion

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Abstract

This study investigated the relationship between emotional contagion, self-efficacy, and cohesion. A sample of 117 athletes, from a variety of sports and universities completed online surveys that consisted of an adapted Group Environment Questionnaire (GEQ) to measure cohesion, an Emotional Contagion Scale (ECS) measuring susceptibility to emotional contagion, and a three question Self Efficacy measure. Findings indicated that emotional contagion has a negative play a role in both self-efficacy beliefs and perceived team cohesion. Further, negative emotions reduced self-efficacy beliefs more than positive emotions, while positive emotions increased athletes' perceptions of team cohesion. This study concludes with applications for real world settings and suggestions for further research.

Introduction

I have played tennis for 14 years. During my school years I was intrigued by the focus on the individual for singles, and how quickly athletes were expected to turn around and focus on the team, or partnership, for doubles. As I developed in my sport I was able to see the emotions of athletes affecting those around them. Seeing how a team experienced a call going against them, or one of their teammates getting injured, and watching how the team pulled together to overcome the obstacles was something that inspired me often. The ability for an athlete to connect with their team's mentality often seems to mean the difference between a win and a loss. I have wondered if there is any connection between an athlete's ability to connect with their team and their own belief that they can win. After coming to college and experiencing tennis as a team sport as opposed to primarily individual, these questions have been more prominent. My experiences with athletes and athletic teams have led to this study that examines emotional contagion, self-efficacy, and team cohesion.

Emotional contagion is defined as "a tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person's and, consequently, to converge emotionally" (Hatfield, Cacioppo, & Rapson, 1994, p. 5). One context where emotional contagion could appear would be in sporting teams. Sports teams and their relevant, invested stakeholders have a particular interest in how different human relationships between individual athletes and a group of athletes can affect the overall output of the team. Therefore, this study examines emotional contagion and its impact on team cohesion and self-efficacy.

Team cohesion has been positively linked with team performance (Karreman, 2010). Cohesion is defined as “a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213). Team cohesion has been positively linked to a number of important outcomes including; increased willingness to accept responsibility for negative results (Brawley, Carron, & Widmeyer, 1987), decreased use of self-handicapping strategies (Widmeyer & Williams, 1991), reduced anxiety (Eys, Hardy, Carron, & Beauchamp, 2003; Prapavessis & Carron, 1996), and reduced depression (Terry et al., 2000).

Self-efficacy has also been related to higher performance because of its relationship with the effort expended per task (Bandura, 1977). Self-efficacy is defined as “a person’s belief in his/her ability to perform as specific task” (Vargas-Tonsing, 2009). According to Allen, Jones, & Sheffield (2009), “Relatively little is known about the factors that contribute to emotional states and efficacy beliefs in competitive groups” (p. 214). Therefore, this research aims to address the gap in literature by examining athlete’s emotions as they might relate to self-efficacy and team cohesion. Collegiate sports teams provide a setting that combines competition, cohesiveness, and emotion. In addition, individual athletes on college teams often have a strong sense of identity, usually spend multiple years together, and the importance of outcomes create a high-pressure environment.

This paper will outline the existing research regarding emotional contagion, cohesion, and efficacy and their connection to sports. It will then move on to describe the

methodology used for this research. Finally, the paper will outline the results and conclude with recommendations for future studies.

Literature Review

Emotional Contagion

Building on the previous definition offered, it is believed that the process of emotional contagion is the primary mechanism through which emotions are shared, creating “collective emotion” (Barsade & Gibson, 1998). It is effectively the conscious or unconscious “catching” of emotions from the people with whom one communicates. For example, office workers could find their mood affected by a coworker who constantly complains, or is depressed. Similarly, one’s spirits may be lifted at work when positive and cheerful colleagues surround them. Hatfield, Racioppo, & Rapson (1994), suggest that emotional contagion can manifest as responses that are either similar (e.g., as when smiles elicit smiles) or complementary (e.g., as when a fist raised in anger causes a timid person to shrink back in fear), the latter process sometimes referred to as countercontagion (p. 5). The entire process can be simplified as: an emotion, expressed verbally or nonverbally arises from person A, it affects person B, causing person B to respond with verbal or nonverbal expressions that are similar or corresponding to person A. (Hatfield, Racioppo, & Rapson, 1994, p. 5).

