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PREDICTION OF MENTAL TOUGHNESS BASED ON GOAL ORIENTATIONS OF BASKETBALL PLAYERS

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Abstract
The aim of this research is to establish the connection between goal orientation and mental toughness among young basketball players in the Kecskemet basketball academy. Sample consisted of 149 respondents aged from 12 to 18, 99 men and 50 women. For the research purposes, the TEOSQ questionnaire was used to examine goal orientation and the SMTQ to examine mental toughness. A statistically significant positive correlation was also established between total mental toughness and task orientation, while the results did not show a statistically significant correlation between total mental toughness and ego orientation. A statistically significant positive correlation was found between the dimension of self-confidence and ego and task orientation. A statistically significant negative correlation was found between the dimension of control and ego orientation, while the correlation between the dimension of control and task orientation is not statistically significant. There was also no statistically significant correlation between the consistency and ego and task orientation. The results of the research show that goal orientations are significant predictors of the mental toughness of athletes, which indicates that they must be taken into account when creating interventions to increase mental toughness.

Keywords: MENTAL TOUGHNESS/ GOAL ORIENTATION/ BASKETBALL.

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INTRODUCTION

The basketball game involves repeating short intense actions with the use of explosive power of the lower extremities (Shalom et al, 2023). It represents a sporting activity constantly punctuated by alternating defense and attack with a combination of cyclic and mostly acyclic movements (Stanković et al., 2022) characterized by frequent periods of high-intensity action with frequent changes in the direction of movement, as well as a series of specific technical skills and a well-developed speed of movement (Stojanović et al., 2018). Accordingly, the demands placed on players are morphological, motoric, psychological, social and other in nature. Integrality in the preparation of players defines the team's compactness, its resistance to stress (physical and mental), ability to master external influences, calmness, concentration and perseverance in performing tasks (Trunić & Mladenović, 2014).

For the top performance of technical-tactical tasks, the presence of certain psychological factors that have a high degree of influence on the sports performance of basketball players is necessary (Gok et al., 2023). One of the key psychological factors is motivation. Motivation refers to the entire process of initiating human activity, directing that activity towards certain objects, and the duration and intensity of that activity. Achievement Goal Theory (AGT, Nicholls, 1984, 1989) is one of the socio-cognitive theories and is the most common theoretical basis for studying motivation in sport (Kavussanu, Roberts, 1996, Petherick, Weigand, 2002). The central idea underlying the theory is that each person is directed towards a specific goal in order to demonstrate their own competence and avoid the judgments of other people, as well as personal judgments of insufficient competence. Goals related to achievement have the function of energetic drivers. This theory also includes beliefs and cognitions regarding the evaluation of success and achievement. According to this theory, an athlete can have two types of goal orientations that lead a person towards an activity: task and ego goal orientation. People who are highly task-oriented focus on self-improvement and effort in mastering the task, while highly ego-oriented people strive to outperform others or to be better than others with less effort (Bortoli et al., 2011). Satisfaction in sports is significantly related to task orientation (Abraldes et al., 2016).

However, what is of crucial importance in key moments is mental toughness, which can be defined as a set of emotions, values, knowledge and attitudes that influence the way an individual evaluates, approaches and reacts to demanding events in order to achieve their goals (Gucciardi & Gordon, 2009). It is characterized by composure in the most stressful situations and composure under the influence of all external disturbing factors and is defined as unwavering perseverance and conviction in a goal despite pressure or disadvantages (Middleton et al, 2004; Zubić, 2021a). It refers to a set of personal resources, both innate and developed, associated with the desire of athletes to reach optimal levels of sports performance, regardless of the positive and negative demands of the situation (Duriez et al., 2003). Mental toughness in sport is an innate or developed state of psychological sharpness that allows athletes to better cope with the many demands of sport (lifestyle, training, competition) compared to their opponents (Thelwell et al., 2005). Mentally tough athletes tend to be competitive, determined, self-motivated and able to maintain concentration in stressful situations. They can withstand greater difficulties and maintain a high level of self-confidence, both after success and after failure (Dereceli, 2019). There are numerous research studies that emphasize the importance of mental toughness in sports, showing that athletes who possess a higher level of mental toughness have a higher probability of success (Crust & Clough, 2011; Newland et al., 2013; Guszkowska & Wójcik, 2021; Wu et al., 2021). The mental toughness of athletes is associated with emotional intelligence (Ajilchi et al, 2019) and success (Zarić et al., 2021) as well as with reduced anxiety (Zubić, 2021a) and personality traits (Zubić, 2021b).

