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Emotional intelligence in team sports: relationship of role ambiguity and intra-team communication with pre-performance psychobiosocial states.

by

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Abstract

The aim of the present study was to explore the relationships between athletes' emotional intelligence (EI), group processes and feeling states in the context of team sports.

Italian athletes ($N=299$) completed a self-report multi-section questionnaire to measure: emotional intelligence (TEIQue-SF; Cooper and Petrides, 2010), intra-team communication efficacy (SECTS; Sullivan and Short, 2011), role ambiguity (RAS; Beauchamp, Bray, Eys and Carron, 2002) and psychobiosocial states (PBS-ST; Robazza, Bertollo, Ruiz and Bortoli, 2016). As expected, multiple regression analysis and path analysis results showed a significant and positive relationship between emotional intelligence and functional psychobiosocial states and positive aspects of communication efficacy (i.e., positive conflict and acceptance). A significant negative relationship was found between emotional intelligence, role ambiguity, and dysfunctional psychobiosocial states.

EI predicts functional states, whether acceptance and positive conflict have a role of mediators between these two variables. Furthermore, EI, as hypothesized, was negative related to dysfunctional psychobiosocial states and role ambiguity. Hence, a low level of EI predicts dysfunctional states whether role ambiguity behave as mediator.

It is suggested that future research should focus also on the role of the coach, investigating coach's emotional intelligence and its influence on both athlete's emotion regulation and pre-performance psychobiosocial states.

Key words: emotional intelligence, psychobiosocial states, role ambiguity, intra-team communication efficacy.

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1. Introduction

The study of emotions in psychology has old roots. They have been studied in many different contexts and from many different perspectives, highlighting the processes that contribute to the formation, understanding, regulation and expression of emotions. Because the topic itself is broadly studied in general psychology, the focus here is on two different well-known perspectives trying to see how they are carried in sport psychology studies. From one side, some researches take the point of view of psychology of personality, focusing on intra-individual factors that lead the person to understand, manage and express emotions in a certain way, according to personal characteristics present in each individual's personality. This individual perspective is the most used in the investigation of emotions in sport psychology. In fact, studies in this field are focused on a person's emotion, such as anger, anxiety and hope, in a certain situation, such as pre-competition and post-competition, and how she/he manages and regulates them to obtain an optimal outcome or performance.

Following this perspective, the factors that sport psychology studies consider are cognitive and affective. That is why many psychological techniques have been developed to help athletes managing these situations, soliciting positive thinking, looking for an optimal level of emotional activation, regulating their own emotions and express them in a functional way to athletes' performance. Although researchers interested in emotion-related physiology, experience, and cognition have focused on patterns of intrapersonal change, some of these changes are understood as preparations for, or reactions to, specific problems that arise in social interaction. Assuming this, in the other side social psychology has a different approach whom emotions are studied not focusing especially on cognitive and affective aspects but taking an interactive social broader perspective. In the study of emotions in this field, as in every social research, the scenario and the interactions with others are highlighted, focusing on understanding of others' emotions, expression and reactions to emotions, use of emotions in group functioning such as work settings, etc... Theorists in social psychology have argued that emotional expressions help individuals to

know others' emotions, beliefs, and intentions, thus rapidly co-ordinating their behaviours and social interactions. Particularly psychology of organizations and work have focused the attention on regulation of emotions and development of emotional intelligence in co-workers and work group to improve group cohesion and communication (Kahn, 1964; Jordan & Ashkanasy, 2006). Theorizations from social context, such as Parkinson's social-functional perspective of emotion (Parkinson, 1996; Parkinson, Fischer, & Manstead, 2005) and Keltner's et al. further extension (Keltner & Haidt, 1999) can be carried in sport team dynamics to explore the function of both group based and personal emotions in sport teams (Friesen et al., 2013). Hence, taking into consideration a social and group functioning approach, theories and findings that define emotions in sport settings are needed.

Lazarus defines emotions as “an organized psychophysiological reaction to ongoing relationship with the environment, most often, but not always, interpersonal or social” (Lazarus, 2000). Hanin adds that an emotion is a reaction of a person to his/her perception and interpretation of the environment (Hanin, 2000), which have a specific meaning for him/her in a specific situation. Of course, here is not meant to argue with these two definitions but highlight a fundamental part of them that, as claimed by recent literature reviews (Friesen et al., 2013; Smith & Mackie, 2015) is missed in sport psychology research and not enough studied in sport and exercise group settings. As Lazarus defined, emotions are “most often interpersonal and social”. This is an aspect that in social psychology has of course been widely explored and theorised but in sport psychology, as explained before, the approach is mostly directed to one individual's reaction to a personal emotional state and its regulation, in order to obtain an optimal individual performance. In accordance with a social-functional perspective, emotions are regulated interpersonally because the expresser wishes to evoke an emotional response in the observer, resulting in changed behaviour (Friesen et al., 2013). Given the obvious importance of interpersonal factors in emotion causation, it might seem surprising that most psychological research into emotions has tended to rely on non-social manipulations in which a single passive subject is presented with emotional material (Parkinson, 1996).

Coherently with the aim of this review to highlight the social function of emotions, the construct of emotional intelligence takes into consideration a new

perspective in sport psychology, in order to explore the nature and the processes of emotions in a group setting involving group dynamics such as coaching, role ambiguity and intra-team communication and investigating athletes EI and the possible relationship/outcomes on athlete's emotional states.

2. Literature Review

2.1 Emotional Intelligence

The construct of emotional intelligence (from now on referred as EI) is drawn from the work of Salovey and Mayer (1990; 1997). EI is defined as a form of intelligence that involves the ability to monitor one's own and others' feelings and emotions, discriminate among them, use this information to guide one's thinking and actions, and manage emotions. Its framework proposes to connect an affective factor such as emotion, and a cognitive factor such as intelligence to create an interpersonal perspective of emotions improving the process in both factors. It is argued whether EI has to be investigated as an ability to express in a specific moment and in a specific situation that is learned and that can be trained, or as a trait which is meant as the tendency people have to adapt a certain cognitive process and behaviour. Hence, the frameworks and instruments afterward developed are based on one of these two assumptions and are used depending on the research questions of each single study.