The study of people’s ability to influence one another affectively has a long history (Levy & Nail, 1993). Emotional contagion has been explored as long ago as 400 B.C., when Hippocrates coined the term ‘hysteria’ to refer to the passing of an agitated state from unmarried women to other unmarried women (Veith, 1965). More recent research has focused on less dramatic, but important day-to-day contagion effects.

Studies of emotional contagion have highlighted that “the perception of an emotional expression can cause the viewer to mimic elements of that expression and, consequently, to experience the associated feeling state” (Doherty, 1997, p. 134). Another person’s emotion is not just sensed or understood, rather, to varying degrees it is “caught and expressed in a manner characteristic of the particular emotion”(Doherty, 1997, p. 149).

According to Barsade (2002), “to date, most evidence for emotional contagion comes from the automatic, primitive contagion approach, which focuses on the subconscious and automatic transfer of emotions from person to person” (p. 647), as opposed to the more conscious emotional comparison processes. This primitive contagion occurs through a very fast process of automatic, continuous, and synchronous nonverbal mimicry and feedback (Hatfield, Cacioppo, and Rapson, 1994). The process of emotional contagion can be split into two steps: the initial mimicry and the following experience of the emotion(s). The mimicry includes both verbal and nonverbal cues: facial expressions (Dimberg, 1982; Lundqvist and Dimberg, 1995), body language (Bernieri, 1988; Chartrand and Bargh, 1999), speech patterns (Ekman, Friesen, and Scherer, 1976), and vocal tones (Hatfield et al., 1995; Hietanen, Surakka, and Linnankoski, 1998; Neumann and Strack, 2000). It is the mimicking behavior that has the ultimate affect on the “catching” of another person’s emotions and leads into the second step of actually experiencing the emotion of another person. “As myriad facial, postural, and vocal feedback studies have shown, once people engage in the mimicking behavior, they then experience the emotion itself” (Barsade, 2002, p. 648).

Researchers believe there is some evidence to support a second, “more cognitively effortful set of processes through which emotional contagion can occur”

(Barsade, 2002, p. 648). In this circumstance, social comparison processes would be used to compare moods with others in their environment and then respond according to what seems appropriate for that situation (Schachter, 1959; Adelman and Zajonc, 1989).

Therefore, the recipient is using the emotion as a “type of social information to understand how he or she should be feeling” (Barsade, 2002, p. 648). While there is some evidence to support that alternative, the present study focuses primarily on the automatic and unconscious processes that lead to emotional contagion.

In a sport setting emotions can be shared through facial expressions, body language, and verbal communication and then be mimicked and transferred among teammates (Hatfield, Cacioppo, & Rapson, 1994). An important consequence of emotional contagion for teams and groups is that the same emotional and behavioral responses an individual feels, positive or negative, is mirrored in the team (Hatfield, Cacioppo, & Rapson, 1994, p. 5). Therefore, negative emotions for one team member can affect the entire team’s emotional state. According to Barsade (2002), these collective emotions play an important role in determining future team performance. In addition to affecting performance, emotional contagion has also been related to group identity, “the development of group emotion is what defines a group and distinguishes it from merely a collection of individuals” (Barsade, 2002, p. 644). This suggests a link between emotional contagion and cohesion on a team.

Current research of emotional contagion has primarily focused on individuals or organizational group settings and less on athletic team’s susceptibility to emotional contagion. Many different factors contribute to a person’s susceptibility to emotional contagion, such as genetics, gender, early experience, personality characteristics,

temperament, distractibility, attention span, and threshold and intensity of responsiveness (Doherty, 1997). According to Hatfield et al. (1992, 1994), “people especially susceptible are those who (a) pay close attention to others and are able to read others’ emotional expressions, (b) construe themselves as interrelated with others rather than independent and unique, (c) tend to mimic facial, vocal, and postural expressions, and (d) whose conscious emotional experience is powerfully influenced by peripheral feedback” (Doherty, 1997, p. 134). Considering how much time sports teams spend together on and off the field the opportunities to “catch emotion”, if one is susceptible, is likely quite high. In recognizing the valuable role that emotions play in sports teams, it becomes central to understand how these emotions are transferred and what other team outcomes are affected by emotions.

