ATHLETES' FEELING STATES RELATED TO BEST AND WORST SOCCER GAMES AND THE COACHES' ABILITY TO RECOGNIZE THEM

Ieva Melanija Kibirkstis

Master's Thesis in Sport and
Exercise Psychology
Fall 2014
Department of Sport Sciences
University of Jyväskylä

ACKNOWLEDGEMENTS

I would like to thank Dr. Montse Ruiz for being my advisor and supervising my thesis, as well as John Nietfeld who gave me great feedback. I would also like to thank Dr. Maria Chasandra who helped me in the early stages of developing a thesis topic. Many thanks as well to all the guest professors who lectured the EMSEP program during our exchange at the University of Leipzig—your openness in sharing your experiences was truly appreciated.

I would also like to thank my family and friends back home in Montreal who supported me at a distance.

And finally, I would like to give my biggest thank you to all my sport and exercise psychology classmates and colleagues over the past two years. We got to know each other very well and gained so much knowledge from each other—the world of sport psychology is lucky to have so many bright minds entering the field.

ABSTRACT

Ieva Melanija Kibirkstis, 2014. Athletes' Feeling States Related to Best and Worst Soccer Games and the Coaches' Ability to Recognize Them. Master's Thesis in Sport and Exercise Psychology. Department of Sport Sciences. University of Jyväskylä. 55p.

The coach-athlete relationship is an important factor linked to the performance and well-being of athletes. Athlete's feeling states prior to performance and the ability of a coach to monitor these states are equally important. However, this area still lacks the study of the coach's ability to effectively "read" their players in their successful and unsuccessful performances. The purpose of this study was to examine the feeling states of eleven selected starters from a female Finnish 1st division football team prior to their best and worst games. A secondary aim was to assess the ability of the coaches to recognize their athletes' feeling states prior to their successful and unsuccessful games. A mixed methods approach was taken. First, emotional and other performance related states were assessed using the Psychobiosocial state scale (PBS-S) and the Emotional State Profile (ESP-40). Individual profiles were developed for each athlete and then compared at an intra-individual and inter-individual level, as well as according to playing position. Then, these profiles, along with the list of the names of the 11 starters, were given to the coaches for a matching exercise in order to test their ability to accurately recognize the feeling states of their players. As expected, with regards to the feeling states prior to best games, the PBS profiles showed higher scores for the functionally helpful modalities, and lower scores for the dysfunctional ones. The ESP-40 showed a moderate IZOF-iceberg pattern for the best games, which is characterized by high optimal scores and low dysfunctional scores. Interestingly, these profiles showed high positive (optimal and dysfunctional) scores and low negative (optimal and dysfunctional) scores, instead of the original assumption of high optimal and low dysfunctional scores. However, the profiles associated to worst games did not fit our expectations, as the profiles were flat, instead of demonstrating the inverse-iceberg shape that was expected. Finally, the coaches struggled to match the emotional profiles to the names of the players. This finding is in line with previous research that showed that coaches are inaccurate in recognizing their athlete's emotions, particularly in larger groups (Hanson & Gould, 1988). Further research in team sports and the coach-athlete relationship is required.

Keywords: emotion, soccer, coaching, feeling states, IZOF model.

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1 INTRODUCTION

In the field of sport, at all recreational and competitive levels, emotion finds a way to show itself—whether it is the anxious feeling of butterflies in the player's stomach or a coach yelling angrily at the referee after a questionable call—emotions are present and often become visible. These emotions and feelings can as much help as they can hinder an athlete's performance. It is therefore important for the athletes as well as the coaches to be aware and recognize the pre-performance emotions and feeling states in order to hopefully lead to a more consistent level of success.

This study has two aims. The first aim focuses on examining the feeling states of athletes prior to their best and worst games. The theoretical framework that guides the study is the individual zones of optimal functioning (IZOF) model (Hanin, 2000) that is used to describe emotions (pleasant and unpleasant) related to athletic performance. The second aim of this study is concerned with the ability and accuracy of coaches to recognize the performance-related states of their players.

This study is important in that it puts into question the common ideal that good coaches can *read* their players, as this concept has not yet been distinctly defined and no clear set of descriptors for *reading* their players have yet been established. Finding these descriptors and defining this *reading* could be helpful for athletes, in that they could know what to look for in a coach in order to pave a more clear road to success, and helpful for coaches, as they would have clearer guidelines for what they should do in order to improve as a coach in order to better develop their athletes. This study will consider the recognition of their players' feeling states prior to games as a factor determining how well the coaches *read* their players.

Another reason this study is important is that it will look closer into the individual feeling states of the athletes, thus giving a more specific look at the feeling patterns that athletes experience. As some athletes may find difficulty in defining their own optimal pre-competitive feeling state, gaining knowledge of the patterns of other athletes may serve as a model for them—as athletes currently use professional athletes as models for physical and technical skills, the same should be expected to be done for psychological skills.

2 LITERATURE REVIEW

2.1 Conceptualization of Emotion

Defining Emotion in Sport

The relationship between emotion and sport performance has been an ever-growing topic of study in the field of sport psychology. This study will follow Deci's (1980) definition of emotion as "a prompt reaction to an actual or imagined stimulus event, which involves a subjective experience (cognitive component), physiological response (arousal or activation), and action tendencies" (Robazza, Pellizzari, Bertollo, & Hanin, 2008, p1033), as well as "subjectively experienced psychophysiological reaction to a real or imagined event" (Vallerand & Blanchard, 2000; Woodcock, Cumming, Duda, & Sharp, 2012, p291). The link to sport has defined the function of emotion as an indication of the meaning of certain events and situations that aid in the prioritization of goals and the generation of a state of readiness that prepares one for the overcoming of obstacles or challenges in their environment (Frijda, 1986; Friesen, Lane, Devonport, Sellars, Stanley, & Beedie, 2013). Hanin (2007) however had a more holistic interpretation of emotion, thus defining it as "a category of experience that mirrors how a person views different aspects in the environment as well as what that environment means to that particular person" (Woodcock et al., 2012, p291). Nonetheless, finding the clear line between emotion and non-emotion can be difficult (Hanin, 2007), thus emotion should be considered as a rather ambiguous term. It is due to this ambiguity that the focus may be better placed on the performance-related experience, though defining that experience is yet another complication. A working definition of experience includes "the totality of past and present characteristics that determines the particular quality of a person's performance" (Hanin, 2004; Hanin, 2007, p33). In the context of sport, three types of performance-related experiences have been developed: state-like experiences, trait-like experiences, and meta-experiences. The first, the state-like experiences, are "emotional states as a component of situational, multimodal, and dynamic manifestations of total human functioning" (Hanin, 2004; Hanin, 2007, p33). Trait-like experiences are a more stable type of emotional pattern (emotion, disposition, quality) that reflect a consistent amount of athletic activity. Finally, meta-experiences consist of the "awareness, attitudes, preferences/rejections of ones experiences", thus the

reflection of one's experiences after various successful and unsuccessful performances; it can also be explained as the feelings an athlete has about their past, present, and/or anticipated emotional experiences and how they perceived those experiences to affect their performance and general well-being (Hanin, 2007, p33).

The terms emotion, mood, and affect are used interchangeably in everyday life, however for the sake of this study, the three terms will be used distinctively and will be defined. Mood can be defined as "an enduring state in which the individual does not know the causes of feelings experienced", thus is uncontrollable (Parkinson, Totterdell, Briner, & Reynolds, 1996; Jones, Lane, Bray, Uphill, & Catlin, 2005, p409). Emotion, which was defined earlier, is of shorter duration and triggered by a specific precursor (Lane & Terry, 2000; Jones et al., 2005). Affect is a broader term that refers to all things emotional, such as preference, emotion, and mood (Rosenberg, 2998; Jones et al., 2005).

It is important to keep in mind that emotional experiences vary considerably from one athlete to another; for example, a poor performance and thus negative experience for one athlete may be considered a great performance and experience for another. This emphasizes the importance of analyzing past performances and experiences and looking at past successful and unsuccessful performances and the intensity of emotions associated with those experiences (Hanin, 2007).

The IZOF Model

The Individual Zones of Optimal Functioning (IZOF) model developed by Yuri Hanin, will be at the core of this study and can be described as a "sports-specific, action-oriented framework" that "focuses on analysis of the structure, dynamics, and function of situational emotional experiences (e.g., nervous, worried, calm, confident) related to individually successful and less than successful performances" (Hanin, 2004, p740). This model can be used as a "methodological tool for the study of performance-related psychobiosocial states" (Hanin, 2003, p1).

Emotion is but one of eight psychobiosocial modalities of the IZOF model; the seven others being cognition, affection, motivation, volition, bodily symptoms, sensory-motor behaviour, operation, and communication (Hanin, 2000, 2010). Within this model, emotion is defined as a "component of the psychobiosocial state conceptualized as a

situational, multimodal, and dynamic manifestation of total human functioning" (Hanin, 1997, 2000; Hanin, Robazza, & Bortoli, 2004, p152).

These eight psychobiosocial components are then placed within five basic dimensions: form, content, intensity, time, and context. These can then be used to describe past successful and unsuccessful performances and can eventually be used to predict emotion-performance relationships. The form, content, and intensity dimensions describe the subjective emotional experiences and meta-experiences, while the time and context dimensions explain the subjective experiences in a specific social setting (Hanin, 2007). The form dimension explains that the eight modalities (cognitive, affective, motivational, volitional (added by Hanin, 2010), bodily, motor-behavioral, operational, and communicative) are interrelated and, according to Hanin (2003), create a description of a performance state that is relatively complete. These modalities place themselves within the three interactive components of a psychobiosocial state: "psychological (emotional, cognitive, motivational), biological (bodily, motor-behavioural) and social (performance, communicative)" (Bortoli, Bertollo, Filho, & Robazza, 2013, p1). The content dimension is related to the categorization of the emotions, thus taking into account two factors: the hedonic tone (pleasure or displeasure and positivity or negativity) and the functionality (optimal or dysfunctional impact of emotion on athletic performance) (Hanin, 2003). This allows us to further categorize the emotions into pleasant and functionally optimal emotions (P+), unpleasant and functionally optimal emotions (N+), pleasant and dysfunctional emotions (P-), and unpleasant and dysfunctional emotions (N-) (Hanin, 2003). The intensity dimension allows a quantitative approach and measurability factor, creating a bandwidth of intensity with regards to emotion. The time dimension looks at the topological and metric characteristics found within the performance-related experiences. The context dimension is a characteristic that reflects the intensity and content of emotion in a sport and exercise environment and how it is impacted by situational, interpersonal, and intra-group determinants (Hanin, 1989, 1992, 2000, 2003). The use of these five basic dimensions (penta-basis) is expected to provide a clearer understanding and description of an emotional experience (Hanin, 2003).

The directional approach by Jones (1995) suggested that the intensity values alone of the modalities were not representative enough to predict athletic performance, and that it

was important to also keep in mind the inter-individual differences in their perception of the states as facilitative or debilitative (Robazza et al., 2008). This approach only focused on a single emotion: anxiety; a shortcoming then being the lack of focus on the functional effects of pleasant and unpleasant emotions, which was later applied by Hanin in the IZOF model. It has been argued that both the IZOF model and the directional hypothesis are related in that the IZOF model predicts the best performance when an athlete's anxiety level is within the optimal zone, while the directional approach predicts the performance to be successful when the intensity of the anxiety is viewed as facilitative (Davis & Cox, 2002; Robazza et al., 2008). It has been suggested by Robazza et al. (2008) that it may also be a matter of perception and that if the person in question feels they are able to cope with the demands, the dysfunctional emotions or anxiety may be experienced as less debilitative and unpleasant. Self-confidence may also come into play, as this feeling of having control of the self and the environment could help in perceiving the experience in a more positive light, leaving behind the debilitative effects of a dysfunctional emotion—however, this has yet to be studied thoroughly (Robazza et al., 2008).