In Mayer and Salovey's EI Ability Model (1990), which is the most used on the exploration of emotional intelligence in general psychology (Peña-Sarrionandia et al. 2015) and sport psychology research, four emotion-related skills emerge: perception of emotion, use of emotion, understanding of emotion, management of emotion. Perception of emotion can be defined as the ability and awareness to recognise oneself and others' emotions, gaining information from themselves and from the environment. Individuals that are aware of their own feelings, are better able to gather accurate information about the environment. In fact, perceiving other's emotions is a skill that allows working effectively with other people. Use of emotion corresponds to the ability to generate different kind of emotions in oneself or others in different kind of situations directing in this way thoughts and behaviours. Furthermore, the ability to use emotions to facilitate thoughts can be a

useful problem-solving tool. Understanding of emotions regards the knowledge and the comprehension of the emotions' process: causes, development and consequences. This ability helps individuals in gaining informative personal insight and insight into the feelings of others. Management of emotions in the end is related to the capacity of regulate oneself and others' emotions, adapting their emotional state to the situation and to other response in an interactive and continuous process. This ability is also involved in the successful decision-making process.

According to the EI Ability Model, Mayer Salovey and Caruso (1990) have developed a test to measure the four branches postulated by their framework. This is the only instrument that investigates state EI using a task construct. However, other questionnaires, such as the Schutte's Emotional Intelligence Questionnaire (Schutte et al., 1998), the Trait Emotional Intelligence Questionnaire (Petrides, 2009), the Bar-On Emotional Quotient-Inventory (Bar-On, 1997), are self-report assessments that usually measure trait EI. In particular, the TEIQue is found to be more appropriate in the field of sport psychology showing a higher internal consistency (Laborde et al., 2016).

In his Mixed Model, Goleman defines EI as "the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective in the situation" (Boyatzis, Goleman, & Rhee, 2000). Goleman's conceptualization of his Mixed Model states that EI is composed by 20 competencies that fall within those four separate domains. Each of the four pillars supports the adoption and implementation of emotionally intelligent behaviour (Schneider et al., 2013). Self-awareness is defined as understand one's internal states, preferences, resources, and intuitions referred as knowing one's emotions as an important tool for psychological insight and self-understanding. Self-regulation involves managing one's internal states, impulses, and resources (Goleman, 1995) and is at the base of emotional intelligence. As a fundamental domain of emotional intelligence, self-regulation includes 4 sub-domains involved in the process of self-regulate one's self and in the support of a good decision making: self-control, trustworthiness, conscientiousness, adaptability, and innovation. Being able to regulate emotions allows for example a coach to make decisions supported by emotions using both cognitive and affective processes. One of the key of self-regulation is self-motivation which involves the control of emotional tendencies that guide

or facilitate reaching goals (Goleman, 1995). If self-awareness is defined as the knowing and understanding of one's internal state, social awareness or empathy is the knowing and understanding of other's internal state, preferences and resources. This characteristic of EI helps athlete and coaches to understand each other feelings and to predict behaviours. It hasn't been studied yet if the level of EI in both coaches and athletes would lead to predict a better coach-athlete relationship as framework developed by Jowett (2004, 2017). In the end, effective management of interpersonal relationships includes: influence tactics, effective communication with others, conflict management skills, leadership abilities, instrumental relationship management, collaboration and cooperation abilities, and effective team membership capabilities (Goleman, 1995). Also the motivational and emotional climate created for example from the coach in a team is an ability based on relationship management, as well as being able to manage team crisis or conflict within the locker room.

2.1.1 Emotional Intelligence and Performance

The research questions formulated in order to investigate EI through the previously described tests (Schutte's Emotional Intelligence Questionnaire, Schutte et al. 1998; the Trait Emotional Intelligence Questionnaire, Petrides, 2009; the Bar-On Emotional Quotient-Inventory, Bar-On, 1997), are various in both general and sport psychology, whether in organizational psychology there are specific instruments (for example the Wong and Law Emotional Intelligence Scale, 2002) developed to investigate that specific situation and its dynamics that has been sometimes borrowed by sport psychology. In sport psychology EI has mostly been investigated in relation to performance (Bal et al. 2011; Cojocariu et al., 2012; Crombie et al., 2009; Szabo et al., 2014; Zizzi et al., 2003) in both individual and team sport, exploring athletes' EI. Results shows that the relation between EI and performance in elite athletes is positive and stronger than in amateur athletes (Bal et al., 2011). This is also showed in Cojocariu et al. case study (2012) where the EI of professional volleyball players is positively related with team performance. Crombie and colleagues (2009) in their study on a South-African national cricket competition, measured also team EI in order to see the relation with team performance. The hypothesis tested in this study was that the emotional intelligence of

cricket teams would predict their sports performance for a season. Accordingly, the important finding of this study was that there was a significant association between the emotional intelligence of the studied teams, as measured by the MSCEIT (Mayer-Salovey-Caruso Emotional Intelligence Test, Mayer et al., 2002), and their performance in terms of points obtained on the log. This association was consistent over two consecutive seasons and a pooled analysis confirmed the general hypothesis. For the EI components perceiving and identifying emotions and facilitation of thought, no association was found with team sports performance. The EI components understanding emotions and managing emotions were significantly associated with team sports performance. Atypically, Szabo and colleagues (2014) investigated the role of combat sports in developing EI. Their results showed that combat sports such as boxing and judo, may foster EI development. In an investigation with baseball players EI and performance, Zizzi and colleagues (2003) showed that EI was positively related only with one of the two main roles in baseball (pitching and no hitting) highlighting the fact that the skills involved in the game have to be of a certain nature to be boosted by the emotional intelligence of the athletes. As the authors explain, pitchers have more time to recognize and regulate their own emotional states during performance while the typical at-bats provides hitters with less time for emotional intelligence skills to be applied. To our knowledge, although the relationship between EI and performance is the most studied in sport psychology, in the last few years the interest for EI is growing up also in relation to group dynamics such as leadership style and coaching efficacy, team cohesion and team effectiveness.

2.2 Role ambiguity

Role ambiguity is defined by a lack of clear information associated with one's role (Kahn, 1964). In team sports, when there is a high level of role ambiguity it is likely that both individual and collective functioning will suffer. The concept of role clarity is instead the other face of the same coin meaning that the people are clear about the responsibilities of their role and what are the expectations in fulfilling that specific role. Beauchamp and colleagues (2002) developed a conceptual model for the study of role ambiguity in sport team, consistent with Kahn (1964), considering it as multidimensional. Four aspects, included in the model, are related with the perception of role ambiguity: (a)

the scope of one's responsibilities, (b) the behaviours associated with one's role, (c) how one's role performance is evaluated, and (d) the consequences of failing to fulfill one's role responsibilities. In the model are included both formal and informal roles in a variety of situations, proper of team sport, such as offensive and defensive.