Conceptualizations of mental toughness and goal orientation in sports illuminate varied behavioral outcomes and results. Task-oriented athletes demonstrate perseverance, high self-efficacy, enjoyment, lower levels of competition-induced anxiety, and adaptable learning strategies compared to their ego-oriented counterparts (Biddle et al., 2003). Many of these traits are components of mental toughness (Bull et at., 2005). Additionally, high motivation and flexible attitudes characterize mental toughness (Thelwell et al.,

2010). Ego-oriented athletes may exhibit less effort, enjoyment, and higher anxiety levels when confronted with potential failure (Boyd et al., 1991). The emphasis on competition and winning can differentiate ego-oriented athletes and potentially affect mental toughness levels. However, elite athletes often demonstrate high levels in both task and ego orientation, equally valuing competition and goal attainment (Pensgaard & Roberts, 2002).

In the research (Toy et al., 2020) statistically significant correlations were determined between the task and ego orientation on the one hand and self-confidence as a dimension of mental toughness in a sample of elite wrestlers. The correlation of task orientation and continuity as a dimension of mental tougness was also established. On the other hand, the correlations between the dimension of control of mental toughness and goal orientations are not statistically significant.

In the study (Ogras & Cetin, 2024) the connection of mental toughness and task and ego orientations of Professional Football Players was observed. A correlation between mental toughness sub-dimensions confidence and consistency and both task and ego orientations were found. It was determined that task orientation significantly affect mental toughness and it was demonstrated a correlation was seen between the control sub-dimension of mental toughness and both orientations.

In a sample of collegiate athletes (Parameswari, 2016), the connection between the dimensions of mental toughness (Competitive desire, Focus, resilience, self-confidence) and goal orientations was determined. Competitive desire and resilience, as dimensions of mental toughness, are significantly correlated with task orientation. Furthermore, self-confidence is correlated with ego orientation. Competitive desire and self-confidence, as dimensions of mental toughness, significantly predicted task orientation. And resilience (dimension of mental toughness) significantly predicted ego orientation.

Given the great importance of goal orientations and mental toughness for the success of an athlete, the subject the subject of the research is an examination of the connection between mental toughness and goal orientation in basketball players at the basketball academy in Kecskemet.

METHOD

The aim of the research

The main aim of the paper is to establish the connection between goal orientation and mental toughness among young athletes in the Kecskemet basketball academy.

A sample

The entire sample was taken from the Kecskemet basketball academy. The Academy is located in Hungary, in the city of Kecskemet and has more than 600 members. The research included a total of 149 respondents, aged 12 to 18. Of the total sample, 33.6% are girls (n=50) and 66.4% are boys (n=99). The average age of the respondents is 14.03±1.625 (for men 14.07±1.668 and for women 13.96±1.551).

The respondents were divided into three age categories: U14, U16 and U18. The age category of players under 14 consisted of 73 players, which was 49.0% of the total sample. The age category of players under 16 consisted of 47 players, which was 31.5% of the total sample. The age category of players under 18 consisted of 29 players, which was 19.5% of the total sample.

Instruments

TEOSQ (Task and Ego Orientation in Sports Questionnaire, Duda, 1989) was used to examine goal orientation. This questionnaire consists of a total of 13 items grouped into two subscales. The task orientation scale is composed of 7 items, while the ego orientation scale is composed of 6 items. Respondents on a scale of 1 to 5 (from do not agree at all to completely agree) express their degree of agreement with each of the 13 statements. Examples of items for task orientation are "I feel most successful in basketball when I learn new skills by putting in a lot of effort and endeavour" and for ego orientation "I

feel most successful in basketball when I can practice better than my friends/teammates." The reliabilities (Krombach's alpha coefficient) of the scales of this instrument are high (result orientation α=0.81; task orientation α=0.64).