An interesting finding that should be kept in close consideration is the tone or perspective taken by the athlete regarding a certain feelings or emotion. It has been found that unpleasant emotions do not always have a negative impact on athletic performance (Hanin, 2007). An example of this was found in earlier research where highly skilled and experienced athletes were found to consciously use relatively high anxiety to their advantage (Hanin, 1978; Mahoney & Avener, 1977; Hanin, 2007), also these experts in the field often viewed anxiety as facilitating their performance (Jones, 1995; Hanin, 2007). The opposite is true as well: sometimes emotions deemed as positive are not always beneficial to a good performance—possibly leading to complacency or underestimation (Hanin, 1997, 2000; Hanin, 2007). Thus, how an emotion affects an athlete may depends on how the task was channeled in that particular situation by that particular athlete (Hanin, 2007). This was also demonstrated by Ruiz and Hanin (2011) who found that athletes sometimes use anger as an "emergency resource", which lead to the creation or channeling of energy in particularly demanding situations to compensate for other lacking resources. They also found the opposite to be true, where anger could lead to a lack or misdirection of focus, or just overall ineffective use of resources.

The emotion-performance relationship, as assumed by the IZOF model, is explained through the awareness that every individual has a different profile from the next and every individual has different intensity "zones" for optimal and dysfunctional emotions within which they feel they will perform their best, with high inter-individual variability of the results. It would be expected that a high likelihood of success be obtained when a combination of maximum-enhancing and minimum-impairing effects (in-zone conditions) are observed in an individual's performance (Hanin, et al., 2004). When out-of-zone conditions are observed, defined by low-enhancing and high-inhibitory effects, a high probability of poor performance may be predicted (Hanin, 1997, 2000; Kamata et al., 2002; Hanin et al., 2004). The predictive validity of the IZOF model has much empirical support with regards to the notion of optimal and dysfunctional zones (Robazza, Pellizzari, & Hanin, 2004; Robazza et al., 2008). Individual differences regarding the number of available resources, the ability to recruit them, and the skills to use them efficiently are a factor at play when looking at an individual's ability to fit within their zone (Hanin, 2007). It would be expected that the effective recruitment and utilization of resources would be related to optimally pleasant and unpleasant emotions, thus placing the athlete within their zone (in-the-zone); while the opposite would lead to dysfunctional pleasant and unpleasant emotions; placing them outside of their zone (out-of-zone) (Hanin et al., 2004). This is known as the resource matching hypothesis, which proposes that there are clear differences in situational readiness to recruit, utilize, and recuperate these resources at both an intra- and inter-individual level (Hanin, 2007). This can then reflect onto the four categories of emotional content, as proposed by the IZOF model, that depend on the predominance of optimal or dysfunctional and pleasant or unpleasant emotions: optimal pleasant emotions (P+) that reveal a state of the "challenge zone", where resources are sufficient, recruited effectively, and used efficiently; optimal unpleasant emotions (N+), demonstrating a state of being in the "emergency zone", the resources having a lack of resources and inability to use them effectively; dysfunctional pleasant emotions (P-), showing a "comfort zone" state where the athlete is complacent and not using all the resources available to them; and finally, dysfunctional unpleasant emotions (N-) which can be expressed as being in the "dejection zone", thus when the athlete overestimates the task and underestimates their resources (Hanin, 2007). This can be summarized by the notion that emotional experiences

in athletic performance have a regulatory and signal function, and that this signal function is defined by the perception of the situation by the athlete and the matter of determining whether there is a match or mismatch between the demands of the task and the resources that are available (Hanin, 2007).

It is important to keep in consideration that the emotion-performance relationship is bi-directional (Hanin 2004). In looking at anger, Ruiz and Hanin (2011) presented evidence that anger affected future performance, while performance affects the ongoing and post-competitive anger; thus anger and other emotions have both a regulatory and signal function (Hanin, 2007, 2010; Ruiz & Hanin, 2011). In considering temporal dynamics, Ruiz and Hanin (2004b) conducted an exploratory study that examined anger prior, during, and after the best and worst ever performances of skilled karate athletes. The researchers found anger content to be highly individual, thus supporting the IZOF model, but also found that the content and intensity of the anger changed across the pre- mid- and post-game situation (Ruiz & Hanin, 2004b).

2.2 Anxiety and the Coach-Athlete Relationship

Coaches are viewed as an authoritative figure and leader of a team, and with great power comes great responsibility. Coaches can have a positive effect on the athletes' performance, behaviour, and psychological as well as emotional well-being (Horn, 2002; Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008). With regards to emotion, it would be expected that it be in their best interest to help each of his or her athletes perform to their potential and to reach their optimal level of performance—though in a large group setting, such as in team sports, this may be easier said than done. The application of the IZOF model is no "quick fix"; assistance is required to enter their optimal zones of functioning (Weinberg & Gould, 1999; Robazza et al., 2004).

Earlier studies focused solely on a single emotion, anxiety, and its relationship to performance. Hanson and Gould (1988) looked at the coaches' ability to assess the trait and state anxiety levels of their athletes prior to competition. They expressed that, in past research, coaches were found to be "poor predictors of their athletes' precompetition psychological states" (Hanson & Gould, 1988, p299). Though a number of methodological issues were linked to these studies, of greatest importance were the limitations for the

Martens, Rivkin, and Burton's (1980) study, one of which suggested that the coaches' ability to estimate the anxiety levels of their athletes may vary according to the size of their team, thus implying that the larger the group, the harder it is to know the emotional state of each athlete (Hanson & Gould, 1988). Another note was that the importance a coach placed on focusing and recognizing the feelings of their athletes, the more likely they were to do just that. Years of experience as well as age were also considered, with the idea that the more experience a coach had and the older they were, the more likely they would be able to recognize their athletes' anxiety levels. The length of time a coach had worked with a particular athlete was also said to be an important predictor in the accurate assessment of that athlete's anxiety. When the coach felt confident in their ability to estimate their athletes' anxiety levels, they were more accurate in the assessment.

In their own study, Hanson and Gould (1988) found similar results. They found that the greater the number of athletes on a team, the less certain the coach was of their estimated anxiety levels, which led them to be less accurate in their responses. The older and more experienced coaches were better at estimating the anxiety levels of their athletes accurately. Overall, the coaches were unable to accurately estimate their athletes' A-trait levels (Hanson & Gould, 1988). One explanation for this could be that the "largest portion of scores would fall in midrange where discrimination may be difficult for coaches to discern" (Hanson & Gould, 1988), thus the coach would have an easier time determining the athletes with more extreme levels of anxiety, in comparison to those in moderate ranges. However, coaches that showed a true effort in getting to know their athletes were in a better position to assess their athletes' anxiety levels and to help them control those emotional states (Hanson & Gould, 1988). An interesting statistic provided in this study was that "approximately 75% of the coaches in this study were labeled inaccurate estimators of their athletes' anxiety levels" (Hanson & Gould, 1988, p310). As expressed earlier, the factors found to affect these results were the coaches' age and experience, the size of the team, and the gender of the athletes (Hanson & Gould, 1988). However, the percentage of variance could only slightly be accounted for in the individual differences in the coaches' abilities to make the estimations.

2.3 Methodological Approaches to Assessing Emotion

Nomothetic Measures

In order to identify optimal and dysfunctional emotional states through both quantitative and qualitative methods, past researchers have used semi-structured interviews (Orlick, 1986), self-report scales, individualized emotion and performance profiling (Butler & Hardy, 1992; Hanin 2000a), metaphor-generating methods (Hanin & Stambulova, 2002), and narratives (Sporkes & Silvennoinen, 1999) (Hanin et al., 2004).

The study of emotion in sport has led to the use of many different quantitative measures. The first two that will be mentioned are the Competitive State Anxiety Inventory-2 (CSAI-2: Martens, Burton, Vealey, Bump, & Smith; 1990) and the Sport Anxiety Scale (SAS: Smith, Smoll, &Schultz, 1990)—both of which concentrate on a single emotion: anxiety (Jones, Lane, Bray, Uphill, & Catlin, 2005). Another instruments is the Achievement Anxiety Test (AAT) (Alpert & Haber, 1960) which measures the anxiety as facilitative or debilitative, but leaves out the assessment of the specific effects of test anxiety (Hanin, 2007).

The four measures that are predominantly used to measure emotion in a multidimensional manner are the Profile of Mood States (POMS: McNair, Lorr, & Droppleman, 1971), the Brunel Mood Scale (BRUMS: Terry, Lane, Lane, & Keohane, 1999), the Spielberger's State-Trait Anxiety Inventory (STAI: Spielberger, 1983) and the Positive and Negative Affect Schedule (PANAS: Watson, Clark, & Tellegen, 1988)—the two first scales are non-sport-specific measures that assess six states: anger, confusion, depression, fatigue, tension, and vigor; while the PANAS looks at the positive and negative affect and the STAI looks at state and trait anxiety (Marteau & Bekker, 1992; Jones et al., 2005). These scales have all been confirmed in a sport setting. A major limitation of the POMS and PANAS is that neither was designed to measure emotion in sport. The POMS was developed in a clinical context, while the BRUMS used a sport population but was based on the POMS. The PANAS however focuses on the affective responses of an emotion. All three measures have a more negative approach to assessing emotion, and were not developed from a fully sport-specific setting.

The Sport Emotion Questionnaire (SEQ: Jones at al., 2005) looked at the weaknesses of the previous scales and created one that looked at answering the question "how do you feel in relation to this competition?" compared to "how do you feel right

now?" which could be answered with the previous measures (Jones et al., 2005). The SEQ looks to subjectively measure 5 discrete emotions that were found to be particularly pertinent to the sport setting: anger, anxiety, dejection, excitement, and happiness. It also placed additional focus on positive emotions, compared to the previous measures that had much more emphasis on the negative aspects of an emotional state. The aspect that makes this instrument particularly distinctive is that it measures emotion specifically, instead of mood or affect.

In comparing the SEQ to the POMS, BRUMS, STAI or PANAS, it would be reasonable to assume that the former would be a better fit for measuring the emotional state of athletes in a sport setting. However, these being standardized instruments, specific information pertaining to each athlete at an individual level may fall through the cracks.

Individualized Instruments

In comparison to the above mentioned measures, a study looking at the emotional state of an individual in multiple sport specific settings would require the production of a slightly different and unique measure of emotion for each individual (Jones et al., 2005). This is where the IZOF model and it's instruments could be of use due to how their focus on a larger range of positive and negative emotions, creating an individualized emotional profile.

There are instruments available to measure emotion at an individual level that are based on the IZOF model. The Psychobiosocial Scale (PBS-S; Ruiz, Hanin & Robazza; 2011), for example, is a rather new measure. This scale was developed to assess all eight modalities of a feeling state as described within the IZOF model. Several items are offered to the athletes to choose from; it makes the scale special, as it is individual and sport- and task-specific. The researchers expressed that "the PBS scale can be used in individualized multimodal profiling of emotional and non-emotional experiences" (Ruiz et al., 2011). It has been found that "inter-individual content overlap is usually low, which indicates a need to generate idiosyncratic labels using each athlete's vocabulary" (Hanin, 2003).

The Emotional State Profile (ESP-40; Hanin, 2010) is another individualized measure that looks specifically at emotion. It is a sport-specific measure that measures the interaction of four emotion categories: positive-optimal (P+), negative-optimal (N+),

negative-dysfunctional (N-), and positive-dysfunctional (P-) (Hanin, 2000). It allows the visual representation of an emotional experience for an individual, particularly with the IZOF-iceberg, usually found in positive performance experiences, with high intensity ratings in the optimal categories (N+ & P+) and low scores in the dysfunctional categories (N-& P-); and inverse-IZOF-iceberg would be expected for a negative performance experience, where the opposite would be found (Hanin, 2003).

Both of these measures allow for emotional profiling, which involves looking at the relationship between successful and unsuccessful performances and the identification of the idiosyncratic and task-specific psychobiosocial states (Bortoli et al., 2013). It is a visual representation of how the effects of optimal emotions interact with dysfunctional emotions (Ruiz & Hanin, 2004a). An observable iceberg-shaped profile is said to indicate a prevalence of optimal emotions, whereas a flat distribution is said to demonstrate the opposite: a prevalence of dysfunctional emotions.

It must be noted that while the PBS-S measures non-emotional content and other feelings states, the ESP-40 assesses only the emotional components, as well as the interaction among four emotion categories.

Most studies that examine emotions do so using nomothetic instruments, not making them very applicable to individuals as they focus on emotional content only and do not tap into their individual meaning. As there is an interest in examining other modalities of a feeling state, these individualized instruments would seem like a much better approach to the study of the interactional effects of emotion categories and the understanding of an athlete's feeling states at an individual level. It also makes the study of the coach's ability to recognize the feeling states of their athletes possible, as an individualized measure will provide much more individual information than a nomothetic measure. This field of study is important because, though the coach-athlete relationship has previously been studied with regards to anxiety, there is a need for this relationship to be studied with regards to the other modalities within a feeling state. There is a need to better study how well a coach *reads* their athletes, and this may be possible through a more individualized approach.

