Psychological talent predictors in early adolescence and their empirical relationship with current and future performance in soccer

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A R T I C L E  I N F O

Article history:
Received 4 September 2015
Received in revised form
17 March 2016
Accepted 22 March 2016
Available online 25 March 2016

Keywords:
Football
Dispositions and skills
Prognostic value
Talent identification and development

A B S T R A C T

Objectives: This study examined the relationship of talented soccer players’ psychological characteristics with current and future performance.

Design: Both a cross-sectional and a prospective design were used.

Method: The sample consisted of 2677 U12 players in the German talent development program. Self-report questionnaires captured psychological dispositions and skills that were assigned to the areas of motivation, volition, self-referential cognition, and emotion. Current performance was operationalized by a motor score representing speed abilities and technical skills as well as by coaches’ subjective ratings (A = highly promotion-worthy, B = promotion-worthy, C = partly promotion-worthy). The level of future performance was assessed by examining whether individuals were selected for professional clubs’ youth academies in U16.

Results: This study revealed that only self-referential cognitions had a significant and relevant association with the motor score (0.10 ≤ r ≤ 0.37). The players in the subjectively rated categories significantly differed in 10 of 17 psychological scales (0.01 ≤ h² ≤ 0.03). In most of the scales, A-players showed more positively connoted values compared to B- and C-players. Logistic regressions demonstrated that 10 of 17 characteristics explained a significant proportion of players’ future success. Players with high dispositions in these characteristics had a greater chance of achieving a higher performance level compared to players with low dispositions (1.61 ≤ OR ≤ 2.65).

Conclusions: Expanding on previous research, this study enabled comparisons between a wide range of psychological characteristics with regard to their relevance for soccer performance, leading to conclusions for talent identification and development.

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1. Introduction

Youth development programs in soccer aim to identify and develop talented players who currently perform at a high level and who have the potential to become elite adult players. However, the identification and development process is difficult because current performance and future success are determined by factors from multidimensional talent domains. In this context, sport research developed heuristic models that mainly provided categorized lists of potential talent predictors. For example, Williams and Franks (1998; see also Vaeyens, Coelho e Silva, Visscher, Philippaerts, & Williams, 2013) propose a model that considers physical, physiological, sociological, and psychological variables as predictors of soccer talent. Regarding psychological aspects, the authors distinguished between perceptual-cognitive performance factors (e.g., anticipation, decision making) and personality-related dispositions and skills such as motivation, concentration, self-confidence, and anxiety control.

These dispositions and skills correspond to psychological constructs addressed in general models of giftedness from educational research, which recently have been applied in the sport context (Hohmann, 2009; Vaeyens, Lenoir, Williams, & Philippaerts, 2008). These models focus less on general trait approaches that claim to capture a person’s whole personality across a set of relatively broad traits (e.g., Cattell, 1966; Eysenck & Eysenck, 1975) and more on specific variables related to single psychological aspects that are hypothesized to be relevant for performance. For example, the Model of Giftedness and Talent (Gagné, 2010) and the Munich
Model of Giftedness (Heller & Perleth, 2008) include specific characteristics that are primarily assigned to the areas of motivation (e.g., achievement motives), volition (e.g., effort), self-referential cognition (e.g., self-concept), and emotion (e.g., anxiety).

The heuristic models from sport research and the approaches to giftedness assume that such psychological characteristics influence current and/or future performance. However, despite the existence of elaborated psychological theories concerning individual variables such as motivational dispositions or volitional skills (e.g., Elliot & Church, 1997; Kuhl, 2000), no current theoretical model considers specific characteristics from different psychological areas and their concrete relationship with performance in sport. In particular, there is no comprehensive theory with testable assumptions on a) which psychological predictors should be included or excluded or b) the underlying mechanisms leading to the positive relationship between the psychological characteristics and performance. While only few studies focused on the latter (for a further discussion see Zuber & Conzelmann, 2014), a number of studies analyzed whether any relationship exists between psychological characteristics and performance in youth soccer. In this context, recent sport psychological research considered potential talent predictors regarded as important in heuristic models and addressed the psychological areas of motivation, volition, self-referential cognition, and emotion.