Antecedents of role ambiguity are factors that contribute to the perception of role ambiguity and to role ambiguity experience. In previous studies (Kahn et al., 1964; Beauchamp et al., 2005), results highlight that role ambiguity would arise from the expectations and subsequent communications emanating from a role sender. In sport situations, the role sender is identified as the coach who, through communication, express his expectations about one's role. Consequences of role ambiguity are found to be associated with athlete and team's performance and satisfaction as well as negative emotions. In line with Kahn (1964) and Beauchamp and colleagues (2003) the ambiguity experience is predictably associated with tension and anxiety, hence, with reduction in the extent to which the demands and requirements of the role are successfully met by the role occupant. The availability of role related information might also have profound implications for personal adjustment and well-being (Beauchamp et al., 2005; Eys et al., 2003). The specific reaction of each person to a stressful and pressing situation is determined by his/her perception of ambiguity in relation to the understanding of his/her role and of the expectation someone has from him/her. Different coping strategies can be applied in an attempt to reduce great pressures and tension. However, some strategies can be maladaptive and create an opposite effect in the long run.

2.3 Intra-team communication

Communication is a primary group process both for group dynamics and performance. It has been defined by the Oxford's Dictionary, (2018) as "the imparting or exchanging of thoughts, opinions or information by speech, writing or signs". Sullivan and Feltz (2003) developed their approach through the assessment of four distinct components of verbal and non-verbal communication among team members in an attempt to measure the quality of communication in sport teams. The four dimensions are acceptance, distinctiveness, positive conflict, and negative conflict. Acceptance wants to evaluate the

interpersonal exchange of appreciation and consideration between the athletes; distinctiveness measures the exchange of a shared, inclusive identity through verbal and nonverbal messages; positive conflict means to assess open and constructive methods of dealing with disagreements; negative conflict refers to the expression of agitation or anger. According to Carron and Eys (2012), Sullivan and Feltz approach has not yet been examined extensively in relation to other group variables. However, there are studies that put in relations intra-team communication with role ambiguity (Cunningham et al., 2007), team coordination (Eccles et al., 2004), and team performance. Hanin (1992), in a notable investigation of effective intra-team communication practices, described a number of performance-enhancing qualities of effective social exchanges between sport team members. More specifically, effective intra-team communication may serve to aid athletes of an interactive sport team by orientating (i.e., planning), stimulating (i.e., motivating), and evaluating (i.e., appraising) each member's performance.

Therefore, developing team members' abilities to communicate with acceptance, promoting distinctiveness and positive interactions will result in a better integration between athletes, reducing role ambiguity and enhancing athletes' satisfaction and team performance.

2.4 Psychobiosocial states

As it has been discussed in the literature review, sport psychology research on emotions has been mainly focusing on the individual. Emotional states of the athletes are indeed studied related to performance, aiming to understand pre-competition functional and dysfunctional emotions. Psychobiosocial states have their roots on the individual zones of optimal functioning (IZOF) model (Hanin, 2000, 2007), from which the form characteristics were extended from a single emotion to multiple nonemotion state modalities such as cognitive, motivational, volitional, bodily-somatic, moto-behavioural, operational, and communicative components. Hence, the non-emotional states have a fundamental role in the contribution to describe more accurately the whole athlete's pre-competition experience. Multiple verbal descriptors/labels in each form component reveal judgments about several theoretically driven contents including psychological (cognitive,

affective, motivational, volitional), physiological (bodily-somatic, motor-behavioural), and social (behavioural, communicative) states (Hanin & Ekkekakis, 2014).

A performance related state is defined as a situational condition resulting from human functioning and characterized by psychological, biological, and social components (Hanin, 2000). The psychological component included the affective (emotion) modality, which is the central modality of a performance state, and it encompasses subjective pleasant and unpleasant feeling states. Non-emotion psychological concomitants include the cognitive modality related to attention processing and ability to concentrate, the motivational modality, or the pre-decisional aspects related to involvement on a targeted action, and the volitional modality, or post-decisional aspects aiming at mobilizing the individuals' resources. The biological component of a state includes the bodily-somatic modality including psychophysiological or biological aspects of the action, and the motor-behavioural modality related to the perception of the movement or motor coordination. The last one is the social component, which is comprised by the operational modality referring to the perception of the effectiveness of action or task execution, and the communicative modality, verbal or nonverbal aspects of the interpersonal interactions among people involved in task execution. An individualized profiling procedure has been recently proposed to assess a large array of athletes' performance-related experiences termed psycho-biosocial states (Robazza et al., 2016; Ruiz et al., 2016). This assessment of the athlete's functional and dysfunctional psychobiosocial states includes affective, cognitive, motivational, volitional (psychological), bodily-somatic, motor behavioural (biological), operational, and communicative (social) modalities which comprehend the athlete competition experience.

As demand of recent reviews and studies (Friesen et al., 2013; Peña-Sarrionandia et al., 2015; Stys et al. 2004) there is the need in the literature of more research on the combination of both individual and collective approaches on emotions in the sport setting, especially in team sports where it is needed to consider group dynamic variables. Hence, intra-team communication and role ambiguity are, in the present study, thought to have an influence on both team and athletes' emotional involvement and performance.

3. Purpose of the study

The aim of the present study was to explore the relationships between emotional intelligence (EI), group processes and athletes feeling states in the context of team sports. Hence, we investigated the relationship between players' emotional intelligence, role ambiguity, intra-team communication, and emotional states (functional and dysfunctional). In addition, the two team dynamics variables (role ambiguity and intra-team communication efficacy) were considered as mediators between emotional intelligence and the psychobiosocial states.

Consequently, it was hypothesized that:

3.1 Model 1

- (a) athletes' EI would be positively related with functional psychobiosocial states;
- (b) the level of EI would be positively related with three of the four subscales of intra-team communication efficacy (acceptance, distinctiveness, positive conflict);
- (c) subscales of intra-team communication (acceptance, distinctiveness, positive conflict) would be positively related with functional psychobiosocial states.

3.2 Model 2

- (a) EI would be negative related with dysfunctional psychobiosocial states;
- (b) the level of EI would be negatively related with the intra-team communication subscale of negative conflict;
- (c) EI would be negatively related with role ambiguity;
- (d) negative conflict would be positively related with dysfunctional psychobiosocial states;
- (e) role ambiguity would be positively related with dysfunctional psychobiosocial states.

4. Method

4.1 Participants

Participants were 307 athletes (182 males, 125 females) from a total of 26 teams (14 male teams, 12 female teams). Athletes were drawn from different competitive levels (205 regional level, 102 national level). The participants represented a number of sports, including futsal ($n = 118$), soccer ($n = 80$), volleyball ($n = 69$), handball ($n = 44$) and rugby ($n = 20$). Athletes ranged in age from 18 to 52 years ($M = 26.1$, $SD = 6.85$), three participants did not report their age. One hundred sixty one participants indicated that they were starters players and 133 non-starters players. The athletes were members of their respective teams from a mean of 3.44 years ($SD = 4.25$).