To summarize this section, the literature suggests that although emotional contagion has been a part of society for many years, only recently has research begun to investigate it. The literature also tells us that the perception of an emotional expression can cause an individual to mimic elements, verbal and nonverbal, of that expression and to consequently experience the associated emotional state. The emotional response can be congruent or complimentary, and may be expressed cognitively, physiologically, and behaviorally. Some research suggests that positive collective emotions correlate with better performance. However, the relationship between the susceptibility to emotional contagion in relation to both self-efficacy and cohesion has not yet been addressed.

Team Cohesion

A simplistic definition of team cohesion is “the degree to which team members work together as they pursue the team’s goals” (Mach, Dolan, & Tzafrir, 2010). Team

cohesion and its relationship with performance has been the topic of many studies in the hopes of better understanding the relationship (Zakrajser, Abildso, Hurst, & Watson, 2007). Evidence suggests that team cohesion affects team performance and team relationships (Calnan & Rowe, 2007; Hansen, Morrow, & Batista, 2002; Thau, Crossley, Bennett, & Sczesny, 2007; Luria, 2008; Gilbert & Tang, 1998). Findings by Carron et al. (2002), showed that the relationship between cohesion and performance in sports teams is significant and indeed stronger than in other groups or working teams. Characteristics of a cohesive group include greater levels of interaction and cooperation between group members (Carron, 1982; Widmeyer, Brawley, & Carron, 1985).

The reasoning behind the link between cohesion and performance is believed to be because “highly cohesive groups tend to be more united and committed to success than groups with little cohesion” (Mach, Dolan, & Tzafrir, 2010). Or to put it another way, teams can perform better than the sum of the individual performers because united groups are better able to use their capabilities with efficiency and effectiveness since they know their teammates better and are more committed to successfully completing the task in front of them.

Due to the expansive interest in the study of cohesion, some social scientists have described cohesion as the most important small group variable (Golembiewski, 1962; Lott & Lott, 1965). However, a study of Olympic athletes in different interactive sports revealed that although teams with little cohesion were more likely to underperform, cohesiveness was just one of several important factors affecting performance (Gould et al., 1999). While cohesion is significantly related to performance it is not the sole contributing factor to team success.

To summarize, researchers of team cohesion agree that team cohesion is positively related to team performance along with other contributing factors. Team cohesion is defined as how team members work together to achieve their shared goals, but it also represents an implied relationship between teammates that includes trust, greater cooperation and more interaction. These factors can lead to more effective team performance. This study will explore the extent to which emotional contagion might be related to team cohesion.

Self-Efficacy

Efficacy beliefs “are concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses” (Bandura, 1986, p. 391). Self-efficacy is defined as a “person’s belief in his/her ability to perform a specific task” (Vargas-Tonsing, 2009, p. 193). According to Bandura (1977), the stronger the efficacy beliefs, the stronger the effort put forth. Efficacy beliefs have been linked not only with effort expended but also how long an individual will persist toward a goal when faced with obstacles (Vargas-Tonsing, 2009). Many researchers, though not all, have demonstrated a positive correlation between efficacy beliefs and athletic performance (Feltz, 1982; George, 1994; Miller, 1993; Weinberg, Gould, Yukelson, & Jackson, 1981).