Mental toughness was measured with "Sports Mental Toughness Questionnaire" (Sheard, Golby, van Wersch, 2009). This questionnaire is made up of 14 statements with an offered Likert-type four-degree scale for saying how much athlete agrees or disagrees with a given statement. The questionnaire measures three dimensions and overall mental toughness. The questionnaire consists of three subscales: self-confidence („Under pressure I can make decisions with confidence and commitment"), consistency („I am committed to doing tasks I have to do") and control („I get upset about events I didn't expect or I cannot control"). The reliability (Cronbach's alpha coefficient) of the scales of this instrument of this sample were adequate (consistency α = 0.60; control α=0.66; self-confidence α=0.64, total mental toughness α=0.87). The questionnaire also contained a part related to demographic variables: gender (male/female) and age.

Statistical data processing

Statistical data processing was carried out using the IBM SPSS Statistics 21 program. Descriptive statistics (AS, SD), Pearson's correlation coefficient and multiple linear regression analysis were used in data processing. Differences for which the p value was less than 0.05 were considered statistically significant.

RESULTS

The paper first presents the results of descriptive statistics, then the correlation of goal orientations and mental toughness The results of a linear regression analysis, which was carried out with the aim of predicting overall mental toughness based on goal orientations on a sample of basketball players, are presented. Then, the results of regression analyses were presented, in which the criteria were the dimension of mental toughness and the predictors were goal orientation.

Table 1. Descriptive statistics of basic variables

	Mean	*SD*
Ego orientation	2.6051	.90219
Task orientation	4.1601	.48642
Self-confidence	3.0604	.44739
Consistency	2.7097	.35838
Control	2.6141	.66047
Mental toughness	2.8327	.24375

Table 2. shows established correlations between goal orientation and mental toughness in basketball players.

Table 2. *Correlations of goal orientations and dimensions of mental toughness*

	Ego orientation	Task orientation
Self-confidence	0.332***	0.372***
Consistency	0.045	0.082
Control	-0.223**	0.103
Mental toughness	0.108	0.247**

* p < 0.05; ** p < 0.01; *** p < 0.001.

A statistically significant correlation was found between the total mental toughness and task orientation (r=0.247; p<0.01), while the correlation between the total mental toughness and ego orientation was not statistically significant. A statistically significant correlation was found in the dimension of self-confidence and ego orientation (r=0.332; p<0.01) and task orientation (r=0.372; p<0.01).

A statistically significant negative correlation was found in the dimension of control and ego orientation (r=-0.223; p<0.01), while the correlation between the dimension of control and task orientation was not statistically significant.

No statistically significant correlation was found between the dimension of consistency on the one hand and ego orientation and task orientation on the other.

Furthermore, the paper presents the results of four regression analyses. First, a multiple regression analysis was presented, which was carried out with the aim of predicting mental toughness based on a set of predictors of goal orientations. Then, the results of the prediction of self-confidence as a dimension of mental toughness based on goal orientations were presented. The third regression analysis was related to the prediction of consistency based on goal orientations. And finally, the results of the fourth linear regression analysis, which was conducted with the aim of predicting control based on goal orientations are presented.

Table 3. Prediction of mental toughness based on goal orientations of basketball players

	beta	*t*	*p*
Ego orientation	.032	.373	.710
Task orientation	.237	2.802	.006

The multiple correlation coefficient (R= 0.249) is statistically significant (F (2) =4.827; p = .009). It was found that 6% of the variability (R^2 = 0.06) of mental toughness can be explained on the basis of goal orientations. The results showed that a statistically significant predictor of mental toughness is task orientation. Ego orientation is not a statistically significant predictor.

Table 4. Prediction of self-confidence based on goal orientations

	beta	*t*	*p*
Ego orientation	.237	3.012	.003
Task orientation	.296	3.764	.000

The results showed that the coefficient of multiple correlation (R= .435) is statistically significant (F (2) = 17.004; p = 0.000). Of the total variability of the criteria, 19% of the variability (R^2 = 0.19) can be explained on the basis of goal orientations. Looking at the partial standardized regression coefficients, it is concluded that ego and task orientation have a statistically significant partial contribution to the explanation of individual differences in self-confidence.

