

Original Article

The psychological constructs and dimensions applied to sports performance: a change of theoretical paradigms

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Abstract:

In the last twenty years, sports performance studies have focused on the mental abilities most developed in athletes and how they affect their performance. The theoretical models underlying the test Psychological Inventory of Sport Performance (IPPS-48) developed in 2009 focus, unlike previous instruments, on both positive and negative mental abilities that influence sports performance. Contemporary literature provides an articulated framework of mental abilities that strengthen, support or impede sporting performance. For example, it is referred to the self-efficacy, the definition of objectives, the control of thoughts, the simulation through the imagination that anticipates the competition, the management of the emotional arousal (stress, anxiety, etc.) and channeling the concentration on the performance, but also in negative we refer to concern and disturbances in concentration and attention. From a methodological point of view, a systematic review of the existing literature on both dimensions of mental abilities will be provided, examining both the negative effects on athletic performance of athletes and the strategies aimed at promoting positive effects aimed at success in competitions. By comparing empirical studies and international experiences, it can be suggested that mental skills play a key role on a par with professional skills and physical performance. The analyzes reported show that the performance of high-level athletes is related to high cognitive and mental skills, and that the experience of senior athletes is characterized by complex psychological dimensions to train in junior athletes to achieve the same results in terms of performance.

Key words: Sport performance, Sport Science, Psychology of sport, mental abilities, Physical education

Introduction

Contemporary studies and literature are following new and interdisciplinary research paths in the field of sports performance. In the last 10 years, a change of perspective is shown in the analysis of sporting performance. Competition up until the beginning of the millennium was 'measured' above all through physiological indications, but the enormous scale of psychological studies between the 70s and 80s of the last century produced three major modifications in the methodologies and research tools of Physical education and science of sport in general. The first major revolution concerns the importance of perception and individual differences in success in physical activities in the wake of Bandura's self-efficacy construct (Ektirici, et al., 2017). Moving the focus from a team success to an individual success, since the theory of the average self-efficacy between individual perception influenced by the physiology and the different behaviors implemented, recognizing the athlete's ability to control the thought process, motivation and behaviors (Bandura, & Cervone, 1983). Even today, the belief of self-efficacy is considered one of the most significant factors for success in sports environments. The second macro change in the research perspectives was with the introduction of constructs and negative effects of mental abilities on sports performance. The study and intervention on these negative dimensions that hindered the full sporting success allowed the openness towards interdisciplinarity of the Physical education that has incorporated, in addition to pure psychological studies, also medical-clinical, on rehabilitation and studies on disabilities (Girelli, 2012). The third change in progress concerns the passage of the Biopsychosocial model from medical disciplines to social and sport disciplines; this model places the individual at the center of a large system influenced by multiple variables. Physical education and the disciplines of sport must not only be concerned with functions and muscles, and physical performance only in terms of measuring individual and physiological variables, but must pay attention to the psychological, social, and family aspects of the individual, between interacting with them and able to influence the evolution of a sports competition (Donizzetti, 2014). The bio-psychosocial model is opposed to the classical bio-medical model, according to which the state of health and physical efficiency can be traced back to biological variables that the sportsman has to improve only with the practice of sport. The concept of health of WHO (2001) in its programmatic definition refers to the physical components (functions, structural organs), mental (intellectual and psychological state), social (domestic, working, economic, family, civil) and spiritual (values), to identify in all the variables related to the subjective and objective conditions of well-being (health in its positive conception) and evil-being (illness,

problem, discomfort or health in its negative conception) to be considered globally in the approach to the person . The numerous skills required for the holistic approach can not be concentrated in a single, professional, but the bio-psycho-social approach is achievable through the activity of multi-professional teams.

Material and methods

Theoretical and argumentative approach to support and enhance the literature review on sport performance, mental abilities and sportive success. To linearly deduct the data to obtain the main results to eventually apply at athletes in order to make a scientific paradigm. The following research methods used for solving the purpose and obtaining objective data: theoretical analysis and generalization of data from special scientific and methodical literature e methods of mathematical statistics..