Bandura (1977) believes self-efficacy is influenced through four principal sources of information: (a) performance accomplishments, (b) vicarious experiences, (c) verbal persuasion, and (d) emotional arousal. Since then, researchers have added to these influences by suggesting one’s emotional states (Maddux & Meier, 1995; Treasure, Monson & Lox, 1996) and imagined experiences (Maddux, 1995) are also efficacy sources. Others concur with the idea that one’s emotional state may be a supplementary

source of information used to form efficacy beliefs, suggesting that emotions “act as a filter through which people view efficacy information” (Kavanagh & Bower, 1985, p. 508). Subsequent research suggests that the link between emotions and efficacy beliefs is worth exploring. “In 1977, Weiner suggested that motives were largely determined by emotions” (Vargas-Tonsing, 2009, p. 95). Researchers found that positive affective states are associated with elite performers’ desire to continue to perform and exert effort (Scanlan, Stein, & Ravizza, 1989). Further, a study by Kavanagh and Hausfeld (1986) that induced happy and sad moods using an audiotape and then measured handgrip and push-up performance, resulted in “a significant difference for performance between happy and sad groups with the happy group reporting high feelings of efficacy and greater expectations for personal performances” (Vargas-Tonsing, 2009, p. 95). Taken together, research shows that a person’s mood, or emotional state, can impact both performance and motivation which suggests that “attaining the appropriate level of emotion may be an extremely important aspect of sport performance” (Vargas-Tonsing, 2009, p. 95).

Collective efficacy has been explored less than its individual counterpart. However, it is defined as a team’s collective perception that it can perform successfully (Lindsley, Brass, & Thomas, 1995). According to Bandura (1997), collective efficacy beliefs are similar to self-efficacy beliefs in that they can be used to explain how much effort is put forth as well as how likely an obstacle will be challenged before giving up. The research on collective efficacy is relatively limited, but researchers believe that as an extension of self-efficacy literature “should play an important role in explaining how teams respond to failure both in terms of their subsequent goals and their subsequent

performance” (Porter, Gogus, & Yu, 2011, p. 647). Due to the difficulty in accessing an entire team to evaluate collective efficacy results, this research will focus on self-efficacy. It is hoped that by examining it in relation with perceived team cohesion this study will be able to gain a somewhat holistic view of efficacy beliefs.

In sum, self-efficacy is defined as a person’s belief that he or she can perform the task at hand successfully. The relationship between efficacy and emotional state has already been identified, but not studied extensively enough. It is accepted by researchers that a higher degree of confidence in one’s ability to perform well is positively related with the overall success for that individual or team. This study hypothesizes that both cohesion and self-efficacy are both positively correlated with a susceptibility to emotional contagion.

Rationale

The importance’s of team cohesion and self-efficacy have both been researched and are positively linked to team performance. It is also generally accepted by researchers that emotions and emotional states can significantly affect team cohesion and self-efficacy. Yet, the phenomenon of emotional contagion on a team has not been addressed in this context.

Research Questions

1. Is emotional contagion related to perception of self-efficacy?
2. Is emotional contagion related to perception of athletic team cohesion?
3. Is perception of self-efficacy related to perception of athletic team cohesion?

Methodology

Sample

The sample was made up of 117 student-athletes from a variety of West Coast and Midwestern universities. The athletes were both male and female and participated in 17 different NCAA sanctioned sports. The athletes all participate in NCAA Division 1 or 2 conferences. They range in age from freshman (>17 years of age) to seniors (<23 years of age).

Procedure

The University of Portland's Institutional Review Board (IRB) approved this study. The study consisted of three scales, an open ended question and demographics. The first was a revised emotional contagion (EC) scale originally devised by Doherty as a short, reliable, unidimensional measure of individual differences in susceptibility to emotional contagion. The original scale contained fifteen questions that included the following emotions; happiness, love, fear, anger, and sadness. The revised scale ended up with thirteen questions with the emotion of love being ruled out as less prominent in an athletic setting. The remaining four emotions remained. The wording was altered slightly to include "teammate" in every question to make it more applicable to athletic teams. For example, "If someone I'm talking with begins to cry, I get teary-eyed", became; "If I'm talking to my teammate and they begin to cry, I feel badly". The EC Scale is reliable with Cronbach's alpha .90 (Doherty, 1997).