3 PURPOSE OF THE STUDY

The purpose of this study was to examine the feeling states related to successful and unsuccessful performances in a female soccer team competing in the Finnish first division. Specifically, the first aim of the study examined the emotional and other non-emotional feeling states experienced prior to best and worst games as recalled by the players. The second aim of the study investigated the ability of the coaches to assess and recognize the feeling states of their players in the same identified games.

Based on the assumptions of the IZOF model and previous research mentioned earlier (see Hanin, 2000, 2003, 2010), it would be expected that emotional profiles describing successful games would have an iceberg shape and be characterized by higher intensities of dysfunctional emotions and other feelings would characterize worst games, depicting flat shape. This study will look to further explore these profiles and patterns in the profiles, in hopes of finding a better understanding from both an intra- and inter-personal level.

There is also scarce information about the coaches' ability to monitor their players' emotions, thus this second part of the study hypothesized that the coaches would identify the feeling states of only the key players. Previously mentioned research by Hanson and Gould (1998) found that coaches were not accurate in assessing the anxiety levels of their athletes, as the task was considered difficult. We would expect similar results, however, as the measures in this study would be individualized, more information would be provided about the feeling states of the athletes and possibly lead to results worth exploring further.

4 METHODS

4.1 Participants

The selected 11 participants consisted of the "starting eleven" players, out of the original 17 female soccer players, that ranged between 15 to 23 years of age (*M*=18.72, *SD*=2.79), from a 1st division women's football club in Finland. Playing experience ranged from 7 to 16 years (*M*= 11, *SD*= 2.79). Most of them had trained together for a long period of time as most are from the same city. They train together on average 4 days a week, with field and off-field training two to three days a week (4-6 hours/week) and off-field training such as weightlifting or plyometric and agility training one to two days a week (1.5-3hrs/week), with a game on the weekend. The two coaches, one male, aged 46 years old, and one female, aged 29 years old, were also a part of the study. Each coached soccer for 15 and 13 years, respectively, and have both been coaching this particular team for 3 seasons. As for knowing each starting player individually, the female coach had coached the team for an average of 2.82 years (*SD*= 1.54), while the male coach had coach them for an average of 3.36 years (*SD*= 1.80). Both coaches are usually present for all on- and off-field training and for games.

4.2 Measures

A multi-section questionnaire was used for the soccer players. The first section contained demographic information, such as age, gender, and years playing football. The second contained two questionnaires: the Psychobiosocial Scale (PBS-S; Ruiz, Hanin, & Robazza, 2011) and the Emotional State Profile (ESP-40.2; Hanin, 2010). The third portion of the questionnaire contained additional questions: "How likely is it that your coaches would guess your anonymous profile correctly when among the profiles of your teammates?", "How likely is it that your male/female coach will be able to guess your profile correctly?"; on a scale from 0 (not at all likely) to 10 (very likely).

The Psychobiosocial Scale (PBS-S)

The PBS-S measures eight components of a state (emotional and non-emotional). The PBS-S scale contains 20 rows of 3-4 items that consist of synonymous modalities of functionally helpful (+) and harmful (-) adjectives for each of the ten modalities: cognitive, affective (pleasure), affective (anxiety), affective (anger), motivational, volitional, bodily, motor-behavioral, operational, and communicative (Hanin, 2010; Ruiz et al., 2011). In order to complete the scale, one item from each row much be selected (circled) and an intensity level from 0 (not at all) to 10 (very, very much) as well as the impact on a scale from -3 to +3 (0 being neutral) had to be selected.

The Emotional State Profile (ESP-40)

The ESP-40 measures the interaction of four emotion categories. The Emotional State Profile (ESP-40; Hanin, 2010), a 40-item scale, contains 10 rows of 4 adjectives, each column corresponding either two positive-toned or two negatively-toned adjective groupings: anticipatory unpleasant (N+), outcome unpleasant (N-), anticipatory pleasant (P+), and outcome pleasant (P-). In order to be completely correctly, the participant must number the words in each row: 1 (best describes), 3 (next best), 2 (less best), and 1 (the least best describes); each row must have a 4, 3, 2, and 1 (no duplicates). The scores for the four emotion categories were calculated by summing the given numbers in each column.

Finnish versions of both these measures were used. The PBS-S was validated by Ruiz et al. (2011) and the ESP-40 validated by Hanin (2010).

4.3 Procedure

First, both coaches were sent an email with a summary of the study, requesting for their participation, and both accepted. Second, a meeting time with the team was set after one of their indoor field training sessions, where the participants were asked to take part in the study and then given a quick debriefing of the study. Those who chose to participate completed a written consent form and were given an explanation on how to fill out the questionnaire. They were asked to recall how they felt prior to their best and worst games and then to complete the PBS-S and ESP-40 for both games. Additional questions regarding how well these profiles represented their actual performances were asked. Most

the athletes completed the questionnaire on site, while a few brought the questionnaire home and handed it in within the upcoming week. About a week later, individual emotional profiles of the athletes were created from the PBS-S and ESP-40 questionnaires of each athlete. The final step consisted of meeting with each coach individually and handing them a list of the starting eleven players as well as the eleven anonymous profiles. The coaches were asked to match each profile to an athlete's name, as well as rate their confidence that they had guessed correctly, on a scale from 1-10. The coaches were given the option to write a note on why they chose that player for that particular profile.

4.4 Data Analysis

The demographic data was analyzed using SPSS to calculate means and standard deviations for the sample. The individual profiles, which consisted of two histograms per individual/profile, were created according to the individual data of each athlete. Box-plots for the PBS-S were developed on SPSS for the best and worst games of the team. These box-plots represent the average intensity levels of each modality for the sum of the 11 players in their best and worst games.

The 11 player profiles were considered for the analysis of the PBS-S, though one athlete missed a step when completing the questionnaire, forgetting to select a descriptor for each modality—most of the analyses could still be done, as the intensity levels of the modalities were offered. As for the ESP-40, only 9 profiles were considered for the analysis since two athletes completed the measure incorrectly, as they seemed to have misunderstood the directions, and therefore were dropped.

Descriptive analysis for the demographic and numerical data was conducted in order to deepen the analysis of the individual profiles at an interpersonal and intrapersonal level.

5 RESULTS

5.1 Feeling States Associated to Best and Worst Games

An example of an expected profile can be found in the three figures below. Figure 1 depicts feeling states assessed with the PBS-S scale for states prior to the best game of one selected soccer player. As we can see in the figure, the player reported higher intensities for functionally helpful descriptors and low intensities for the harmful descriptors. Interestingly, high intensity was reported for the word "pleased". Figure 2 shows the PBS-S profile of the same soccer player prior to their worst game; the patterns in the figure show higher functionally harmful intensities compared to the functionally helpful ones, which was expected by the researchers. However, the high intensity for "discontented" and "consistent task execution" should be noted. The same athlete's ESP-40 profile for their best and worst games can be found in Figure 3; showing a somewhat positive iceberg shape for the best game, with an unusually high P- score, and an moderate inverse-iceberg for the negative playing experience, with a higher-than-expected score for N+.