Table 5. Prediction of consistency based on goal orientations

	beta	*T*	*p*
Ego orientation	.237	3.012	.003
Task orientation	.296	3.764	.000

The coefficient of multiple correlation (R= 0.435) is statistically significant (F (2) = 17.004; p = .000). It was found that 18% of the variability (R^2 = 0.18) of consistency can be explained on the basis of a set of predictors of goal orientations. The results showed that ego and task orientation are statistically significant predictors of consistency.

Table 6. Prediction of control based on goal orientations

	beta	*t*	*p*
Ego orientation	-.212	-2.487	.014
Task orientation	-.035	-.413	.680

The results showed that the coefficient of multiple correlation (R= .225) is statistically significant (F (2) =3.909; p = 0.02). Of the total variability of the criteria, 4% of the variability (R^2 = 0.04) can be explained on the basis of a set of predictors of goal orientations. Looking at the partial standardized regression coefficients, it is concluded that ego orientation has a statistically significant partial contribution

to the explanation of individual differences in control. Task orientation is not a statistically significant predictor.

DISCUSSION AND CONCLUSION

The main aim of this research was to establish the connection between goal orientations and mental toughness among young athletes in the Kecskemet basketball academy.

The research results showed a statistically significant positive correlation between overall mental tougness and task orientation. Athletes who are ready to face challenges and difficult tasks have a greater driving force to overcome obstacles, do not give up due to current failure, consider themselves responsible for reaching the goal and for their performance. Mentally tough athletes believe that their personal involvement and contribution is necessary for team success, they gladly take responsibility, are self-critical and emotionally stable in the moments of failure. On the other hand, athletes who are not mentally tough do not feel comfortable in challenging situations, do not accept difficult tasks, give up very quickly after failure, run away from responsibility, look for the culprit in others and always have an excuse for everything, they do not understand that progress depends on of their own work, are not self-critical and are more emotionally unstable. The results of this study are consistent with other studies (Toy et al., 2020; Kuan & Roy, 2007; Ogras & Cetin, 2024).

Mental toughness is an important element of sport success. Mental toughness might reduce the anxiety level and it builds up confidence among athletes. In sports a high task orientation has been related to adaptive motivational behaviors like consistency and self-confidence. Because task oriented individuals hold the belief that effort is a critical determinant of success and engage in the activity for its own sake as an end in and of itself, they tend to try hard and to be more persistent when faced with obstacles and difficulty (Padickaparambil et al., 2008). The research results did not show a statistically significant correlation between total mental toughness and ego orientation.

A statistically significant correlation was found in the dimension of self-confidence and ego orientation. Athletes with high self-esteem have a greater desire to compete and demonstrate their abilities, view comparisons with others positively through competition, enjoy being watched while competing, and enjoy playing in front of an audience. On the other hand, athletes with lower self-confidence do not like to show their abilities publicly, are anxious when others watch them compete, need support, do not accept public criticism well, do not like to compare themselves with others, are more anxious during public performances.

The analysis of the results also revealed a statistically significant positive correlation between self-confidence and task orientation. Mentally tough athletes with emphasized self-confidence have a strong internalized driving force for training and competition, they view overcoming obstacles and learning new skills as a challenge. Self-confident athletes are task-oriented, have a stronger work ethic, experience less fear of failure, persevere in situations of failure, and achieve optimal performance more often during competition. On the other hand, athletes with a low level of self-confidence do not believe that they can master skills and achieve difficult goals, they are reluctant to enter competitions, they have a greater fear of failure, they have a harder time experiencing failure.

Studies show that self-confident athletes focus on their strengths, have positive emotions and attitudes, appropriate strategies, control their performance better and are more task oriented (Gould et al., 1999; Hays et al., 2007; Mahonev et al., 1997).