The second scale that was used was the group environment questionnaire (GEQ) developed by Carron (1985), comprising four scales reflecting the constructs of group integration-task, group integration- social, individual attractions to group-task, and

individual attraction to group-social. The reliability of the four parts of the scale were found to be reliable, the Cronbach's alphas were .75, .64, .70, and .76, respectively (Carron & Widmeyer, 1998).

Finally, the third scale used to measure self-efficacy was designed by Vargas-Tonsing (2009). The simple, three question scale original was designed to be short as the study in which it was used required respondents to fill it out right before a game. This study does not have this time restraint and therefore was able to expand the questions to provide a contextual response. The original questions included; at this moment, how certain are you that: you can play well against this team, play to the best of your ability, can positively contribute to the team's victory? For this study the same questions were used, however they were used in relation to a hypothetical situation. For example: "Shortly before a game, a teammate whom you like very much, found out that her boyfriend cheated on her. She was extremely upset and crying. She shoerwed and everyone went onto the field/court". Three of these hypothetical situations were used, one representing sadness, one anger and fear, and one happiness.

All of the scales were adapted to use a 5-point Likert format that ranged from absolutely certain, fairly certain, neutral, not certain, not certain at all (for the self-efficacy questions) and strongly disagree, disagree, feel neutral, agree, strongly agree (for GEQ and EC scale). Finally, there was one question at the beginning of the questionnaire that presented respondents with the opportunity to describe a situation where something emotional happened to a teammate before a game and how it affected their performance. The original self-efficacy scale, GEQ, and EC scale have all been tested and proven to be

reliable. No significant changes were made to the content and context of the questions in the revisions for this study.

Participants for this study were recruited primarily via a broadcast email sent out to individuals, and to coaches to distribute among teams, as well as a Facebook post including the link to surveygizmo.com. The questionnaire began with a copy of the IRB Consent Form and the online medium allowed anonymity of the participants. All results were shredded after the data was coded and analyzed.

The data was analyzed using bivariate correlation analyses. Bivariate correlation were run to determine the relationship between emotional contagion, efficacy beliefs, and cohesion. The Emotional Contagion Scale was divided into its subscales relating to different emotions of fear, anger, sadness, and happiness. Each was tested for reliability, though none of the tests were as reliable as the scale as a whole, these were used to test the relationship of the emotion subscales with self-efficacy beliefs and team cohesion.

Data Collection and Analysis

Reliability

The Self-Efficacy Scale is highly reliable with a Cronbach's alpha .869. The revised Emotional Contagion Scale needed variables 39 and 45 reverse coded, and is highly reliable with a Cronbach's alpha .838. Team Cohesion Scale was highly reliable with Cronbach's alpha .842. Variables 16, 17, 18, 19, 21, 22, 23, 26, 28, 29, 32, and 33 reverse coded. The subscales of emotional contagion were not as reliable as the overall scale, but for exploratory purposes we teased out the various emotions represented in the overall scale to see if any trends might be discerned. Both ECS happiness and Anger had

Cronbach's alpha .636, while Fear and Sadness had Cronbach's alpha .604 and .635 respectively.

Results

Research question 1:

Emotional contagion refers to the susceptibility of "catching" emotions from teammates. The question asked if emotional contagion was related to a player's personal self-efficacy, that is their judgment about their ability to perform well. The bivariate correlation suggested that there was a moderately negative significant correlation ($r = -.223$; $p < .016$). As susceptibility to emotional contagion increases, there is a tendency for self-efficacy to decrease.

Correlations: Contagion and Efficacy

		Emotional Contagion	Perceived Efficacy
Emotional Contagion	Pearson Correlation	1	-.223*
	Sig. (2-tailed)		.016
	N	117	117
Perceived Efficacy	Pearson Correlation	-.223*	1
	Sig. (2-tailed)	.016	
	N	117	117

*. Correlation is significant at the 0.05 level (2-tailed).

Research question 2:

A Pearson Bivariate Correlation was run to see if there is a relationship between susceptibility to emotional contagion and an individual's perceived team cohesion, that is the degree to which an athlete believes their team works together to achieve collective goals. A significant, positive correlation was found ($r = .262$; $p < .004$). Athletes who are more susceptible to emotional contagion are more likely to perceive team cohesion.