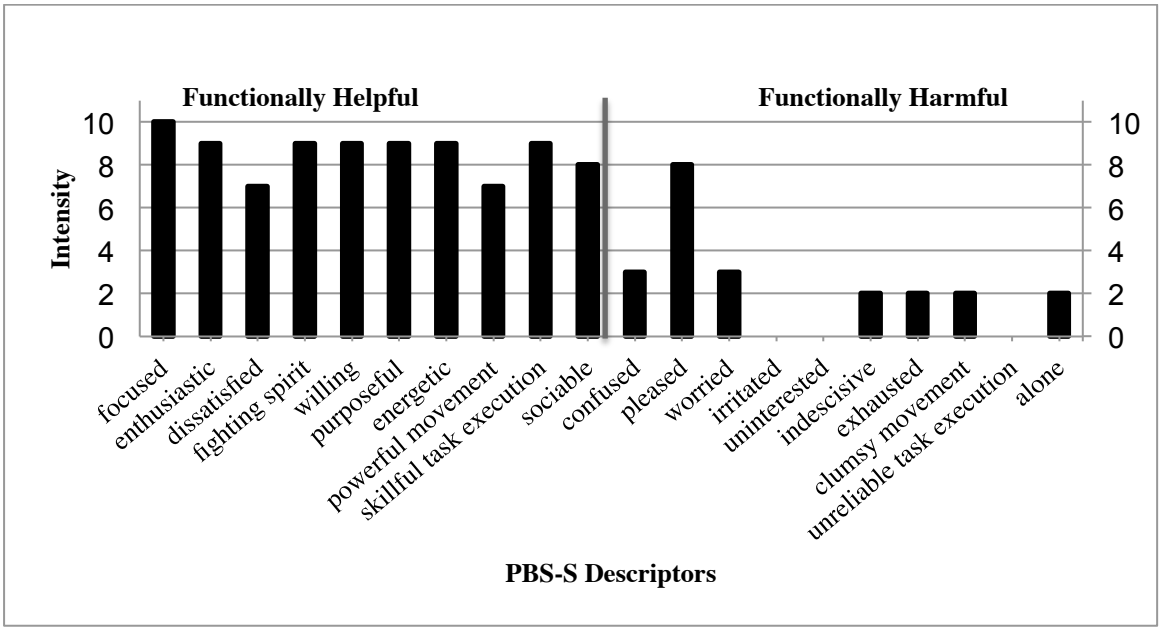

Figure 1: Feeling states prior to a soccer player's best game

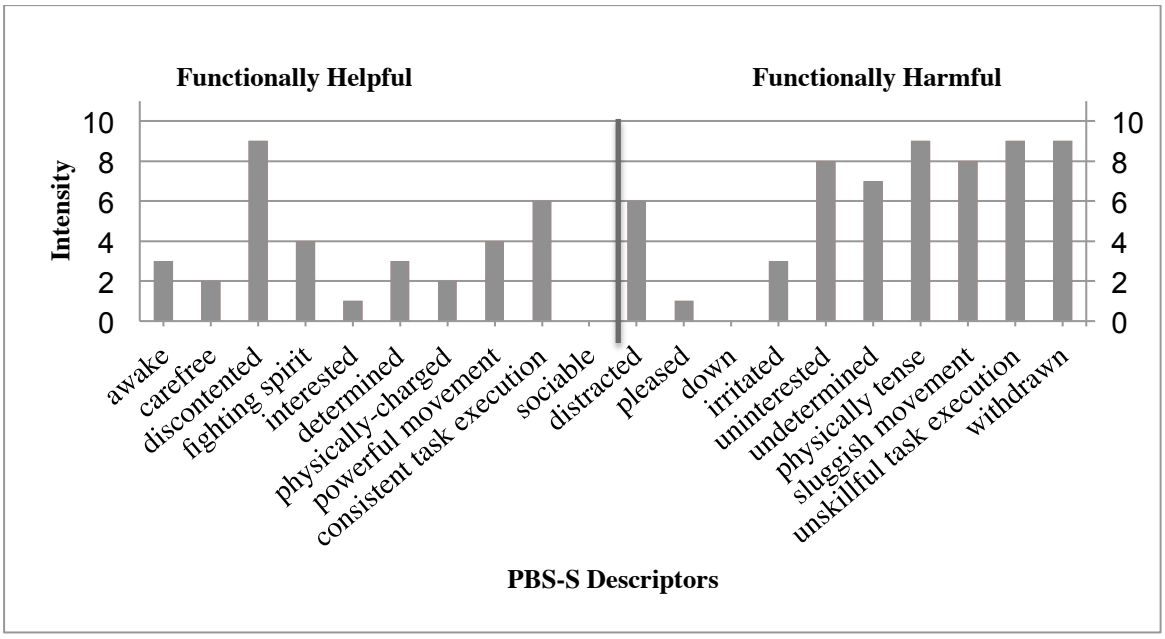

Figure 2: Feeling states prior to a soccer player's worst game

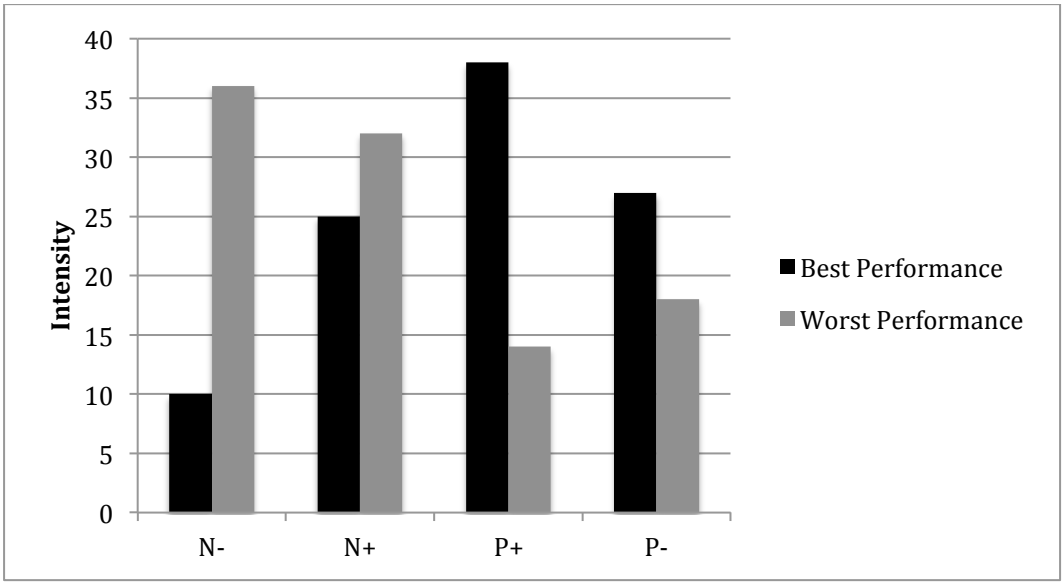

Figure 3: Emotional State Profile prior to a soccer player's best and worst games

The results are consistent between the PBS-S and ESP-40 profiles. Regarding the best games, the helpful/optimal descriptors in the PBS-S profile had higher intensities compared to the harmful/dysfunctional descriptors, while the same was found in the ESP-40 profile, with higher intensities in the P+ (positive-optimal) and P- (positive-

dysfunctional) categories compared to the N- (negative-dysfunctional) and N+ (negative-optimal) categories. The worst game showed the opposite, with higher intensity ratings for the harmful/dysfunctional scores and lower helpful/optimal intensity scores in the PBS-S profile, and then high N- (negative-dysfunctional) and N+ (negative-optimal) scores and low P+ (positive-optimal) and P- (positive-harmful) scores in the ESP-40.

The same results were not found for all the athletes—further explained in the sections below.

5.1.1 Intrapersonal Comparisons for the PBS-S

As expected, the individual PBS-S profiles associated to successful games for the remainder of the players indicated higher intensities of optimal descriptors and lower intensities for the dysfunctional descriptors. However, differences among profiles were found with regards to unsuccessful game profiles for the PBS-S. Three different clusters were found according to pattern similarity in the PBS-S for their worst game. The first group, with three players, is characterized by average low intensities for the optimal descriptors and higher intensities for the dysfunctional descriptors for the worst games. The profiles are similar to the one depicted in Figure 2. The second group, which for the sake of the study will be called the "Unsuccessful with Successful Pattern Group", demonstrated unsuccessful game profiles had higher optimal descriptor intensities than dysfunctional intensity scores, making the unsuccessful game profile look similar to that of a successful game profile—as shown in Figure 4. Three athlete profiles fit these patterns.

The third group which will be called the "Leveled Pattern Group", revealed similar average intensity scores for both the optimal and dysfunctional descriptors. Five athletes fit this profile pattern, of which one is demonstrated in Figure 5.

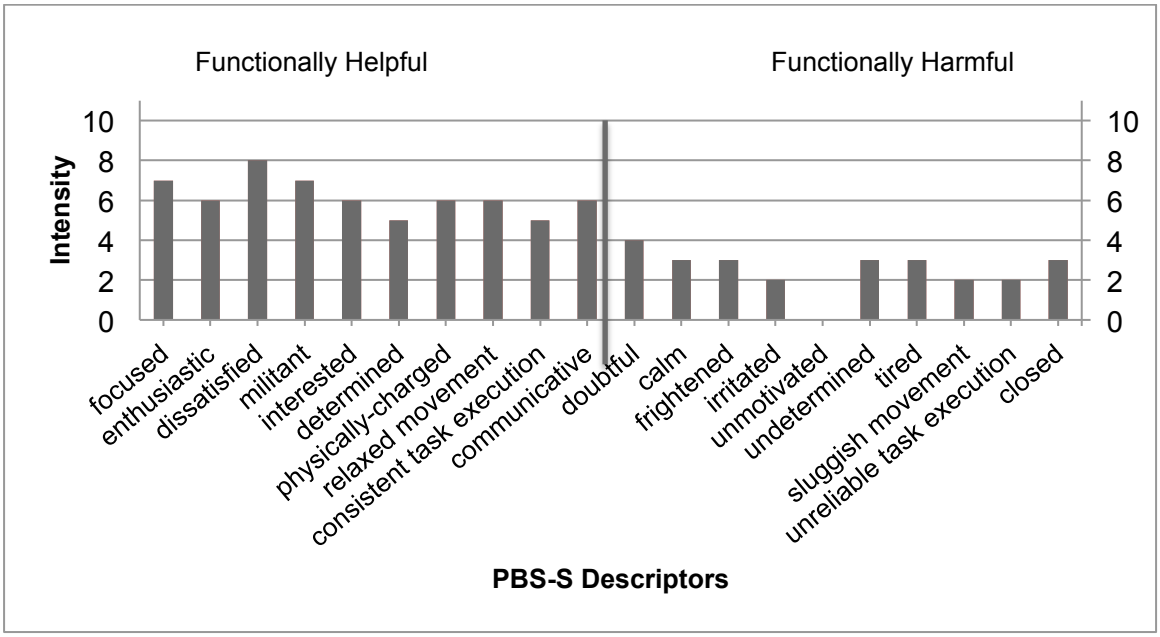

Figure 4: Example of an Unsuccessful with Successful Pattern Group profile

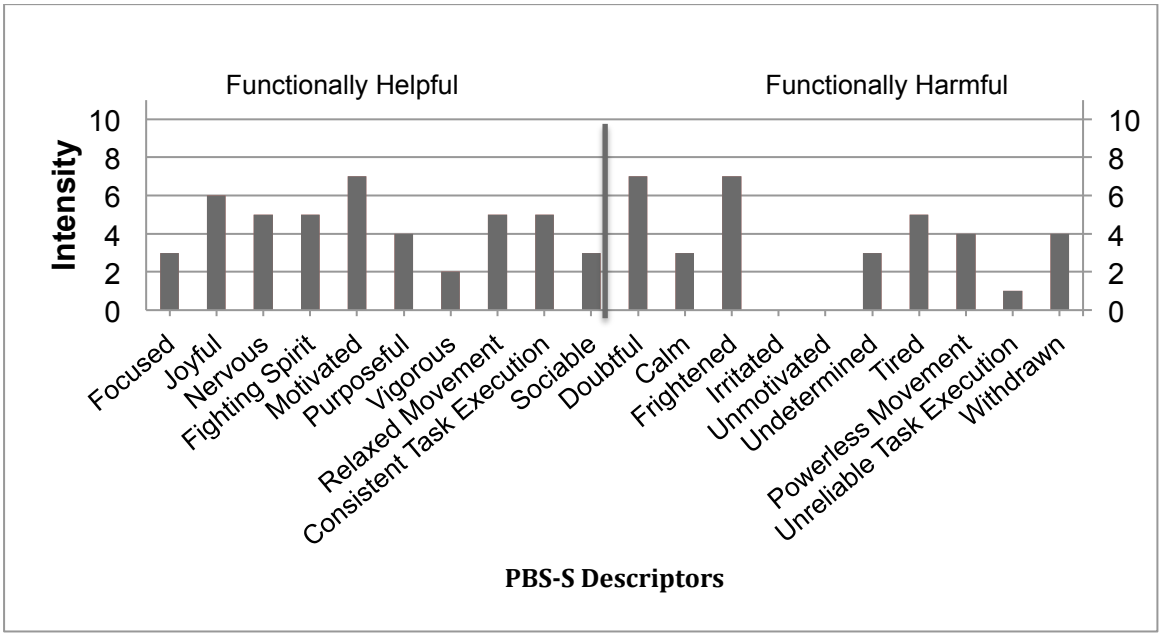

Figure 5: Example of a Leveled Pattern Group profile

5.1.2 Intrapersonal Comparisons for the ESP-40

The 9 profiles for the ESP-40 were separated into three distinctive groups according to the pattern of their profiles for the best and worst games combined. The first group, as demonstrated in Figure 3 earlier in this section, showed a somewhat iceberg-shaped pattern for the best game and a reverse-iceberg-shaped pattern for the worst game. The researchers expected this type of pattern for the best and worst games. Five other profiles show similar patterns to that profile.

The second group consisted of profiles that showed a positive iceberg shape for both the successful and unsuccessful games, as demonstrated in Figure 6. Two profiles fit this pattern.

The third group, which was expressed by a single athlete, showed a relatively flat distribution among the emotion categories in the best game and unexpectedly high positive emotion ratings in the worst game. This group can thus be distinguished by a flat distribution among the states, as demonstrated by the athlete's profile in Figure 7.

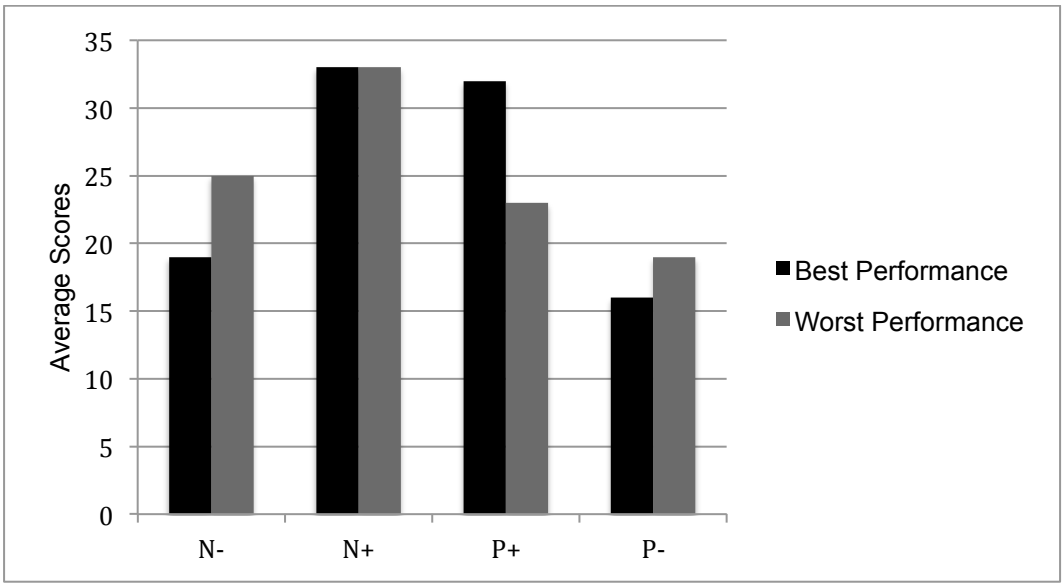

Figure 6: Group 2:Positive iceberg-shape for both games

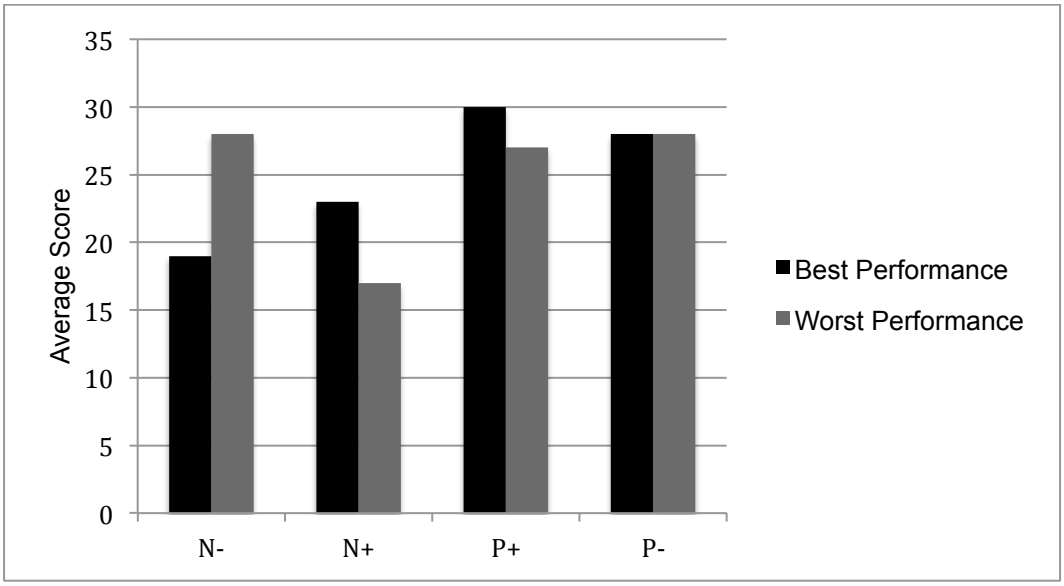

Figure 7: Group 3: Flat distribution across emotional states

5.1.3 Group Results for the PBS-S

In order to get a representative look at the overall patterns of the PBS-S for the 11 soccer players, box-plots were created for both the best and worst games.