4.2 Instruments

4.2.1 Emotional intelligence . The Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Cooper & Petrides, 2010) measures perceived capacity to understand, process and use information about one's emotions and the emotions of others. It includes 30 items, taken in pairs from each of the 15 facets of the full form of the Trait Emotional Intelligence Questionnaire (Petrides, 2009), which includes 153 items. Whereas global trait EI is the average score of all 30 items, the four subscale scores can be derived from 26 of these items: well-being measure how people judge their general level of life satisfaction (6 items; e.g., "I feel that I have a number of good qualities"), self-control describes how far people think they can control their impulses or are controlled by them (6 items; e.g., "I usually find it difficult to regulate my emotions"), emotionality indicate how aware somebody may be of his/her own emotions and feelings, as well as those of other people (8 items; e.g., "Many times, I can't figure out what emotion I'm feeling"), and sociability describes how comfortable people feel in different social contexts (6 items; e.g., "I'm usually able to influence the way other people feel"). The remaining 4 items intend to measure adaptability and self-motivation, which contribute directly to the global score without contributing to any of the factors. Participants indicate their responses on a 7-point Likert scale, ranging from 1 (completely disagree) to 7 (completely agree). Cronbach's

alpha values were .88 for global trait EI, .75 for wellbeing, .66 for self-control, .66 for emotionality, and .70 for sociability (Zampetakis, 2011).

4.2.2 *Intra-team communication efficacy.* The revised Scale for Effective Communication in Sport (SECTS-2; Sullivan & Feltz, 2011) is a 15-items scale that measures quality of communication in sports team. Each item starts stating “When our team communicates, we...” and goes on addressing different aspects of intra-team communication investigating 4 factors: acceptance which wants to evaluate the interpersonal exchange of appreciation and consideration between the athletes (4 items; e.g., “Trust each other”), distinctiveness measures the exchange of a shared, inclusive identity through verbal and nonverbal messages (3 items; e.g., “Use slang that only team members would understand”), positive conflict means to asses open and constructive methods of dealing with disagreements (4 items; e.g., “When disagreements arise, we try to communicate directly with those [with whom] we have a problem”) and negative conflict refers to the expression of agitation or anger (4 items; e.g., “Shout when upset”). Responses ranged on a 7-point Likert scale from 1 (hardly ever) to 7 (very frequently).

4.2.3 *Role ambiguity.* The Role Ambiguity Scale (RAS; Beauchamp et al., 2002) is a 20-item questionnaire designed to assess one’s perception of role ambiguity in an interdependent team sport context. The scale is composed by 4 dimensions: scope of responsibilities (5 items; refers to the individual’s knowledge of the extent of his or her responsibilities; e.g., “I understand the extent of my responsibilities”); behaviours necessary to fulfill role responsibilities (5 items; refers to the individual’s knowledge of the behaviours required for his or her role; e.g., “I know what behaviours are necessary to carry out my responsibilities”); evaluation of role performance (5 items; refers to the individual’s knowledge of how he or she is evaluated in performing his or her role; e.g., “I understand how my role is evaluated”);and consequences of not fulfilling role responsibilities (5 items; refers to the individual’s knowledge of penalties and frustration that he or she may incur for not fulfilling his or her expected responsibilities; e.g., “I know what will happen if I don’t perform my role responsibilities”). Responses to each statement

are ranked on a 9-point Likert scale ranging from 1 (strongly disagree) to 9 (strongly agree). Higher scores represent greater role clarity (i.e., lower role ambiguity), while lower scores represent less role clarity (i.e., higher role ambiguity). The scale showed acceptable internal consistency with Cronbach's alphas ranging from .77 to .91 (Eys et al., 2003).

4.2.4 Psychobiosocial States. The Psychobiosocial State Scale (PBS-ST; Robazza et al., 2016;) assesses eight state modalities (i.e., affective, cognitive, motivational, volitional, bodily-somatic, motor-behavioural, operational and communicative) experienced by athletes, prior competition. The Italian version of the PBS-ST consists of 20 rows of 78 adjectives (from 3 to 6 per row) and was developed from the original English version of the Individualized Profiling of Psychobiosocial States (Ruiz et al., 2016). Two are the factors included in the scale: functional states (10 items; (+) and dysfunctional states (10 items; (-). In particular, the affective modality is assessed by six items, including pleasant functional states (+), pleasant dysfunctional states (-), functional anxiety (+),dysfunctional anxiety (-), functional anger (+), and dysfunctional anger (-). For the other seven modalities two rows of synonym adjectives assessed functional or dysfunctional states. Intensity is rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (very, very much).

4.3 Procedure

After ethical approval for the study was obtained from the Ethical Committee, participants were recruited through initial contact with head coaches or managers of the teams to obtain permission to approach their athletes. Once permission was obtained, a convenient meeting date was scheduled with the participants, either prior to or following a practice. All teams were active in season play at the time of data collection. In general, the teams were in the early/middle part of their seasons, had spent approximately 3 to 5 months competing together during the current season. Athletes were presented an informed consent form and made clear that the participation was voluntary and confidentiality was assured. After informed consent was signed, athletes completed the questionnaires. A

multi-scale questionnaire was assembled to measure the study variables. A standardized protocol (see Duda et al., 2013) was used in the translation of the items of the role ambiguity scale and of the scale for effective communication in team sport, which were not present in Italian yet, whether the trait emotional intelligence questionnaire (Di Fabio et al., 2016) and the psychobiosocial state scale were already been validated in Italian language (Robazza et al., 2016). First, a bilingual person translated the scales from English into Italian. Second, three academics whose first language was Italian and were fluent in both written and spoken English, and familiar with the targeted scales, examined each translated item. After discussing possible discrepancies between items, it was ensured that the underlying meaning of each item and of the whole scales remained unchanged. Third, the modified Italian versions were then back translated into English. Fourth, the translated English versions were compared to the original to ensure that the meaning and intent of the original items were maintained. The multi-scale questionnaire included measures of the emotional intelligence, intra-team communication, role ambiguity and psychobiosocial states. A researcher remained present during data collection to clarify any possible misunderstanding pertaining to the measures and to answer any questions of concern for participants.