A systematic review of the existing literature was conducted to search for articles in the main international databases (Google Scholar, PsycInfo and Scopus) on the topic of the new theoretical paradigms applied to sports performance, using only the key words "in English and Italian "Sport performance", "mental abilities", "Sport Psychology", and "sport test". a systematic literature review process has been conducted: bibliographic research is followed by an assessment of the titles and abstracts based on the research idea that contemporary research addresses on sports performance are affected by changes in the study paradigms that the social sciences and medical have been going through for the past 20 years. International scientific literature suggests that such modifications play a key role in research applied to sports performance by specializing the coherent research tendencies towards specific topics of study (identification) (Toto & Strazzeri, 2019). Bibliographic research and evaluation for the inclusion of publications were conducted independently by the two authors. The disagreements were resolved through a critical discussion, reaching a complete agreement between them. Regarding the inclusion and exclusion criteria, the articles were selected in peer reviewed journals, books or chapters of books in English or Italian that aimed to describe or evaluate the dimensions and variables expressed in the aforementioned research idea (screening). All publications concerning the physiology of athletes and those publications whose complete format (Relevance) had not been found were excluded. The time limit for the year of publication has been set for the last 10 years, so the articles have been selected since 2008. For the inclusion of the contributions, a qualitative summary of the most relevant information was also conducted with comparisons between various publications without carrying out a quantitative analysis in the meta-analysis format. After the elimination of the duplicates, the research identified macro research strands that will be treated exhaustively in the following "results" section.

Results

This section presents the main contents of the literature on the topic. From this analysis emerge four main research strands:

Table 1. Questionnaire and variables

Questionnaire	Variables	Used in number of articles
PSIS-R-5	Motivation, Confidence, Anxiety control, Mental preparation, Team Emphasis, Concentration Cognition	n. 649
The psychobiosocial states scale	affective modality cognitive motivational bodily-somatic motor-behavioral operational communicational	n. 58
The Sports Climate Questionnaire S-SCQ	Intrinsic motivation Identified regulation Introjected regulation External Regulation	n.262
the Sport Competition Anxiety Test, or SCAT (a trait scale), and the Competitive State Anxiety Inventory-2 (CSAI-2)	Cognitive Anxiety, Physical Anxiety Self-Confidence	n. 1608
Perception of Success Questionnaire	Motivation Task- goal Ego-goal	n. 582
The self-efficacy and outcome expectancy scales	work satisfaction, organizational commitment, work performance	n. 33

Psychological Inventory of Sport Performance (IPPS-48)	Race preparation Self-talk Concern Confidence Goal-setting Mental practice Concentration disorder Emotional arousal control	n.101
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To confirm the Biopsychosocial model, the study by Abdullah et al. (2016) on a twenty-five-year-old football team concludes that although there was a correlation between psychological factors and performance, psychological factors alone could not determine the performance of soccer players. This study appears interesting for two main reasons: it uses a psychological construct questionnaire proposed by the of 1987 and focuses on the cognitive dimensions the motivation, the confidence, the Anxiety control, the mental preparation, the Team Emphasis, the concentration and the cognition. The psychobiosocial states scale (Ruiz ate al., 2016) This assessment of the athlete's functional and dysfunctional psychobiosocial states includes affective, cognitive, motivational, volitional (psychological), bodily-somatic, motor-behavioral (biological), operational, and communicative (social) modalities.

Based on the theory of self-determination,

The Sports Climate Questionnaire S-SCQ (Balanguer et al., 2009) postulates that the type of motivation developed by the athletes (eg intrinsic motivation, extrinsic, non-motivational) will depend on the climate that coaches will create within the spot experience. To the point that if the coaches support the autonomy of their athletes during training, the latter will develop the intrinsic motivation and self-determined forms of regulation. If instead the coaches generate control climates the motivation will be weakened in the athletes. The authoritarian style, in fact, is characterized by being coercive, giving a strong pressure in the decision-making process, on the contrary a style of support for autonomy is characterized by offering opportunities, considers the athlete's perspective, provides significant feedback and minimizes extrinsic demands and pressures (Deci et al., 1981).