The best games box-plot showed patterns that reflected those expected by the researchers in that the functionally helpful modalities were scored higher than the functionally harmful ones, as seen in Figure 8. However, higher than expected average intensities were found for two functionally harmful modalities: Affective Pleasure- and Bodily-. A low intensity average however was found for Communication+ among the functionally helpful modalities.

The box-plot for the worst games can be found in figure 9. The researchers expected patterns of low intensity for the functionally helpful modalities and high intensities for the functionally harmful modalities. However, the results in the box-plot did not follow these patterns. Instead, they demonstrate a rather flat distribution among the helpful and harmful modalities, accordingly not showing an observable distinction between the two. Interestingly, the average intensity for the functionally helpful modality, Affective Anger +, was found to be particularly high, while the functionally harmful modality of Affective Pleasure- was found to be rather low on average.

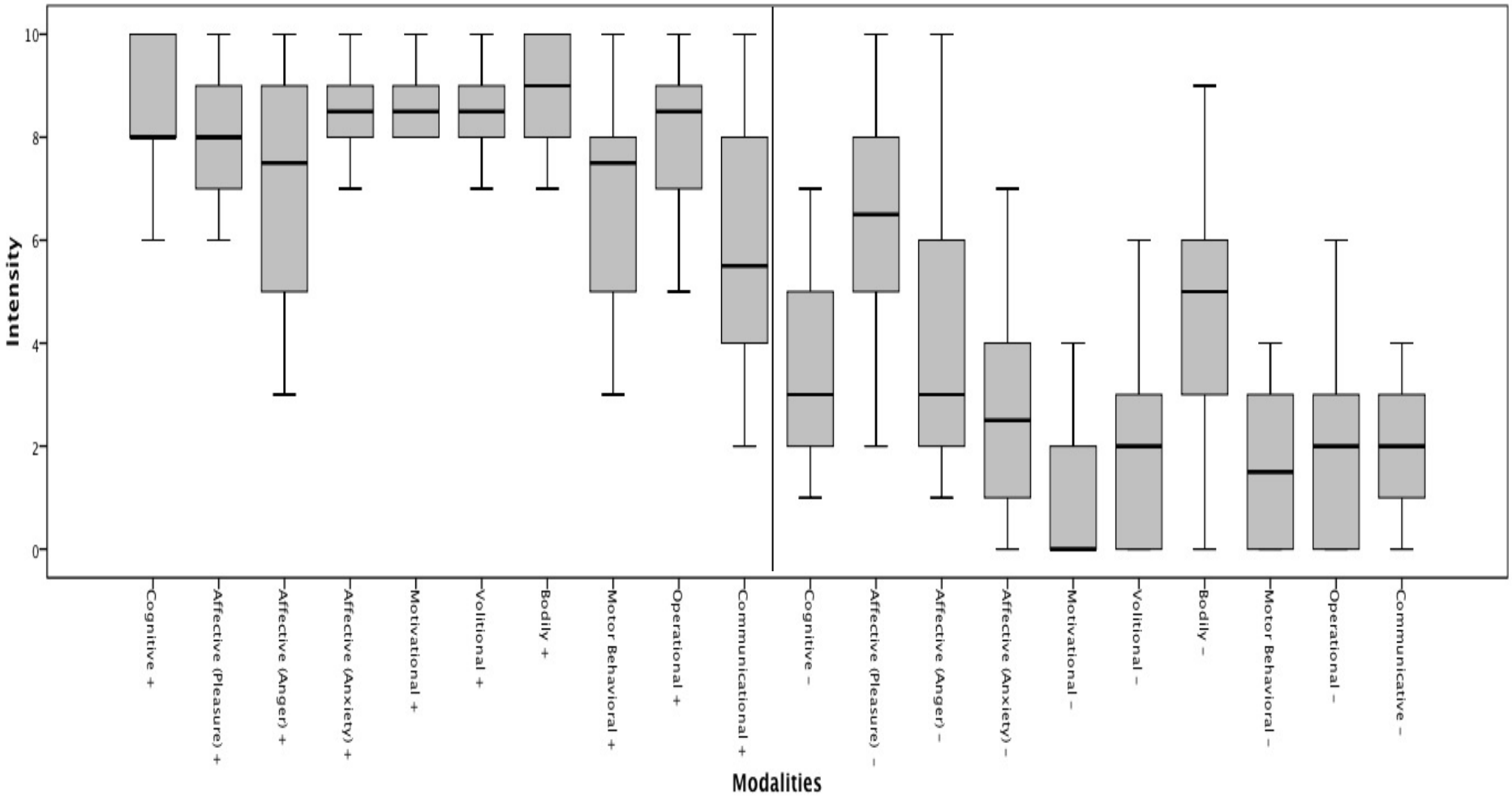

Figure 8: Psychobiosocial States Associated to Best Games for 11 Soccer Players

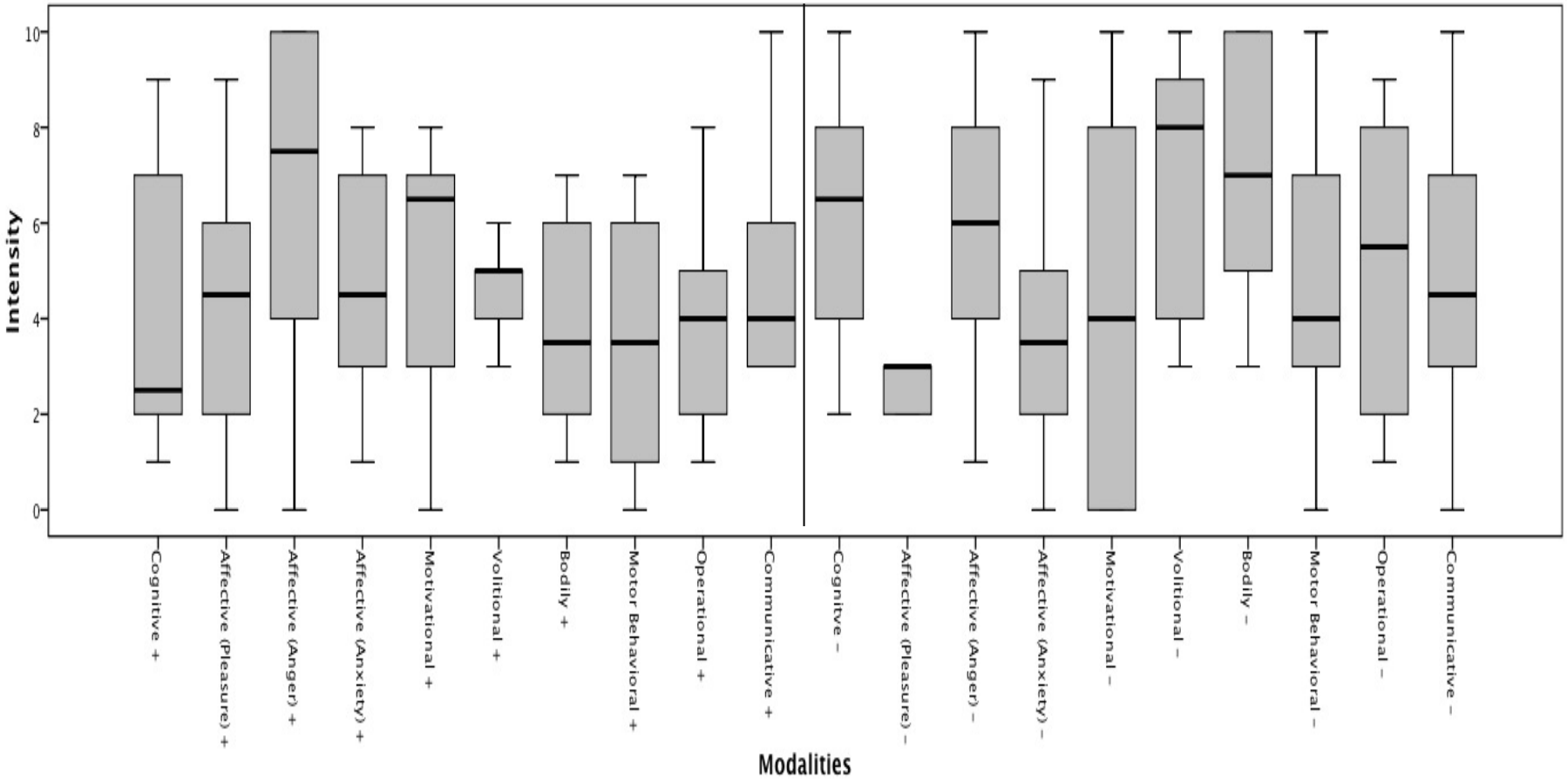

Figure 9: Psychobiosocial States Associated to Poor Games for 11 Soccer Players

5.1.4 Most Selected Team Descriptors: PBS-S

In the analysis of the most selected descriptors, only 10 of the 11 soccer players were considered, as one failed to select single descriptors per modality when completing the measure and therefore was not included in the analyses.

For the best game, the most selected descriptors were *focused* (cognitive +), *confident* (affective (pleasure) +), *dissatisfied* (affective (anxiety) +), *fighting spirit* (affective (anger)+), *motivated* (motivational +), *determined* and *persistent* (volitional +), *energetic* (bodily +), *powerful movement* (motor-behavioural +), *reliable performance* (operational +), *sociable* (communicative +), *doubtful* (cognitive -), *pleased* (affective (pleasure) -), *frightened* and *worried* (affective (anxiety) -), *irritated* (affective (anger) -), *uninterested* (motivational -), *undetermined* (volitional -), *exhausted* and *tired* and *physically tense* (bodily -), *powerless* and *sluggish movement* (motor-behavioural -), *unskillful performance* (operational -), *closed* and *unsocial* and *withdrawn* (communicative -). The top four most selected descriptors can be found under *Most Successful Performance* in Table 1.

The most selected descriptors for the worst games were: *focused* (cognitive +), *carefree* (affective (pleasure) +), *dissatisfied* (affective (anxiety) +), *fighting spirit* (affective (anger) +), *motivated* and *interested* (motivational +), *persistent* (volitional +), *physically charged* and *energetic* (bodily +), *relaxed movement* (motor-behavioural +), *consistent performance* (operational +), *communicative* (communicative +), *doubtful* (cognitive -), *calm* (affective (pleasure) -), *frightened* (affective (anxiety) -), *irritated* (affective (anger) -), *uninterested* (motivational -), *undetermined* (volitional -), *tired* (bodily -), *sluggish movement* (motor-behavioural -), *unreliable* and *unskilled performance* (operational -), and *unsocial* and *withdrawn* (communicative -). The top four most selected descriptors can be found under *Least Successful Game* in Table 1.