5. Data Analysis

Data were screened for missing data, violations of assumptions of normality, and multivariate outliers as recommended by Tabachnick and Fidell (2013). Large amount of data were missing for five participants, and three outliers were detected using Mahalanobis' distance ($p < .001$), thus, they were all removed from further analysis. Preliminary analysis included descriptive statistics, internal consistency, and Pearson correlation coefficients. Multiple regression analyses using the enter method were conducted to examine the explanatory power of emotional intelligence, communication efficacy, and role ambiguity as predictors of feeling states. In particular, model 1 examined the explanatory power of emotional intelligence, positive aspects of communication efficacy, predicting functional feeling states, whereas model 2 examined emotional intelligence, a negative aspect of communication efficacy (negative conflict), role

ambiguity, as predictors of dysfunctional feeling states. Path analysis is a straightforward extension of multiple regression. Its aim is to provide estimates of the magnitude and significance of hypothesised causal connections between the sets of variables investigated in Model 1 and Model 2. Path analysis was conducted with AMOS to explore the relationship between emotional intelligence, the two team dynamic variables, role ambiguity and intra-team communication efficacy, and psychobiosocial states.

6. Results

6.1 Descriptive statistics, correlations, and internal consistency

Descriptive statistics, internal consistency values, and bivariate correlations for the study variables are reported in Table 1. As the table shows athletes reported high levels of wellbeing and emotionality, positive conflict, and pleasant states. In contrast, lowest scores were reported for negative conflict, unpleasant states, sociability, and self-control. In terms of role ambiguity, the highest values were reported for role evaluation ambiguity subscale. Regarding emotional intelligence, acceptable Cronbach's alpha values were found for the global trait EI. Values for the rest of the subscales were above .60. Acceptable alpha values were found for all other study variables ranging from .72 to .77 for effective communication, from .83 to .89 for role ambiguity, and from .84 to .85 for psychobiosocial states.

Table 1. Descriptive statistics for the study variables ($N = 299$).

Variables	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>α</i>
Emotional intelligence					
Well-being	5.60	1.02	-1.19	1.43	.82
Self-control	4.76	1.03	-.22	-.41	.65
Emotionality	5.30	.84	-.65	.39	.61
Sociability	4.86	.95	-.35	-.07	.64
Global trait EI	5.19	.77	-.74	.65	.80
Effective communication					
Acceptance	5.30	.95	-.76	.88	.76
Distinctiveness	4.56	1.51	-.22	-.77	.77
Negative Conflict	4.39	1.24	-.33	-.16	.72
Positive Conflict	4.93	.99	-.31	.23	.73
Role ambiguity					
Scope responsibilities	2.49	1.64	1.65	2.60	.89
Role Behaviour	2.72	1.58	1.41	2.20	.87
Role evaluation	3.13	1.62	.73	1.65	.85
Role consequences	2.51	1.57	1.54	2.75	.83
Psychobiosocial states					
Functional states	2.89	.64	-.84	.95	.85
Dysfunctional states	.95	.73	1.08	1.09	.84

Pearson's correlations between measures are reported in Table 2. Global trait emotional intelligence, as well as its subscales, had, as expected, significant positive correlation with acceptance, positive conflict and functional states and negatively with all the subscales of role ambiguity and dysfunctional states. Global trait EI did not correlate significantly with effective communication subscale of distinctiveness. Not significance was found between negative conflict and psychobiosocial states. As hypothesized, acceptance and positive conflict were positively correlated with functional states. Furthermore, EI was negatively correlated with role ambiguity and dysfunctional states. Finally, ambiguity to scope responsibilities, role behaviour ambiguity and role evaluation ambiguity showed, as formulated in the hypothesis, positive correlation with dysfunctional states and negative correlation with functional states whether role consequences ambiguity was positively correlated with dysfunctional states.

Table 2. Bivariate correlations between the study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Well-being	-														
2 Self-control	.51**	-													
3 Emotionality	.62**	.49**	-												
4 Sociability	.53**	.43**	.47**	-											
5 Global trait EI	.84**	.74**	.83**	.73**	-										
6 Acceptance	.19**	.22**	.22**	.12*	.25**	-									
7 Distinctiveness	.12*	.06	.07	.08	.11	.20**	-								
8 Negative Conflict	.07	-.15*	-.05	.15*	.01	.03	.24**	-							
9 Positive Conflict	.19**	.13*	.25**	.13*	.24**	.71**	.22**	.14*	-						
10 Ambiguity to scope responsibilities	-.17**	-.20**	-.25**	-.17**	-.27**	-.18**	-.09	.05	-.26**	-					
11 Role behaviour ambiguity	-.15**	-.24**	-.31**	-.20**	-.30**	-.26**	-.04	.03	-.31**	.81**	-				
12 Role evaluation ambiguity	-.16**	-.24**	-.28**	-.17**	-.29**	-.28**	-.09	.05	-.30**	.63**	.73**	-			
13 Role consequences ambiguity	-.15**	-.17**	-.27**	-.27**	-.28**	-.20**	-.04	-.03	-.25**	.72**	.74**	.66**	-		
14 Functional intensity	.28**	.29**	.22**	.23**	.35**	.30**	.17**	.09	.27**	-.16**	-.19**	-.26**	-.09	-	
15 Dysfunctional intensity	-.24**	-.37**	-.30**	-.22**	-.37**	-.26**	-.04	.06	-.15*	.29**	.34**	.35**	.31**	-.32**	-

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

6.2 Multiple Regression Analysis

Table 3 shows the results from regression analysis on the prediction of functional states based on effective communication dimensions, and athletes' EI. Gender, competitive level and role were entered as covariates. As the table shows, acceptance, distinctiveness and positive conflict predicted 18.3% of the variance of functional states. Adding global trait EI increased the predicted variance to 25%.

Table 3. Multiple regression models for the prediction of functional states.

Step		β	T	sig	R ²	ΔR^2
1	(Constant)		18.80	0.00	0.08	0.08***
	Competitive level	0.05	0.80	0.42		
	Starter / non starter role	-0.19	-3.30	0.00		
	Gender	-0.19	-3.25	0.00		
2	(Constant)		7.92	0.00	0.18	0.10***
	Competitive level	0.07	1.19	0.24		
	Starter / non starter role	-0.18	-3.33	0.00		
	Gender	-0.17	-3.09	0.00		
	Positive conflict	0.17	2.18	0.03		
	Acceptance	0.09	1.08	0.28		
	Distinctiveness	0.17	2.99	0.00		
3	(Constant)		4.09	0.00	0.25	0.07***
	Competitive level	0.06	1.13	0.26		
	Starter / non starter role	-0.15	-2.86	0.01		
	Gender	-0.18	-3.33	0.00		
	Positive conflict	0.13	1.77	0.08		
	Acceptance	0.05	0.70	0.48		
	Distinctiveness	0.15	2.82	0.01		
	Global trait EI	0.27	4.97	0.00		

Note. *** $p > .000$

Table 4 shows the results from regression analysis conducted for the prediction of dysfunctional states (constant) based on effective communication dimensions, and athletes' EI. The method used in the analysis of Model 2 was also "enter". The procedure followed for the

step 1 was the same of Model 1. Therefore, gender, competitive level and role were entered in the analysis as covariates. As reported in the second step of the table, negative conflict and role ambiguity predicted 16% of the variance of dysfunctional states. In the third step, the variable or global trait EI was entered and the prediction of the variance increased to 24 %.