Correlations: Contagion and Cohesion

		Cohesion Scale	Emotional Contagion
Cohesion Scale	Pearson Correlation	1	.262**
	Sig. (2-tailed)		.004
	N	117	117
Emotional Contagion	Pearson Correlation	.262**	1
	Sig. (2-tailed)	.004	
	N	117	117

** . Correlation is significant at the 0.01 level (2-tailed).

Research Question 3:

When considering the relationship between self-efficacy beliefs and perceived team cohesion the bivariate correlation showed a small, but significant positive correlation ($r=.217$; $p<.019$). This suggests that as team cohesion increases, perceived self-efficacy also increases.

Correlations: Efficacy and Cohesion

		Perceived Efficacy	Cohesion Scale
Perceived Efficacy	Pearson Correlation	1	.217*
	Sig. (2-tailed)		.019
	N	117	117
Cohesion Scale	Pearson Correlation	.217*	1
	Sig. (2-tailed)	.019	
	N	117	117

*. Correlation is significant at the 0.05 level (2-tailed).

Subscale Results

Happiness and Efficacy

Although the emotional contagion scale demonstrated a negative correlation with perceived self-efficacy there is no significant correlation ($r=.060$; $p<.522$) between the

susceptibly of emotional contagion and the influence of happiness in the team environment and perceived efficacy.

Fear and Efficacy

There is a significant negative correlation ($r=-.345$; $p<.000$) between the susceptibility to emotional contagion and the presence of fear in the team environment and perceived efficacy. This suggests that as susceptibility to emotional contagion increases and the athlete is exposed to fear in the team, the athlete's perception of their ability to perform decreases.

Correlations: Fear and Efficacy

		Perceived Efficacy	ECS (Fear)
Perceived Efficacy	Pearson Correlation	1	-.345**
	Sig. (2-tailed)		.000
	N	117	117
Emotional Contagion Scale (Fear)	Pearson Correlation	-.345**	1
	Sig. (2-tailed)	.000	
	N	117	117

** . Correlation is significant at the 0.01 level (2-tailed).

Anger and Efficacy

Anger also showed a significant negative correlation ($r=-.192$; $p<.038$) with perceived efficacy, suggesting that as the susceptibility to contagion of emotions increases, along with the presence of anger in the team, the athlete's perception of how well they can perform decreases.

Correlations: Anger and Efficacy

		Perceived Efficacy	ECS (Anger)
Perceived Efficacy	Pearson Correlation	1	-.192*
	Sig. (2-tailed)		.038
	N	117	117
Emotional Contagion Scale (Anger)	Pearson Correlation	-.192*	1
	Sig. (2-tailed)	.038	
	N	117	117

*. Correlation is significant at the 0.05 level (2-tailed).

Sadness and Efficacy

A significant negative correlation ($r=-.201$; $p<.030$) also exists between the contagion of emotions relating to sadness and perceived efficacy, suggesting that as the susceptibility of contagion to emotions increases and sadness is in the team environment, the athlete’s perception of how well they can perform decreases.

Correlations

		Perceived Efficacy	ECS (Sadness)
Perceived Efficacy	Pearson Correlation	1	-.201*
	Sig. (2-tailed)		.030
	N	117	117
Emotional Contagion Scale (Sadness)	Pearson Correlation	-.201*	1
	Sig. (2-tailed)	.030	
	N	117	117

*. Correlation is significant at the 0.05 level (2-tailed).

Happiness and Cohesion

There is a significant positive correlation ($r=.373$; $p<.000$) between the susceptibility of emotional contagion, when happiness is present and perceived team cohesion. This suggests that as susceptibility to contagion increases, and happiness is in the team environment, the athlete’s perception of how well the team works to meet shared goals also increases.

Anger, Fear, Sadness and Cohesion

There is no significant correlation between the susceptibility to emotional contagion of fear, anger, or sadness and perceived team cohesion.