Table 1. Most selected multimodal descriptors associated to soccer performance (n=11)

Descriptors (state modality)	*n*	*%*
Most successful game		
taistelutahtoinen- *fighting spirit* (Affective Anger+)	8	4%
sosiaalinen- *sociable* (Communicative+)	7	3.5%
tyytyväinen- *pleased* (Affective Pleasant -)	7	3.5%
epäröivä- *undetermined* (Volitional-)	7	3.5%
Least successful game		
epävarma- *doubtful* (Cognitive-)	8	4%
epäröivä- *undetermined* (Volitional-)	8	4%
tasainen-suoritus- *consistent task execution* (Operational+)	6	3%
artynyt- *irritated* (Affective Anger-)	6	3%

5.1.5 Group Results for the ESP-40

The group results for the ESP-40 are presented in Figure 10. The best game showed a positive iceberg profile, though higher N+ and lower P- scores would have been expected. The results showed: N- had a mean of 17.8 (*SD*= 8.39), N+ a mean of 24.2 (*SD*= 4.31), P+ a mean of 32.1 (*SD*= 7.99), and P- a mean of 25.9 (*SD*= 3.75).

The worst game patterns demonstrated a slight inverse-iceberg shape, however the scores were very close, with the difference between the average highest and lowest score being 8.8, demonstrating a rather flat distribution. In terms of numbers, N- had a mean of 29.7 (*SD*= 8.47), N+ a mean of 27.7 (*SD*=6.01), P+ a mean of 21.7 (*SD*= 6.25), and P- averaged 20.9 (*SD*= 5.82).

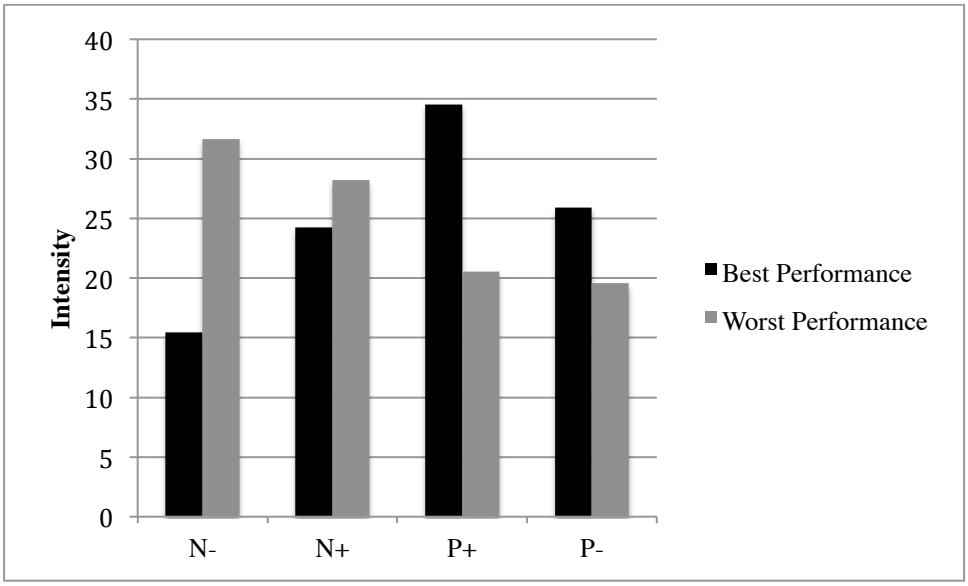

Figure 10: Emotional State Profile scores for 9 Soccer Players

5.1.6 Most Selected Descriptors: ESP-40

The most selected ESP-40 descriptors for the best game were *energetic/pleasant*, *tense*, *charged*, *willing*, *confident*, *purposeful*, *certain*, *nervous/enthusiastic*, *ecstatic*, and *flashy*. The top three most selected descriptors can be found under Most Successful Game in Table 2.

The most selected descriptors for the worst game profiles were *tired*, *tense*, *reluctant*, *doubtful*, *sluggish*, *depressed/purposeful, down*, *nervous*, *concerned*, and *shaken*. In Table 2, under least Successful Game, the three most selected descriptors can be found.

Table 2: Most Selected Descriptors: ESP-40

Descriptors	*n*	*%*
Most Successful Game		
Sähäkkä- *flashy*	8	8%
Määrätietoinen- *purposeful*	8	8%
Luottavainen- *confident*	7	7%
Least Successful Game		
Epävarma- *doubtful*	8	8%
Veltto- *sluggish*	7	7%
Huolestunut- *concerned*	7	7%

5.1.7 Comparing the Measures

In comparing the results for the best and worst games in the PBS-S and ESP-40, it would seem that both showed similar patterns for both. The best games showed high optimal intensity scores and low dysfunctional scores in both measures, which was in accordance with the expectations of the researchers. Both measures found similar results for the worst games, as both found a rather flat distribution of results. The researchers did not expect these patterns, as they had instead expected low optimal scores and high dysfunctional intensity scores.

5.1.8 Comparisons According to Position

The coaches decided on a 4-4-2 formation, which can be interpreted as four defenders, four midfielders, and two forwards—as well as the goalkeeper. They also assigned a player's name to each position, allowing the researchers the opportunity to compare patterns across these positions.

The goalkeeper had patterns that placed the participant in the second group, since the patterns for the worst game were similar to those of the best game. In the best game, the athlete scored the cognitive+, affective (pleasant)+, affective (anger)+, bodily+, motor

behavioural+, operational+, bodily-, and communicative- modalities at high intensities, while scoring very low on affective(anxiety)-, affective(anger)-, motivational-, motor behavioural-, and operational-. In the worst game, the modalities cognitive+, affective (anxiety)+, and affective (anger)+ were scored highly, while affective (anger)-, motivational-, motor behavioural-, and operational- were all scored low.

The four defenders did not have all the same PBS-S patterns. The two central defenders had expected patterns for the best and worst games, categorizing them as Group 1, while one of the outside defenders could be categorized in the second group, the Unsuccessful with Successful Patterns, and the other in the third—the Leveled Group. However, they all scored above their averages on the volitional+, affective (pleasure)-, and affective (anxiety)- modalities in their best games; and on the volitional- modality in their worst games. It was also found that they all scored below their averages on the motivational- and motor behavioural- modalities in their best games, and the affective (pleasure)- and affective (anger)- modalities in their worst games.

The four midfielders all had profile patterns that were in the third group, the Leveled Group. In their successful games, they all scored above average on the affective (anxiety)+, volitional+, and affective (pleasure)- modalities; and on the cognitive- and affective (anxiety)- modalities in their worst games. In these same four profiles, the modalities that scored below their individual averages were motivational- and communicative- for their best games, and cognitive+ in their worst games.

And finally, the two forwards had one that categorized itself in the first group and the other in the second. Both showed above individual average intensity scores for the cognitive+, affective (anger)+, motivational+, volitional+, bodily+, operational+, cognitive-, affective (pleasure)-, and affective (anxiety)- modalities for their best games; while, for the worst games, the affective (anxiety)+, affective (anger)+, volitional-, bodily-, and operational- modalities were above individual average. With regards to intensities below the individual averages, the affective (anxiety)+, motor behavioural+, affective (anger)-, motivational-, volitional-, motor behavioural-, operational- and communicative- modalities were below average in the best games; whereas affective (pleasure)+, volitional+, communicative+, cognitive-, affective (pleasure)-, affective (anxiety)- and affective (anger)- were the modalities that were scored below average in the worst games.

Regarding the best game, the goalkeeper and forwards shared high intensities for the cognitive+, affective(anger)+, bodily+, operational+ modalities, and low intensities for the affective(anger)- and operational- modalities, while low motor behavioural- intensity ratings were also shared with the defenders. The defenders, midfields and forwards all showed a high intensity for affective(pleasure)-, while the defenders and midfielders shared high intensity ratings for volitional+. All four positions were found to have low intensity levels for motivational- in their best games.

With regards to the worst game, the midfielders were the only ones without commonalities to the other positions. The goalkeeper and forwards shared high intensity levels of affective (anger)+ and affective (anxiety)+, while the defenders and forwards shared high volitional- intensity ratings. The goalkeeper, defenders and forwards all shared low ratings of affective(anger)-, while the goalkeeper and forwards shared low levels of affective(anxiety)+ and affective (anger)+, and the defenders and forwards shared low intensity levels of affective (pleasure)-.

5.2 Coach Accuracy in Assessing the Feeling States of their Players

Both coaches accurately matched only 1 out of the 11 profiles correctly, and both guessed the same athlete. However, this athlete was selected as the player the coaches felt they "knew" least, with an average of 3.5/10, and the athlete's PBS-S profile was incomplete, as she skipped a step in the process and failed to select a descriptor for each modality. This then places into question the significance of the result.

Additional follow-up questions were asked after the matching exercise. When asked whether they made an effort to "tune-in" to their players' emotions, on a scale from 1 (never) to 10 (always), the female coaches replied with a 10, while the male coach replied with a 7 (M= 8.5, SD= 2.12). When asked how important they believed it was for coaches to be aware of the emotions their players were experiencing, on a scale from 1 (not at all) to 10 (extremely important), the female coach checked off a 10, while the male coach responded with an 8 (M= 9, SD= 1.41). The coaches were also asked how well they feel they knew each of the athletes, on a scale from 1 (not at all) to 10 (extremely well). As a

whole, the female coach had an average of 8.818 (*SD*= 1.66), while the male coach responded with an average of 7.09 (*SD*= 2.07).

The athletes were asked additional questions as well. The first asked to rate, on a scale from 0 (not at all likely) to 10 (very likely), how likely it would be that their coaches would be able to guess their profile anonymously amongst the profiles of their teammates. The average score was 4.45 (*SD*=2.11). The athletes were then asked a similar question regarding the coaches at an individual level: "How confident are you that your coach (Male/Female) will guess your profile correctly?"; on a scale from 0 (not very confident) to 10 (very confident). The average score for the female coach was 5 (*SD*= 2.56), and 4.27 for the male coach (*SD*= 1.95).

6 DISCUSSION

There were two aims to this study. The first was to examine feeling states prior to athlete's best and worst games through state profiles. The second was to test the ability of the coaches to match the profiles to the corresponding athletes. As the first aim had more of an exploratory purpose, only the second aim had a hypothesis. The researchers hypothesized that the coaches would only accurately identify the feeling states of the key players.

6.1 Feelings States Associated to Best and Worst Games

The individual profile selected in the first portion of the results section was chosen due to the observable patterns that matched those expected by the researchers for the best and worst games of an athlete. In the PBS-S profile for the best game (Figure 1), the functionally helpful descriptors showed high intensities and the functionally harmful descriptors showed low intensities. The opposite was true for the worst game PBS-S profile (Figure 2)—low functionally helpful scores and high functionally harmful scores. This was supported by Ruiz et al.'s study (2011) that initially validated the PBS-S scale and found that these same patterns of higher intensities for the functionally helpful states and low for the functionally harmful states were expected for the successful games, while the opposite was true for the unsuccessful games. When taking a closer look at the profiles, it is interesting to see "pleased" being reported with high intensity in the best game, as it is an Affective (Pleasant)- modality—a functionally harmful modality. While the "discontented" (Affective (Anxiety)+) and "consistent task execution" (Operational+) were given high intensities in the worst games, which are both considered functionally helpful modalities, but when looking at them closer, it can be understandable that high levels of discontentment could lead to a bad game, whereas a good game would be expected from someone with consistent task execution—though they may mean that they were consistently doing things wrong. Looking at this profile and the others helps gain insight into the performances of the athletes and the complexity of the Individual Zones of Optimal Functioning (IZOF).

With regards to the ESP-40 (Figure 3), a somewhat positive iceberg pattern could be observed for the best game, with the highest point being the P+, while a somewhat

negative iceberg was observable for the worst game, N- being at the highest point. This is in partial support with Hanin (2000) who believed that a successful performance would show a profile high in optimal emotions (P+ and N+) and low in dysfunctional emotions (P- and N-), creating a U-shaped IZOF-iceberg, while the opposite would be true in an unsuccessful performance, thus an inverted-U-shaped iceberg or "flat" profile. This however was not supported by the results, as the shape for Hanin's IZOF-iceberg (2000) was rarely found in the successful game profiles at all, therefore the focus had to be placed on the modalities with the highest intensities: P+ for the best game and N- for the worst game; as the P- was expectantly high in the best game and the N+ in the worst game.