Table 4. Multiple regression models for the prediction of dysfunctional states.

Step		β	T	sig	R ²	ΔR^2
1	(Constant)		1.71	0.09	0.04	0.04*
	Competitive level	0.01	0.14	0.89		
	Starter / non starter role	0.14	2.42	0.02		
	Gender	0.13	2.24	0.03		
2	(Constant)		-0.43	0.67	0.16	0.12***
	Competitive level	0.02	0.30	0.77		
	Starter / non starter role	0.09	1.49	0.14		
	Gender	0.13	2.25	0.03		
	Negative conflict	0.04	0.74	0.46		
	Ra responsibility	0.03	0.27	0.79		
	Ra behaviour	0.11	1.00	0.32		
	Ra evaluation	0.15	1.72	0.09		
	Ra consequences	0.10	1.08	0.28		
	3	(Constant)		3.73		
Competitive level		0.02	0.30	0.76		
Starter / non starter role		0.06	1.17	0.24		
Gender		0.12	2.33	0.02		
Negative conflict		0.05	0.85	0.39		
Ra responsibility		0.01	0.10	0.93		
Ra behaviour		0.08	0.80	0.44		
Ra evaluation		0.12	1.41	0.16		
Ra consequences		0.08	0.88	0.38		
Global trait EI		-0.30	-5.23	0.00		

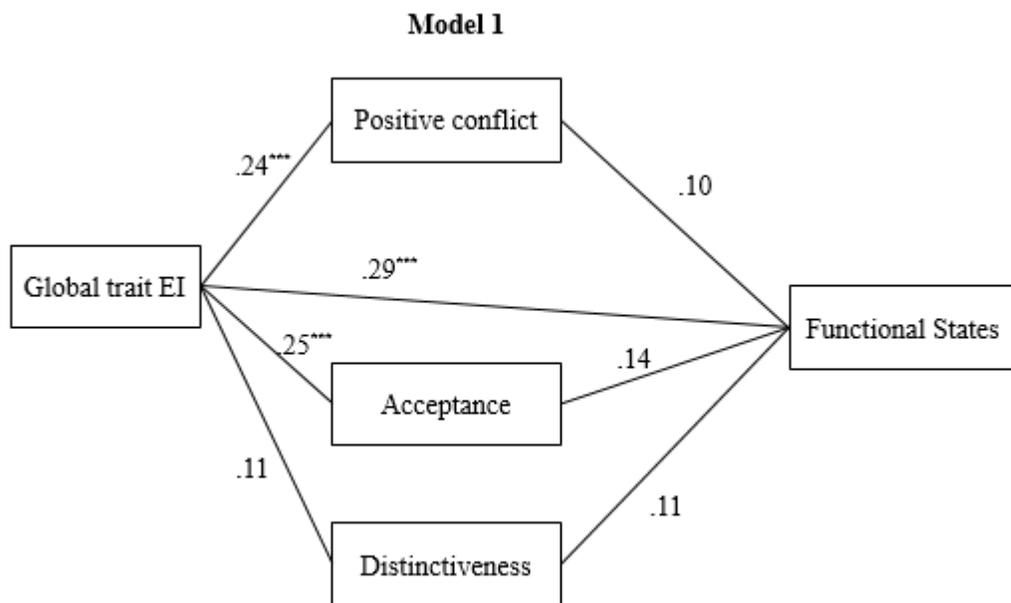
Note. Ra = role ambiguity. *** $p > .000$

6.3 Path Analysis

Path analysis is summarized in Figure 1 and 2 and show the relationships hypothesized between the variables. In Figure 1 global trait EI is represented as antecedent,

intra-team communication subscales of acceptance, distinctiveness and positive conflict as mediators and functional states (model 1). Global trait EI has been found to be significantly and positively related to functional psychobiosocial states. Also, EI was positively significant related with acceptance and positive conflict, whether distinctiveness, even if showing a relationship with EI, it is not significant. Furthermore, between the explored intra-team communication efficacy subscales and functional psychobiosocial states no significant relationship was found.

Figure 1. Model 1 - Path analysis results on the relationships between emotional intelligence, positive conflict, acceptance, distinctiveness, and functional states.

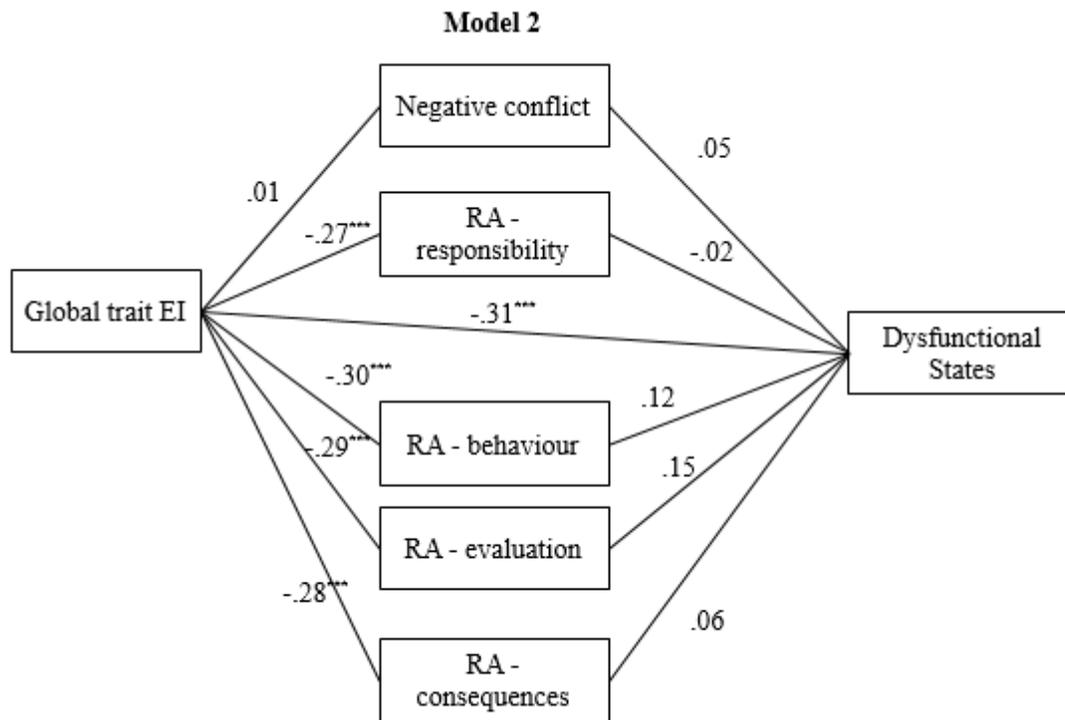


Note: Regression coefficients presented are standardised.