Correlations: Happiness and Cohesion

		Cohesion Scale	ECS (Happiness)
Cohesion Scale	Pearson Correlation	1	.373**
	Sig. (2-tailed)		.000
	N	117	117
Emotional Contagion Scale (Happiness)	Pearson Correlation	.373**	1
	Sig. (2-tailed)	.000	
	N	117	117

** Correlation is significant at the 0.01 level (2-tailed).

Discussion:

This study was conducted to determine the correlations between emotional contagion, cohesion, and self-efficacy within athletic teams. The results show that athlete's who are susceptible to emotional contagion are more likely to see their team as cohesive. One explanation is that athlete's who are more inclined to relate to their teammates on an emotional level are more likely to engage in communication and relational building with their teammates. This communication can result in a better understanding of their teammates, as well as foster open discussion about the goals of the team itself. Teammates who are less susceptible to emotional contagion may not be as empathetic to the emotional nuances that exist on a team. A teammate could inadvertently upset another teammate because of their "insensitivity" without the teammate knowing. This tension on the team could then lead to negative views of how cohesive the team is as a unit.

Interpreting the results related to subscales of the emotional contagion scale should be done with slight trepidation. The reliability of these scales as they stand alone was relatively low. However, the results do present significant findings when considered as trends within the data. For example, it appears that the susceptibility to emotional contagion of happiness is the only emotion from the scale that showed a positive correlation with perception of team cohesion. Therefore, in a team that has positive news, or positive team members who experience happiness more regularly, if athlete's are more susceptible to contagion then they will perceive greater cohesion within the team. On the other hand, if someone who more susceptible to contagion is surrounded by negative

emotions such as fear, anger, or sadness, then this study suggests that this will have little effect on the athlete's belief that the team is striving to reach their collective goals.

This result shows that for individuals who are highly susceptible to emotional contagion, creating a positive happy team environment is crucial to their perception of team cohesion. Team cohesion implies a greater level of interaction and cooperation between group members and in turn is significantly related to team performance and success (Williams & Widmeyer, 1991; Carron, Widmeyer, & Brawley, 1985). The positive correlation between cohesion and perceived self-efficacy in this study supports previous studies demonstrating a relationship between team cohesion and team success. Self-efficacy has been linked with effort given and to overall athletic performance (Bandurra, 1977). Literature suggests if an athlete believes that they can achieve the task at hand then they are more likely to achieve it. This study adds to the research that as team cohesion increases, so to does an athlete's belief in their ability to achieve their task. The reason behind this relationship could be that cohesion, the degree to which team members are working together as they pursue the team's goals, allows the athlete to feel supported in achieving the task at hand, as opposed to feeling as though they must achieve it on their own.

Efficacy beliefs have long been believed to be influenced by a multitude of sources (Bandura, 1977). Two such sources are linked to emotions; emotion arousal, and emotional states (Maddux & Meier, 1995; Treasure, Monson & Lox, 1996). This link has certainly been supported by the present study. Emotional contagion and self-efficacy were negatively correlated. This suggests that as susceptibility to the emotional turmoil of teammates increases, an athlete's belief of whether they can

perform the task at hand decreases. Further, the subscale interpretations showed that anger, fear, and sadness all mirrored this negative correlation, whereas happiness showed no relationship with self-efficacy beliefs. One explanation for this relationship is that as teammates are more in tune with the emotional turmoil of their teammates, they become distracted and less focused on their sport and in turn have less belief that they can achieve. Kavanagh & Bower (1985), suggest that emotions “act as a filter through which people view efficacy information” (p.508).

Knowing this, it is possible to understand how a team environment that is affected by negative emotions in one athlete and then “caught” and mirrored by the rest of the team can have negative effects on individual’s beliefs about their upcoming performance. What is significant is that happiness did not have any correlation with self-efficacy beliefs. This suggests that athletes who are more susceptible to emotional contagion are not necessarily more inclined to have lower self-efficacy beliefs. Instead, it demonstrates that the emotion itself, whether negative or positive, is a factor in both self-efficacy beliefs and perception of team cohesion.