The results showed a statistically significant negative correlation between the dimension of control and ego orientation. Athletes who do not have the ability to adequately control their emotions and behavior, who are overwhelmed by emotions when the course of the match is not favorable for them, tend to compare themselves with others and to be better with less effort. Athletes who do not give up when faced with momentary failure, thrive under the pressure of competition, have a better ability to improvise, do not perceive unexpected situations as a threat, do not like to compare themselves with other players.

The results showed no statistically significant correlation between the control dimension and task orientation.

Analysis of the results also found no statistically significant correlation between the dimension of consistency and ego and task orientation.

Four regression analyses were conducted in the paper. The first is a multiple regression analysis that was conducted with the aim of predicting mental toughness based on a set of predictors of goal orientations. It was found that 6% of the variability of mental toughness can be explained on the basis of goal orientations. The results showed that task orientation is a statistically significant predictor of mental toughness. Ego orientation is not a statistically significant predictor.

Then, the results of the prediction of self-confidence as a dimension of mental toughness based on goal orientations were presented. Of the total variability of the criteria, 19% of the variability can be explained on the basis of goal orientations. Ego and task orientation have a statistically significant partial contribution to the explanation of individual differences in self-confidence.

The third regression analysis was related to the prediction of consistency based on goal orientations. It was found that 18% of consistency variability can be explained based on a set of predictors of goal orientations. The results showed that ego orientation and task orientation are statistically significant predictors of consistency.

And finally, the results of the fourth linear regression analysis, which was conducted with the aim of predicting control based on goal orientations, are presented. Of the total variability of the criteria, 4% of the variability can be explained on the basis of a set of predictors of goal orientations. Ego orientation has a statistically significant partial contribution to the explanation of individual differences in control. Task orientation is not a statistically significant predictor.

Athletes with high task orientation have greater consistency, put constant effort in sports, and focus on developing skills have greater mental toughness (Harmison, 2011). Factors including goal orientation, which impacts how athletes perceive competition, can influence their mental toughness. Task-oriented athletes are more resilient, enjoy sports more, exhibit lower levels of anxiety, and use adaptive learning strategies and traits found to align with the multidimensional structure of mental toughness (Bull et al., 2005). Furthermore, Gucciardi (2010) found that task orientation positively impacted Austrian footballers' intrinsic motivation levels and mental toughness. Mladenović & Trunić (2019) showed by examining mental toughness and goal orientations that motivation is a key component for sports development and increasing overall mental toughness in a sample of basketball players. Young basketball players showed an orientation towards the goal of achieving higher levels of their own competencies, rather than status and normative achievements related to others.Thus, the literature supports our findings.

The essential drawback of this study, which one must bear in mind when interpreting the study results, is the number of respondents. The study sample was appropriate because it consisted of Kecskemet club athletes. Further limitations stem from the exclusive reliance on self-reporting questionnaires without alternative forms of evaluation or evaluation by the third parties.

An analysis of the results of this study makes it possible to suggest the future directions of similar researches. For instance, a future study should include a larger number of respondents, athletes of different sports and respondents at different competition levels (regional, national and international). When collecting pieces of information about the individual, future researches should, apart from athletes, also take into account other sources from their environment, such as the expert team, their coaches and teammates. A recommendation for future studies on this topic would be to include other variables as well, such as: locus of control, strategy for coping with stress, internalized and externalized motivation, self-efficiency, anxiety as a personality trait and attitudes to success. Every sport has its peculiarities and this determines what is required of an athlete when it comes to his abilities, traits, and skills.

The obtained findings are significant, not only for researchers to better understand motivation and mental toughness in a sports context, but also for practitioners, coaches and athletes themselves. The results

of the research show that goal orientations are significant predictors of the mental toughness of athletes, which indicates that they must be taken into account when creating interventions to increase mental toughness. It is desirable that task orientation be dominant when training and developing sports skills, however, the closer to the top level of competition, the greater the need for result orientation. Therefore, it is advisable to alternate these two orientations depending on the situation.

It is important that psychologists, coaches and expert teams while working with the athletes become familiar with the motivation and mental toughness of athletes and, and on that basis to develop ways and strategies for their empowerment, which would result in better sports achievements.

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