Figure 2 shows the relationships between global trait EI, negative conflict, role ambiguity (i.e., ambiguity to scope responsibilities, role ambiguity behaviours, role ambiguity evaluation and role ambiguity consequences) and dysfunctional states (model 2). As expected, global trait EI was negatively related to dysfunctional psychobiosocial states and all role ambiguity dimensions. Contrary to our hypothesis, there was no significant relationship between global trait EI and negative conflict. Furthermore, between

all role ambiguity subscales and dysfunctional psychobiosocial states no significant relationship was found.

Figure 2. Model 2 - Path analysis results on the relationships between emotional intelligence, role ambiguity, negative conflict and dysfunctional states.



Note: Regression coefficients presented are standardised

7. Discussion

The purpose of the present study was to explore the relationships between emotional intelligence (EI), group processes and athletes feeling states in the context of team sports. Specifically, the relationship between players' emotional intelligence, role ambiguity, intra-team communication, and psychobiosocial states (functional and dysfunctional) was examined. In line with previous results, no differences were found between emotional intelligence and gender (Stys and Brown, 2004). Furthermore, the level of EI in the

athletes is consistent with previous results (Laborde, 2011, 2014) which investigated this variable using the TEIQue. Results of Cunningham and Eys (2007) on levels of intra-team communication efficacy are in line with the data obtained. Taking into account results on role ambiguity, the data obtained in the present study are consistently lower than previous researches (Bosselut et al., 2011; Cunningham and Eys, 2007; Eys et al., 2003; Karamousalidis, 2010; Leo et al., 2015). This is an interesting finding that did not emerge before in the literature and needs further investigation. Even if it was not the purpose of the present study, an interesting result was found consistent with Cunningham and Eys (2007) research on role ambiguity and intra-team communication. In fact, the present study confirms the relationship between these two variables with a negative significant correlation. Whether role ambiguity is high, communication efficacy is low and vice versa. Following the models (1,2) described in the hypothesis, the results will be discussed in order to contextualize the information obtained in the present literature.

7.1 Model 1

Model 1 expressed the relationships between emotional intelligence, positive conflict, acceptance, distinctiveness, and functional states. The relationships found are in line with the hypothesis previously formulated. As interesting results, emotional intelligence is, as expected, positive and significantly related with functional psychobiosocial states. This result is consistent with the few studies present in the literature (Laborde et al., 2011; Laborde et al., 2014; Lane et al., 2010; Lane et al., 2011; Wagstaff et al., 2012; Siskos et al., 2012) and fills the requests of a variety of literature reviews (Friesen et al., 2013; Laborde et al., 2016; Stys et al., 2004; Peña- Sarrionandia et al., 2015) that claimed the need of investigate the relationship between emotional intelligence and feeling states or emotion regulation. Furthermore, as hypothesized, emotional intelligence has been found positively related with communication efficacy subscales of acceptance and positive conflict, whether the subscale of distinctiveness has been found related but not statistically significant. There are not previous studies that have investigated this relationship before. However, we can assume that, because of the characteristics of emotional intelligence framework as the capacity of perceive, recognize, manage and use one own and others'

emotions, a high level of EI facilitate the communication within team members. Athletes with high EI should be able to understand better others' emotions and consequently regulate their own. Following the Model 1, we can state that even if there is a relationship between intra-team communication efficacy and functional states found not significant, results suggest that communication efficacy is an important component for athlete sport experience and feeling states. Therefore, this relationship needs further investigations.

Concluding, emotional intelligence has been found to be a significant predictor of functional psychobiosocial states, whether intra-team communication has the role of mediator of this relationship. These results imply the importance of emotional intelligence in sport context both in terms of team functioning and individual optimal performance. The athletes that have a high emotional intelligence are more incline to regulate better their feeling states and arousal in order to experience functional emotions previous competition and to succeed during performance (Laborde, 2004). Functional states are already being found related with optimal performance by a large set of previous studies (Bortoli et al., 2009; Laborde et al., 2011; Laborde et al., 2014; Lane et al., 2010; Robazza et al., 2012). This suggests that training emotional intelligence would have benefits for both athlete's pre-competition and competition experiences and performance outcome, as well as intra-team communication efficacy which is a mediator between emotional intelligence and functional states.

7.2 Model 2

Model 2 showed the relationships between emotional intelligence, role ambiguity, negative conflict and dysfunctional states. As expected, Global trait EI is negatively related with dysfunctional states. This result is in line with what has been found and described in Model 1. Emotional intelligent athletes are not incline to experience dysfunctional psychobiosocial states before competition confirming that they are more aware of their emotions and competent in regulate them in a functional way. As expected, these athletes are also clear of what is their role and responsibility (task and social) in the team. Global trait EI is, indeed, negatively related with role ambiguity dimensions (ambiguity to scope responsibilities, role ambiguity behaviours, role ambiguity evaluation and role ambiguity

consequences). Low emotional intelligence is, therefore, predictor of dysfunctional states. Unexpectedly, not significant relationship was found between emotional intelligence and negative conflict. Furthermore, even if there is relationship between role ambiguity dimensions and dysfunctional states, it was found not significant. Results elaborated from Model 2 are important to confirm that emotional intelligent athletes have an overall positive sport experience rather than athletes with a low emotional intelligence which are, instead, incline to experience dysfunctional states. Also, they experience more role ambiguity in all of the four dimensions which does not facilitate communication between the athletes (Cunningham and Eys, 2007).

Finally, as practical implications, sport performance and overall athlete experience could be facilitated and reached by training and improving emotional intelligence which is found to be a predictor of both functional states of the athletes and athletes' performance. This idea is in line with previous studies that have found emotional intelligence to be positive related with other team dynamic variables such as cohesion (Berry, 2013; Naeiji1 et al. 2014; Taghizadeh et al. 2012; Terry & Carron, 2000) and team effectiveness (Garivani et al. 2016).