The results were found to be consistent between the PBS-S and ESP-40 profiles of the selected exemplary athlete. In the best game, the functionally helpful modalities were rated at a higher intensity than the functionally harmful ones in the PBS-S, while the ESP-40 demonstrated high intensities for the P+ (positive-optimal) and P- (positive-dysfunctional) categories, though a higher N+ (negative-optimal) score would have been expected. As for the worst games, the PBS-S showed higher intensity ratings for the functionally harmful modalities and low intensity for the functionally helpful modalities. The ESP-40 indicated high N- (negative-dysfunctional) and N+ (negative-optimal) scores, though a higher P- (positive-dysfunctional) rating would have been expected.

6.1.1 Intrapersonal Comparisons for the PBS-S

The results above were not consistent among all the athletes, and thus led a further analysis of the individual profiles.

The intrapersonal comparisons for the PBS-S showed very similar patterns across all 11 best game profiles, as the researchers expected; meaning that all the best game profiles looked similar to Figure 1. All showed averagely high intensities for the functionally helpful modalities and descriptors, while showing averagely low intensity scores for the modalities/descriptors that were functionally harmful.

In viewing this similarity across the best games, a better understanding for why it may have been so difficult to distinguish one profile from another and match correctly can be made, though this will be further explained later in this section.

The poor game PBS-S profiles, however, were not as similar and were therefore divided into three different groups, as explained in the results section. The first group, consisting of three athletes, had patterns that the researchers expected: higher average functionally harmful intensity scores than functionally helpful scores—as demonstrated in Figure 1. The second group, the "Unsuccessful with Successful Pattern Group", was just the opposite, with high optimal score intensities and low dysfunctional scores (Figure 4), causing them to resemble the successful game profiles. Three athletes' state profiles matched this pattern. This may have been caused by a positive and optimal pre-performance state that somehow got negatively influenced throughout the competition, causing the creation of a dysfunctional/negative performance. This also demonstrates the important influence of external variables on game outcome, which will be further explained in the limitations section below. The third and final group, the "Leveled Pattern Group" consisting of five profiles, showed a flat or leveled intensity score pattern for the functionally helpful and harmful modalities (Figure 5). This type of profile made it difficult to recognize whether the functionally helpful or harmful scores had the most influence or were felt more intensely. A possible explanation for this type of pattern may be a lack of self-awareness or a recollection problem, as remembering the details of a state prior to a worst game may be a difficult memory task.

6.1.2 Intrapersonal Comparisons for the ESP-40

The intrapersonal comparisons for the ESP-40 revealed that, of the nine profiles that were created, three groups of types could be created according to the patterns of the result.

The first group was demonstrated five of the profiles showed similar patterns to that of the representative profile in Figure 3. The researchers expected these results, as it would be anticipated that in a best game, the optimal scores, particularly P+ (positive-optimal), would be high while the dysfunctional score (N-) would be low; and that the opposite would be true for the worst game.

The second group was characterized by a positive iceberg pattern for both the best and worst games, which was demonstrated by two athletes, one of which is shown in Figure 6. This may be explained by the same reasoning as the third group, the Unsuccessful with Successful Pattern Group, in the PBS-S comparisons—these patterns may therefore be

attributed to a pre-performance state that should have been optimal, but that was influenced by a trigger during the game that ultimately caused a negative performance.

The third group consisted of one profile that showed a relatively flat distribution among emotion categories in the best game, and unexpectedly high positive emotion scores in the poor game (Figure 7). Reasons for this, the same as the Leveled Pattern Group in the PBS-S comparisons, may consist of recollection errors or lack of self-awareness on the part of the athlete.

6.1.3 Group Data for the PBS-S

The group data for the PBS-S showed particularly interesting results. The boxplot of the best games in the PBS-S revealed observable patterns that were expected by the researchers, with higher overall functionally helpful intensities compared to functionally harmful intensity levels (Figure 8). This supports the previously cited findings by Ruiz at al. (2011), who found the same general patterns. However, it is interesting to keep in mind that Communication+, a functionally helpful modality, was low on average. This may be explained by a more focused state during the game, where they keep to themselves and focus on their own performance, not allowing themselves to be influenced or distracted by others. It is also intriguing to observe that two functionally harmful modalities were given higher intensities than expected: Affective(Pleasure)- and Bodily-. Taking a closer look at the descriptors for the Affective (Pleasure) modality, it could be understood that words such as “pleased” could lead to a sense of confidence I the athlete that may have helped ease the success. However, the Bodily modality consisted of descriptors such as “physically tense” and “exhausted”, which may have been form of adversity that they managed to overcome through the course of the game.

However, the group PBS-S boxplot for the worst games showed unexpected results in that no concrete visible pattern could be determined between the functionally helpful and harmful scores, as seen in Figure 9 where a flat distribution can be observed. The expected results, according to Ruiz et al. (2011), would have been low intensities for the functionally helpful states and higher intensities for the functionally harmful states. It is interesting to note that Affective (Anger)+, a functionally helpful modality, was rated rather highly in intensity, while Affective (Pleasure)- was found to be low in intensity though it was a

functionally harmful modality. The descriptors associated to Affective (Anger)+, "aggressive", "fighting spirit" and "militant" give the impression that the athlete may have felt somewhat angry, and that that anger did not help develop a positive experience. The Affective (Pleasure)-modality is particularly interesting since the opposite was found in the PBS-S best game group results descriptors, thus it can be assumed that the descriptors "calm", "pleased", and "arrogant", though they are considered functionally harmful, may have a more helpful function in a successful performance than expected by Ruiz et al. (2011).

There are a series of possible reasons for the observable flatness of the distribution across modalities in the group worst game results, of which a few were explained earlier but will be explained further. The first is the possibility that the athletes themselves were not fully aware of their own feeling states; not fully aware of their emotional and non-emotional states; causing them to be over- or under- aroused. The second reason may be a simple case of memory failure—it may have been difficult for them to recollect every component of their feeling state, causing them to hesitate and select moderate intensity scores for the modalities. Third, it may have been that for some of the athletes, their pre-performance state was optimal, however as the game unfolded, things went negatively, thus causing it to be a bad game—a downfall of asking for their states prior to their games, instead of during. However, Hanin (2000) explained that players were already outside of their optimal zones prior to their poor performances, which supports our study because we collected data regarding their state prior to their competitions. However, Hanin (2000) also noted that emotion change is observed more often over the course of an unsuccessful performance compared to a successful performance (Hanin, 2000).

6.1.4 Most Selected Descriptors: PBS-S

The most selected descriptors for the PBS-S were described in detail in the results section. It was also explained that only 10 of the 11 profiles were considered in the analysis as the directional perception approach supports that "an intensity alone conceptualization, without defined function (directional) effects is inadequate in the prediction of athletic achievement (Robazza et al., 2008). The results were in partial accordance with the exploratory study on

psychobiosocial states by Ruiz et al. (2011). In comparing the most commonly selected descriptors in both the current study and that by Ruiz et al. (2011), the common descriptors were found to be: *focused* (cognitive+), *motivated* (motivational+), *consistent task execution* (operational+), *sociable* (communicative+), *doubtful* (cognitive-), uninterested (motivational-), and *unskillful task execution* (operational-). However, when looking at the best and worst games distinctly, a larger number of shared descriptors were found with the previous study. In the best games, *focused* (cognitive+), *motivated* (motivational+), *determined* (volitional+), *sociable* (communicative+), *doubtful* (cognitive-), *worried* (affective (anxiety)-), *uninterested* (motivational-), *tense* (bodily-), *powerless movement* (motor behavioural-), and *unskillful task execution* (operational-). Whereas, in the worst games, *focused* (cognitive+), *motivated* (motivational+), *charged* (bodily+), *consistent task execution* (operational+), *doubtful* (cognitive-), *uninterested* (motivational-), and *unskillful task execution* (operational-) were found in common. Knowledge of these modalities and descriptors may help to further improve the measure in question and the assessment and self-assessment of athletes and coaches.

The top four most selected descriptors can be found in Table 1. This table can be interpreted with the idea that athletes and coaches could look to find or influence these psychobiosocial states in order to foster a state that is more likely to lead to a successful game, therefore supporting a fighting spirit, sociable, pleased, and undetermined state. The "pleased" descriptor is interesting as it supports the earlier claims that a high intensity for the functionally harmful Affective Pleasant modality has been found to be associated to successful performance. However, the "undetermined" descriptor, a functionally harmful Volitional descriptor, is interesting since it would not be expected that a state of hesitance be predictive of a successful game.

The most selected PBS-S descriptors for the worst games were "doubtful", "undetermined", "consistent task execution", and "irritated". These results are interesting because "undetermined" was also found to be a most selected descriptor for the best games. Also, it would be expected that a consistent task execution would be more likely to lead to a good performance than a poor one. However, it may have been that the athletes meant that they were consistently performing the task poorly. These results could be a good step

towards finding the descriptors that define a state that coaches or athletes should watch out for prior to a game in order to avoid a poor performance.

6.1.5 Group Data for the ESP-40

The group data for the ESP-40 (Figure 10) showed expected results for the best games of the nine athletes with a positive iceberg pattern, showing a high anticipatory pleasant (P+) score and low outcome unpleasant (N-) score. The pattern for the poor games showed a slight negative iceberg profile with the outcome unpleasant (N-) score being the highest, the anticipatory unpleasant (N-) coming in second, and both pleasant scores (N+ & N-) sharing the lowest intensities. However, it would have been expected that the anticipatory pleasant (P+) score be lower and that the difference between the N- and P+ scores be larger, as it now displays an almost flat distribution. The reason for these results could be shared with those of the PBS-S group results for the worst game, as both results have similar tendencies.

6.1.6 Most Selected Descriptors for the ESP-40

The most selected descriptors for both the best and worst games were noted in Table 2. For the best games, the 9 soccer players selected “flashy”, “purposeful”, and “confident” the most often. These three descriptors can be considered to be descriptors of a pre-competitive state in a best game situation. The most selected descriptors for the worst game were “doubtful”, “sluggish”, and “concerned”, which can all be expected of a state prior to a poor performance. It is important for coaches and players to keep these descriptors of a state in mind prior to games.

6.1.7 Comparing the Measures

Comparing the results for both measures was interesting because similarities were found. The first big similarity is that the group results for the best game for both the PBS-S and the

ESP-40 showed results that were consistent with the researchers' expectations. The second is that both group results for the worst games were similar in that they both showed flat distributions that were inconsistent with the expectations of the researchers. A third similarity was the unexpected result of the functionally harmful modality, Affective(Pleasure), consistently being found as a descriptor of the state prior to a best game.

These results lead to the conclusion that these athletes follow expected patterns of high optimal and low dysfunctional levels with regards to the best games, and that both show high levels of pleasure, which is typically viewed as a dysfunctional modality. Also, the results for the worst games were not in line with the researchers' expectations, and could lead to the conclusion that they either could not remember the negative memory correctly or that they are lacking in the ability for self-assessment.

It is also important to consider the fact that these two measures found similar results and thus that these two measures could be used in conjunction in future research.

6.1.8 Comparison According to Position

The coaches were requested to select a starting lineup for their next game, and these players were then considered for the study. According to their notes, their formation was a 4-4-2, which provided the researchers with an opportunity to compare the profiles according to position: one goalkeeper, four defenders, four midfielders, and two forwards. The researchers only considered the PBS-S in this analysis, as all 11 players completed this measure correctly, whereas only 9 completed the ESP-40 in its entirety, making it unsuitable for further analysis.

In comparing the four positions, it is important to keep in mind that there is only one goalkeeper and two forwards, making it hard to compare them to the other two positions, which consist of four members each. Concrete findings will not be able to be drawn from this analysis, but may lead to further research on the topic.

The four defenders were found to have commonly scored highly on the modalities of volition+, affective (pleasure)- and affective (anxiety)- and lowly in motivational- and motor behavioural- in their best game, and high on volitional- and low in affective (pleasure)- and effective (anger)- in their poor game. This may imply a need for a high

volitional, pleased, and anxious state prior to a successful competition for defensive players, and a need to avoid low motivational and affective states.

The midfielders showed high intensity ratings on the affective (anxiety)+, volitional+, and effective (pleasure)- modalities and low in motivational- and communicative- in their best games, while scoring high on cognitive- and affective (anxiety)- and low in cognitive+ in their worst games. Thus for a midfielder to succeed, it may be required for them to feel anxious, volitional, and pleased; while avoiding high levels of dysfunctional cognition and anxiety.

Defining the data for the goalkeeper and forwards is difficult due to the low number of participants, making the results difficult to really specify for the particular positions. However, the researchers decided that valuable results could come from comparing the commonalities among the four positions.