The results of this study have the potential to influence the collegiate sporting world as well as workplaces with an emphasis on teams or groups. This research can be used to further understand the role of emotions, both negative and positive, in team environments. The results support popular literature surrounding emotional contagion that has explored how collective emotions play an important role in determining future team performance (Barsade, 2002). The positive link between emotional contagion and team cohesion suggests that collective emotions

do indeed have the ability to unite a team. However, the results also provide a cautionary tale in how the contagion of negative emotions on a team can result in poor performance.

Conclusion

Limitations

This study had some limitations. The first is through the use of hypothetical situations and questions. Although all three scales used had high reliability, it is widely accepted that studying groups in a container model with closed boundaries and fixed identities cannot yield results as applicable as coming from a study of bona fide groups (Frey, 2003). Athletic teams, especially collegiate ones, have significant history involved in their team evolution. Using questions that were related primarily to a team's history, or indeed having a researcher observe a team's emotional states and then take questionnaires as to their self-efficacy beliefs and perception of team cohesion would be more accurate. Using hypothetical situations that some athletes may not relate to is less reliable. A second limitation is that it is impossible for a researcher to determine how truthful an anonymous online response is. While honesty and integrity is assumed, it is not guaranteed. Finally, the phrasing of the questions were biased for gender in the self-efficacy questionnaire. The questions gave a hypothetical situation that included a female teammate. Many males that took the questionnaire could have been put off at considering a female as a teammate or felt marginalized by the survey's use of exclusive language. However, there were no significant correlations with gender and any of the scales, so it is hoped that this was less of an issue.

Further study

Due to the small but significant results that this study found, it is strongly believed that this area is worth continued study. Further research should focus on gaining real world insights in both the sporting arena and workplace environments. It would be highly beneficial to understand when emotional contagion is helpful to team performance, and when it can be harmful. The results in this study showed that positive emotions are linked to greater team cohesion in contagion environments, and negative emotions can have a destructive effect on an athlete's self-efficacy beliefs. However, the subscales used did not offer conclusive evidence to this, therefore further studies should focus on understanding the roles of a variety of different emotions that are applicable in athletic teams and work groups. Understanding in what environment emotional contagion can be helpful as opposed to harmful would be an extremely beneficial area for future study. Building off this, it follows that understanding these circumstances could then be used by team leaders, captains, coaches, managers, etc. to reinforce the team environment that promotes positive emotional contagion and help the team move quickly through harmful environments.

In conclusion, the importance for coaches and captains of athletic teams to understand how emotions effect their team is significant. In almost every sport, severe negative emotions, such as anger, may result in substantial problem for teams. For example, in college tennis, outward emotional displays of anger results in a point penalty, then a game penalty is given, if the behavior continues then a set penalty can be awarded and eventually on the fourth strike the match is considered forfeit and the team loses the potential for a point. In soccer, yellow and red cards provide a similar system to

discourage outward displays of negative emotions. Most modern sports have a similar penalty system designed to prevent athlete's from expressing their negative emotions. In college sports, games or matches can often be won or lost on one player's failure to control their emotion. For example, recently a college tennis match was taking place. The home team had lost the doubles point at the beginning of the day but had rallied together and were determined to win the four singles points they needed to clinch the match. Two teammates had won their singles matches against very tough opponents, resulting in achieving two of the four points that were needed, while the third teammate was still playing a long match. As two more teammates took the courts and began their singles matches, both taking the lead in their first sets, their other teammate who was still playing was being penalized points because of her negative emotions on the court. Eventually, over the course of five minutes the teammate was penalized a game at a critical moment in the third set resulting in the loss of the entire match. During this time the two teammates still competing had begun to lose their lead and eventually went on to lose their matches, resulting in a loss of the rubber 2-4.

This recent example in collegiate athletes demonstrates the volatility of putting young athletes in extreme pressure situations without the emotional awareness to help them recognize when their empathy with teammates can help or ruin them. Emotional contagion on any team or group has the potential to be a positive force for driving team performance past any individual expectations, or to be a negative force that destroys group members beliefs in themselves and the team. Understanding how to harness emotional contagion to be a positive influence on a team could be a key factor in determining and predicting team success in the future.

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