8. Limitations and future direction

One of the limitations is that this study is cross sectional and reports data from one specific moment of the sport competitive season. The sample is original from a specific area in Italy, this can be a limitation and need for future investigations. Also, as a future direction is it suggested to explore the role of the coach in both team and individual sports. Emotional intelligence of the coach can have an important role in team dynamics as it is part of the team. Both role clarification/ambiguity, intra-team communication can be influenced by specific characteristics of the coach such as the emotional intelligence, leadership style, but also by coach- athlete relationship and motivational climate coach created. Furthermore, other variables should be considered such as sport type and years of the athlete in the current team and/or with the current coach.

9. Conclusions

As emerged from the present study results, athletes that score high in emotional intelligence have an overall positive sport experience. Specifically, they have a good quality and efficacy of communication with their teammates and are able to predict, understand, manage and use their own and others emotions. Furthermore, they are clear of what are their responsibilities and what it is expected from them as member of the team. They are likely to experience functional psychobiosocial states before and during competition, being able to regulate their own emotions and, consequently, to achieve optimal performance level.

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11. Appendix

11.1 Emotional intelligence. TEIQue.

1. Esprimere con le parole le mie emozioni non è un problema per me
2. Trovo spesso difficile vedere le cose dal punto di vista di un'altra persona
3. Nell'insieme sono una persona molto motivata
4. Di solito trovo difficile regolare le mie emozioni
5. In generale non trovo la vita piacevole
6. Riesco a interagire efficacemente con le persone
7. Tendo a cambiare idea frequentemente
8. Molte volte non riesco a capire che emozioni sto provando
9. Sento di avere molte buone qualità
10. Trovo spesso difficile far valere le mie ragioni
11. Di solito sono in grado di influenzare i sentimenti delle altre persone
12. Nel complesso ho una visione triste della maggior parte delle cose

13. Quelli che mi stanno vicino si lamentano spesso che non li tratto con giustizia
14. Spesso trovo difficile adattare la mia vita a seconda delle circostanze
15. Nell'insieme, sono in grado di affrontare lo stress
16. Trovo sempre difficile mostrare il mio affetto alle persone care
17. Normalmente sono in grado di mettermi nei panni degli altri e di provare le loro emozioni
18. Normalmente trovo difficile mantenermi motivato
19. Sono di solito in grado di trovare il modo di controllare le mie emozioni quando voglio
20. Nell'insieme sono contento della mia vita
21. Mi descriverei come un buon negoziatore
22. Tendo a farmi coinvolgere in cose di cui poi invece spero di liberarmi
23. Spesso mi fermo a riflettere sui miei sentimenti
24. Credo di avere molti punti di forza personali
25. Tendo a tirarmi indietro anche se so di avere ragione
26. Mi sembra di non avere alcuna influenza sui sentimenti delle altre persone
27. Generalmente penso che nella vita le cose mi andranno bene
28. Trovo difficile legare bene con persone che sono a me vicino
29. In genere sono in grado di adattarmi a nuove situazioni
30. Gli altri mi ammirano per la mia capacità di essere rilassato

11.2 Intra-team communication efficacy. SECTS

1. Ci fidiamo l'uno dell'altro

2. Comuniciamo con sincerità quello che proviamo
3. Cerchiamo un compromesso quando siamo in disaccordo
4. Condividiamo i nostri pensieri
5. Facciamo vedere quando perdiamo la calma
6. Cerchiamo di fare in modo che tutti i giocatori vengano coinvolti
7. Usiamo soprannomi
8. Usiamo un gergo che solo persone della squadra possono capire
9. Usiamo gesti che solo persone della squadra possono capire
10. Gridiamo quando siamo turbati
11. Comuniciamo la rabbia tramite il linguaggio del corpo
12. Abbiamo un atteggiamento aggressivo quando siamo in disaccordo
13. Siamo disposti a parlare di ciò che proviamo
14. Quando c'è disaccordo, cerchiamo di comunicare direttamente con coloro con i quali abbiamo problemi
15. Portiamo tutti i problemi allo scoperto

11.3 Role ambiguity. RAS

1. Sono consapevole della portata delle mie responsabilità
2. Mi è chiaro l'ambito delle mie responsabilità
3. Comprendo tutte le mie responsabilità
4. Ho poco chiara l'ampiezza delle mie responsabilità
5. Ho chiare le diverse responsabilità che fanno parte del mio ruolo

6. Comprendo quali aggiustamenti è necessario apportare al mio comportamento per svolgere il mio ruolo
7. So come devo comportarmi per svolgere il mio ruolo
8. So quali comportamenti sono necessari per adempiere alle mie responsabilità
9. Mi sono chiari i comportamenti da adottare per svolgere il mio ruolo
10. Mi è poco chiaro quali comportamenti ci si aspetti da me per svolgere il mio ruolo
11. Comprendo i criteri secondo i quali sono valutate le mie responsabilità
12. Comprendo come è valutato il mio ruolo
13. Mi è chiaro come sono valutate le responsabilità legate al mio ruolo
14. Mi è poco chiaro il modo in cui sono valutate le reazioni offensive legate al mio ruolo
15. Mi sono chiari i criteri con cui è valutato il mio ruolo offensivo
16. Mi è chiaro cosa succede nel caso in cui io non riesca ad adempiere alle mie responsabilità di ruolo
17. So quali sono le conseguenze se fallisco nell'adempire alle mie responsabilità di ruolo
18. Mi sono poco chiare le conseguenze se fallisco nell'adempire alle mie responsabilità di ruolo
19. Comprendo le conseguenze di una prestazione di ruolo fallimentare
20. So cosa succederà se non adempio alle mie responsabilità di ruolo

11.4 Psychobiosocial states. PBS-ST.

1. Entusiasta, fiducioso, tranquillo, felice, gioioso
2. Combattivo, grintoso, aggressivo
3. Movimento attivo, coordinato, dinamico,

4. Distratto, deconcentrato, dubbioso, confuso
5. Prestazione efficace, abile, sicura, costante
6. Chiuso, riservato, non socievole, isolato
7. Nervoso, irrequieto, scontento, insoddisfatto
8. Fisicamente vigoroso, pieno di energia, carico
9. Movimento debole, goffo, scoordinato, fiacco
10. Vigile, concentrato, attento
11. Demotivato, disinteressato, disimpegnato
12. Allegro, compiaciuto, appagato, soddisfatto
13. Prestazione inefficace, scadente, incerta, instabile
14. Comunicativo, espansivo, socievole, cooperativo
15. Risoluto, determinato, tenace, perseverante, deciso
16. Preoccupato, angosciato, scoraggiato,
17. Motivato, coinvolto, interessato
18. Fisicamente teso, nervoso, affaticato, esausto
19. Furioso, risentito, rabbioso, astioso, irritato, infastidito
20. Indeciso, incerto, esitante, rinunciatario, incostante