The Sport Competition Anxiety Test, or SCAT (a trait scale), and the Competitive State Anxiety Inventory-2 (CSAI-2) Competition anxiety trait is described as perceiving the pressure of the competitive environment and responding to these environments with fear and tension. Therefore, a sportsman with a high level of competition anxiety perceives that the competition environment is disturbing, while a sportsman with low competition anxiety experiences the opposite. In these studies (Mertens et al., 1990), it was stated that there are two different perspectives, which are the orientation to the task and the ego, linked to the perception of success. While success is identified as doing something with skill in task orientation, the ego orientation identifies success as over-performing or winning.

Roberts, et al. (1998) elaborated the Perception of Success Questionnaire; recent research on motivation and behavior of goals in sport has focused on the theory of achievement goals. This theory states that the two orientations to the objective (to the task and to the ego) are manifested in successful contexts and have effects on motivation. Riggs, et al. (1994) have developed a self-efficacy and outcome expectancy scales. Self-efficacy theory focuses on the ability to control the thought process, motivation and behavior. The important factor is the belief that sportspeople have in themselves in order to explain these individual differences in sports environments.

Psychological Inventory of Sport Performance (IPPS-48) developed in 2009 focus, unlike previous instruments, on both positive and negative mental abilities that influence sports performance. Contemporary literature provides an articulated framework of mental abilities that strengthen, support or impede sporting performance. For example, it is referred to the self-efficacy, the definition of objectives, the control of thoughts, the simulation through the imagination that anticipates the competition, the management of the emotional arousal (stress, anxiety, etc.) and channeling the concentration on the performance, but also in negative we refer to concern and disturbances in concentration and attention.

Table 2. Theories and constructs

Theories and constructs	Reference authors
The psychobiosocial model	Engel, 1997
The Selfdetermination theory	Deci et al., 1981
Trait Anxiety	Spielberger, et al. 1983.
Teoria orientata agli obiettivi	Nicholls, 1975
The self-efficacy Theory and Social Cognition	Bandura, & Cervone, 1983

Discussion and Conclusion

Identifying the role of psychological factors in sports performance is a fruitful research path that will allow a coach the best strategy to help an athlete achieve the best performance and to recognize and support the psychological needs that hinder or benefit performance. To confirm this, a study by (Vaughan, et al., 2018) revealed that psychological factors such as trust, anxiety control, mental preparation and cognition are related to success in sports performance. In truth many research (Nazarudin, et al., 2014; Smoll et al., 2007; Toto, 2017a) have reiterated the competition of many other factors that influence the result in terms of performance such as physical fitness, anthropometric and psychological factors. Undoubtedly that the physical form is a necessary precondition based on the energy to perform the performance, the anthropometry concerns the physiological variables of the athlete's body and finally, the psychological abilities that allow to maintain concentration and motivate have been re-evaluated. Compared to group games, psychological skills (Villarreal-Ángeles et al., 2017; Toto, 2018) are enriched with particular components such as cohesion and the need to achieve common goals.

The anxiety experienced by athletes before a competition and its effect on cognitive and physical functioning are now considered elements intrinsic to the race and addressed during training and this study shows how this component has become the object of measurement (Woodman et al., 2003; Toto, 2018b). Despite individual differences, the construct of anxiety belongs to all athletes, making it one of the most important themes in the psychology of sport. The goal orientation theory is also having large space in the studies; task-oriented people aim at their personal development to achieve the goal, unlike the self-centered people who constantly compare themselves to others by seeing everyone as adversaries.

Finally, another important interpretative model is the biopsychosocial one (Hase et al., 2018), which is having a strong diffusion among the studies. It integrates and analyzes biological, psychological and social levels to explain the motivational processes of human performance. Starting from a physiological-medical basis, it explains the autonomous and endocrine influences on the cardiovascular system (biological level), the cognitive and affective influences on the evaluation processes (the psychological level) and the interaction between the intra-individual, inter-individual and environmental aspects (level social psychological). Motivation is the result of the interaction of these three conditions and of the interaction between the person and the situation.

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