The research on motivational characteristics and their relationships with performance in soccer (e.g., Coelho e Silva et al., 2010; Figueiredo, Gonçalves, Coelho e Silva, & Malina, 2009; Kavussanu, White, Jowett, & England, 2011; Zuber, Zibung, & Conzelmann, 2015) mainly focused on achievement motives (i.e., dispositions that provide information about how individuals perceive and evaluate achievement situations; Atkinson, 1957) and motivational orientations (i.e., dispositions that provide information about the criteria that individuals use to define success and judge their level of ability; Nicholls, 1984). Further studies examined volitional characteristics that, in general, refer to processes of action planning, initiating intentions, maintaining actions, and overcoming barriers (Achtziger & Gollwitzer, 2010). This research addressed how volitional skills are associated with performance in soccer and mainly focused on aspects of self-regulation such as reflection and effort (e.g., Toering, Elferink-Gemser, Jordet, Peppinga, & Visscher, 2012; Toering, Elferink-Gemser, Jordet, & Visscher, 2009). Regarding self-referential cognitions, the physical self-concept (i.e., the aspects of general self-concept that comprise any self-referential information that refers to a person's own body; Shavelson, Hubner, & Stanton, 1976) and self-efficacy (i.e., a person's belief in his or her own capabilities to succeed in specific situations; Bandura, 1997) can be regarded as particularly relevant. Previous studies in soccer considered self-confidence to be relevant for performance (e.g., Huijgen, Elferink-Gemser, Lemmink, & Visscher, 2014; Reilly, Williams, Nevill, & Franks, 2000). With respect to emotional characteristics, research has focused on anxiety as an important factor that can influence soccer performance (e.g., Reilly et al., 2000; Spamer & Coetzee, 2002). In the context of competitive sport, the trait of anxiety is defined as the tendency to perceive competitive situations as threatening and to respond to these situations on somatic and cognitive levels (Martens, Vealey, & Burton, 1990).

The current state of empirical research demonstrates that psychological dispositions and skills such as achievement motives, motivational orientations, aspects of self-regulation, self-confidence, and competition anxiety discriminate between youth players of different performance levels (e.g., Reilly et al., 2000; Toering et al., 2012; Zuber et al., 2015). However, other research has found no significant differences between high- and low-performing youth players with regard to such characteristics (e.g., Figueiredo et al., 2009; Huijgen et al., 2014; Spamer & Coetzee, 2002). Furthermore, some of these studies have reported contradictory results. For example, Coelho e Silva et al. (2010) contrasted players of different performance levels and found that lower performing players' ego orientation was less than that of their higher performing peers, yet Kavussanu et al. (2011) demonstrated that differences between players were mainly characterized by higher performing players' greater task orientation.

1.1. Limitations of the state of empirical research

The relationship between psychological characteristics and performance in soccer requires further examination considering the inconsistent state of empirical research (e.g., with regard to goal orientations). Different design features of the studies may have caused these inconsistencies. For instance, some of the above reviewed studies are limited by small sample sizes (e.g., Reilly et al., 2000; Spamer & Coetzee, 2002). Because individual characteristics, especially when assessed in preselected groups, are expected to explain only minor proportions of complex performance (Ackerman, 2014), reliable studies should be conducted using sufficiently large numbers of participants to increase the probability of detecting meaningful effects when these effects actually exist (i.e., statistical power). Additionally, the level of ‘performance’ varied across the research. Some of the studies compared players who were already highly differentiated in their competition level (i.e., players in youth academies of professional clubs vs. players on local or school teams; e.g., Kavussanu et al., 2011; Reilly et al., 2000). Other studies contrasted top players with players who were close to the top level, but not the best (e.g., Huijgen et al., 2014; Toering et al., 2012). Because the aim of youth development programs is to identify and develop currently high-performing players who have the greatest potential to succeed at an elite adult level, sport talent research needs to examine homogenous groups of highly talented soccer players to support coaches, associations and all of those involved in the talent identification and development process.

With respect to research design, cross-sectional studies provided insight into the psychological characteristics of currently more or less talented soccer players. Future research should continue to analyze this relationship to gain more insight into the association of these characteristics with current performance. In addition to previous studies that mainly compared players at different competition levels, research should also consider current performance criteria, such as objectively assessed motor skills and coaches’ subjective ratings. For example, Figueiredo et al. (2009) demonstrated that these measures possess prognostic relevance for individuals’ future success. However, such cross-sectional studies will not answer the question of whether favorable characteristics facilitate the achievement of higher performance levels or whether playing at higher performance levels leads to more favorable characteristics. As a consequence, recent prospective studies began to examine psychological characteristics’ prognostic value for the future performance level (e.g., Huijgen et al., 2014). Most of this work analyzed this relationship over a maximum of two years, which is a rather short prognostic period considering the duration of the talent development process. Thus, future analyses should extend those periods to examine the midterm or even long-term prognostic value of psychological characteristics.

Regarding the multidimensional understanding of talent (Williams & Reilly, 2000), a large part of the research has considered a wide range of physical, physiological, sociological, and psychological characteristics, examining their relationship with soccer performance. These studies provide important insights into the
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