When considering the best game situations, it was found that goalkeepers and forwards shared high intensity ratings for the functionally helpful cognitive, anger, bodily and operational modalities. The defenders, midfielders and forwards all had common high intensities for the functionally harmful affective pleasure modality; while the defenders and midfielders shared high ratings of functionally helpful volition. When looking at the lowest common intensity ratings, the goalkeeper and forwards shared low intensity ratings for the harmful affective anger and operational modalities; the same two in addition to the defenders shared a low harmful motor behavioural intensity rating. All positions were found to commonly have a low intensity for functionally harmful motivation.

In the worst game situation, it is interesting to note that the midfielders shared no commonalities with the other positions. The goalkeepers and forwards were found to share high intensity levels of functionally helpful anger and anxiety, while the defenders and forwards were both found to have high functionally harmful volition levels. The goalkeeper, defenders, and forwards all shared low helpful affective anxiety and anger intensity levels, while the defenders and forwards had commonly low intensity levels for functionally harmful effective pleasure.

It is also possible to compare the positions according to their PBS-S profile types, as described in the results section. Two central defenders and one forward were placed in Group 1 since they showed the results that were expected by the researchers. The

goalkeeper, a defender and a forward were considered as Group 2 (Unsuccessful with Successful Pattern Group), due to their patterns for the worst game that had patterns that were similar to the expected best game pattern, with high functionally helpful ratings and low functionally harmful intensity ratings. And finally, all four midfielders and the last defender were found to be in Group 3 (Leveled Pattern Group) as they showed a flat distribution among the functionally helpful and harmful intensity ratings.

In interpreting these results, it can be assumed that the two central defenders and one forward have a higher level of self-awareness than the four midfielders and one outside defender. In addition, it may be assumed that the goalkeeper, the second outside defender, and the second forward had a tendency to sometimes be overly aroused prior to a performance, or they have been placed in situations where they felt ready but that the environment did not allow for success.

A concluding comment for this subsection is that though the researchers looked at results and patterns according to position, it is still important to keep in mind that it is in the nature of the IZOF model to look at each athlete at an individual level and to find each individual's optimal zone of performance. Therefore, it should be expected that patterns according to position would be hard to find, as every athlete has their own individual preference.

6.2 Coaches Accuracy in Assessing the Feeling States of their Players

Both of the coaches only matched one of the profiles correctly; both having identified the same athlete. This result rejects our hypothesis as the coaches did not accurately identify the feeling states of the key players, and instead both accurately identified the player they felt they "knew" the least.

In being unable to complete this task, it may be possible to imply that the coaches did not possess the resources necessary to recognize and assess the feeling states of their athletes. Past research has supported these results, however with the assessment of anxiety levels, where they found that that the coaches were unable to predict the anxiety levels of their athletes prior to a game (Martens et al.,1980; Hanson & Gould, 1988). These results were thus in line with Hanson and Gould's (1988) results with regards to the recognition

and assessment of anxiety levels prior to competition and how coaches are poor predictors of the anxiety levels of their athletes. A couple of explanations may be attributed to this lack of accuracy of the coaches to match the profiles to the players. The first would be to assume that the task in and of itself was too difficult: matching eleven profiles to eleven names; and that it may have had a higher success rate if the task would have been done with an individual athlete or a smaller group of athletes. Martens et al. (1980) suggested that the size of the team could have an effect on the ability of the coaches to assess the state of their athletes (Hanson & Gould, 1988). They explained that there is less of an opportunity for individual interaction with a larger group of athletes, and thus the coach would be less likely to know the behaviors of their athletes and therefore less likely to recognize changes in these behaviours in situations leading to anxiety (Hanson & Gould, 1988). The second explanation could be that the coaches, though both having coached the team together for three years, knew each individual athlete for a different amount of time. Due to this inconsistency, it may have been simpler for them to recognize the profiles of the athletes they felt they knew better at an individual level.

With regards to the single accurately identified athlete, and how she was the one the coaches both felt they "knew" the least, it is important to consider how the athlete did not complete the PBS-S correctly, as she failed to select a descriptor for each modality. The intensities for the modalities were complete, thus leaving the profile looking different from the 10 others. This may have been the reason the coaches both matched her correctly, as they both did not feel they "knew" her, and thus chose the profile they felt they would be less likely to answer correctly for her—all this being a coincidence. Regardless, it is important to consider methodological changes that could have been done in order to possibly increase the accuracy of coaches in identifying the profiles correctly, such as pre-selecting the few key players and looking to see if the coaches would be able to identify them accurately.

The coaches were asked additional follow-up questions, of which two of them were (1) how much effort they put to "tune-in" to their athlete emotions and (2) how important they believed it to be that coaches be aware of the emotions of their athletes. The results showed that the female coach was more sensitive to the subject, having scored a 10 in each, while the male coach seemed to be a little more lenient having scored a 7 and 8,

respectively. These results could assume a gender difference between these coaches, though due to the small size of the sample, the results cannot be generalized. However, this implication is in line with past research that found that female athletes felt that they received more psychological support from female coaches than from their male counterparts (Scranton, Fasting, Pfister, & Brunel, 1999).

The coaches were also asked how well they felt they knew each of the athletes, on a scale from 1 (not at all) to 10 (extremely well). The female coach averaged a higher rating with an average of 8.81 (*SD*=1.66), while the male counterpart responded with an average of 7.09 (*SD*=2.07). This could be yet another supportive result for the previous result in that the female coach may be assumed to more involved at a psychological level with their athletes than the male coach. It is also important to consider the mismatch, as these results could assume that the coaches feel they understand their players, while the results show otherwise, as they were unable to accurately identify more of their athletes, particularly the ones they rated highly.

The three additional questions asked to the athletes led to even more support for the above-mentioned results. The athletes gave low scores regarding the likelihood that their coaches would recognize their profiles anonymously among those of their teammates (*M*=4.45; *SD*=2.12), which gave the impression that the athletes did not really believe in the ability of their coaches to complete the task. When asked the same question at an individual level, the athletes gave the female coach a 5 (*SD*=2.56) and the male coach a 4.27 (*SD*= 1.954). This may be explained either by the fact that the athletes did not feel the profiles represented them well enough or that they did not feel that their coaches were aware enough of their feeling states.

6.3 Limitations

A number of factors limit this study, however for the sake of brevity, only the three major limitations will be described below.

First, the small size of the sample is a large limitation in this study. The sample consisted of only 11 athletes, sometimes only 9 for the analysis of the ESP-40, and two coaches. The primary reason this is an issue is because it limits the generalizability of the

results. Therefore, the results found in this study are specific to the participants and should not be expected to be the same in other such sport teams. A secondary issue is that due to the low number of participants, the analyses were done with a limited amount of data, and we may have found very different results had this study been done with more data.

The second limitation is the methodological approach taken in this study. First, the nature of the matching exercise lead to the automatic ruling out of a possible correct answer once one of the profiles was matched incorrectly. Second, the questionnaires were self-assessments, thus relying on recollection and allowing an opportunity for bias. Third, the size of the group may have been too large, and that perhaps the task would have been simpler with a smaller group. In Hanson and Gould's study (1988) they only selected four players that were part of the study, and though their results showed that 75% of the time the coaches could not guess their anxiety levels correctly, they still picked a smaller sample which may have given them a better opportunity to guess correctly.

The third major limitation was the loose translation of the questionnaires from Finnish back to English for the analysis of the results, as some of the information may have gotten lost or misinterpreted. In order to ensure that all was understood correctly, it would have been a good idea to look over the profiles individually with each athlete, including the translations.

6.4 Practical Implications

The importance of improving the self-awareness of athletes can be clearly seen when looking at the individual profiles of the athletes, particularly regarding their worst games. Improving the awareness of emotions and pre-competitive states takes time and practice, and coaches and sport psychologists should help their athletes get there by using reflective practice and promoting positive change (Robazza et al., 2008) Once athletes are made more aware of their own emotions, particularly those prior to optimal performance experiences, athletes can be "trained to improve, refine, and expand their own routines and psychological skills to recover emotions and symptoms associated with best performance, and to either increase or decrease their levels" (Robazza et al., 2004, p398). It has been found that performers with low skill-levels lack the self-awareness to recognize and

interpret anxiety and its effects, as well as the lack of ability to associate optimal performance with emotional state (Perry & Williams, 1998; Russell & Cox, 2000; Robazza et al., 2008). When trained correctly and able to recreate the optimal emotional experience and stay in that zone prior to competition, athletes were found to be more likely to stay in the zone, compared to those who were outside of their zone before the performance or game (Syrjä, Hanin, Pesonen, 1995; Robazza et al., 2004). Also, with emotion comes physical energy and when directed properly could lead to increased performance; however, when misdirected and uncontrolled, could lead to unfavorable results (Jones, 2003). Past research has found that "athletes trained to pay attention to their current mental states before and during competition, and to contrast current conditions with previously established optimal-dysfunctional conditions, were able to adjust their emotional states and improve performance" (Annesi, 1998; Cohen, Tenenbaum, & English, 2008; Robazza et al., 2004; Robazza et al., 2008).

A secondary implication of this study is the lack of awareness that the coaches have of their athletes' emotions. Hanson and Gould (1988) stated that coaches, as a group, are poor judge of their athletes' anxiety levels. They also pressed on the fact that the task of assessing their athlete's emotions correctly is already very difficult, and that poor communication between the coach and athlete could make it even more so. Sport success is dependent on good communication between the coach and athlete (Mancini & Agnew 1978; Hanson & Gould, 1988). Coaches need to be aware that, regardless of their efforts; and that though it is ultimately up to the athlete to recognize and control their own emotions, the coach should be there to help educate their athletes on how to do just that—as coaching is as much about teaching psychological skills as it is about teaching physical skills (Martens, 1981; Hanson & Gould, 1988).

6.5 Future Research

Future researchers willing to replicate this study would be recommended to change a number of things.

First, replicating this study with a larger sample with more teams would allow for results to be more generalizable with regards to gaining knowledge about feeling states

prior to games. In addition, finding a more diverse sample could be useful as well, to add to its generalizability. A sample with both men and women could question past findings that female athletes are more likely than male athletes to express their emotions (Neal & Tutko, 1975; Olcott, 1979; Hanson & Gould, 1988), and that women, compared to men, have been found to report higher levels of both types of anxiety (trait and state) (Martens, 1977; Martens et al., 1983; Passer, 1984; Hanson & Gould, 1988). An important consideration, however, is that women may just more honest in completing the questionnaire than men (Hanson and Gould, 1988). Replicating the study with a sample consisting of different genders, various ages, ethnicities, multiple sport teams, and competitive levels would be ideal.

Second, the reliance on the description of only a single experience may not have been all that accurate in defining typicality of these experiences. If the study were to be replicated, it would be suggested to take an IZOF-based approach to the assessment, which would consist of, first, looking at the individual's history and past games, then taking a look at the relevant emotional content and afterwards defining the optimal and dysfunctional intensities for each emotion – this would only be complete after a number of self-ratings in specific practice and competition situations (Hanin, 2003). However, an alternative suggestion would be to follow Robazza et al. (2008) who asked their participants to recall how they usually felt before both successful and unsuccessful performances, thus looking at typically good and bad experiences.

Third, the methodological method itself could be alternated in future studies, especially after the feedback given by the coaches. For one, the coaches expressed that they believed they would have done better if the emotional profiles were created in a more specific manner, such as completed right after a single game or over one specific season. Though this would have its own limitations in that it would be studying the coaches' knowledge of their athletes' states in a particular situation, instead of overall—it could still provide the field with valuable information. In addition, the coaches also expressed that having to match the 11 profiles to the 11 names was very difficult, and it would be recommended to cluster the players into smaller groups, as this may improve the likelihood that the profiles are matched correctly due to the fact that it simplifies the task.

Finally, it was difficult to develop a concrete conclusion from the data found for the comparisons according to position due to the small sample size. However, further research looking at feeling states according to position in soccer players could lead to interesting results. Research with the aim of creating a psychobiosocial soccer profile based on the IZOF model, as recommended by Hanin (2000), would be fruitful to the field. It would aid in the coach-athlete relationship, awareness, and communication; and, as explained by Hanin, "as soon as dysfunctional emotions are recognized, this awareness on the part of the players and a coach leads to new optimal emotional states in key players affecting the rest of the team" (2000).

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