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EXAMINATION OF THE TABLE TENNIS PLAYERS' GENERAL SELF-EFFICACY PERCEPTIONS AND SOURCES OF SPORTS MOTIVATION

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Abstract: This study aims to examine the Turkish Table Tennis Super League elite players' general self-efficacy perceptions and motivation sources. The sample of research consist of 66 male (69,5%) and 29 female (30,5%) participants who are participated voluntarily among national players at the Turkish Table Tennis Super League in 2019. In the research, the "Sports Motivation Scale" and "General Self-Efficacy Scale" are applied as a data gathering instruments in the research. The relations between variables are tested with factor analysis, correlation analysis and SEM Partial Least Squares. The results of this study have shown that sub-dimensions of intrinsic (β: 0,321, p<0,05), introjected (β: 0,314, p<0,05), integrated (β: 0,271, p<0,05) and identified (β: 0,327, p<0,05) have a positive and significant effects on self-efficacy. On the other hand, amotivated (β: -0,230, p<0,05) sub-dimension has a negative effect on self-efficacy. Moreover, the findings do not support the existence of a statistically significant relationship between general self-efficacy and external (β:0,504, p<0,05) which is one of the sport motivation sub-dimension. In conclusion, these findings show that the belief of self-efficacy as players' motivation and performance increases. It is important that trainers and club managers know ways to increase the general self-efficacy perceptions of players. Trainers can increase their general self-efficacy beliefs thanks to teaching them enriched with new training techniques, psychological support and creating effective learning environments.

Keywords: Table tennis, self-efficacy perception, sports motivation

MASA TENİSİ OYUNCULARININ GENEL ÖZ YETERLİLİK ALGILARI VE SPOR MOTİVASYON KAYNAKLARININ İNCELENMESİ

Öz: Bu çalışma, Türkiye Masa Tenisi Süper Ligi elit sporcularının genel öz yeterlik algılarını ve motivasyon kaynaklarını incelemeyi amaçlamaktadır. Araştırmanın örneklemini 2019 yılında Türkiye Masa Tenisi Süper Ligi'ndeki elit sporcular arasından rastgele seçilen 66'sı erkek (%69,5'i) ve 29'u kadın (%30,5) katılımcı oluşturmuştur. "Spor Motivasyon Ölçeği" ve "Genel Öz Yeterlilik Ölçeği" araştırmada veri toplama aracı olarak kullanılmıştır. Değişkenler arasındaki ilişkiler faktör analizi, korelasyon analizi ve SEM Kısmi En Küçük Kareler ile test edilmiştir. Bu çalışmanın sonuçları, içsel (β: 0,321, p<0,05), özümseme (β: 0,314, p<0,05), özdeşim (β: 0,271, p<0,05) ve içe atım (β: 0,327, p<0,05) alt boyutların öz yeterlilik üzerinde olumlu ve anlamlı bir etkiye sahip olduğunu göstermiştir. Öte yandan, güdülenememe (β: -0,230, p<0,05) alt boyutunun öz yeterlik üzerinde olumsuz etkisi vardır. Ayrıca, bulgular, genel öz yeterlik ile spor motivasyonu alt boyutlarından biri olan dışsallık (β:0,504, p<0,05) arasında istatistiksel olarak anlamlı bir ilişkinin varlığını desteklememektedir. Sonuç olarak, bu bulgular oyuncuların motivasyonu ve performansı arttıkça öz yeterlik inancının da arttığını göstermektedir. Öz yeterlilik, oyuncuların motivasyonu ve performansı üzerinde olumlu bir etkiye sahiptir. Antrenörlerin ve kulüp yöneticilerinin oyuncuların genel öz-yeterlik algılarını artırmanın yollarını bilmesi önemlidir. Antrenörler, yeni eğitim teknikleriyle, psikolojik destekle ve etkili öğrenme ortamları yaratmayla zenginleştirildikleri için genel öz yeterlik inançlarını arttırabilirler.

Anahtar Kelimeler: Masa Tenisi, öz yeterlik algısı, spor motivasyonu

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INTRODUCTION

Performance has a significant impact on players in individual sports. In recent years, it has been emphasized by many scientists that players are successful in individual sports not only physical performance but also their mental performance. Each sports branch has its unique features. In table tennis, the self-efficacy and motivation of the players are one of the most critical psychological features (Horta et al., 2019; Stocker et al., 2018).

The degree of which people believe in themselves and their abilities are significant for their motivation and success. To achieve this, the players' perception of self-efficacy is essential. It is a belief that one has the necessary skills to do business (Bandura, 1997). Self-efficacy is a concept that reflects the individual's views about whether there can perform certain behaviours and their expectations in relation to outcome of these behaviours (Henson, et al., 1999). It is defined as the capacity of an individual to control their actions and self-expectations in this respect (Hutzler et al., 2005).

The concept of self-efficacy is affected by four sources pursuant to Bandura. These are mastery experience and past performance, long experiences, social-verbal persuasion and physiological response to an experience. (Bandura, 1997). Successful experience or past performance are among the factors that affect self-efficacy (Kudo and Mori, 2015). For example, players with successful exercise experience may want to continue, while people with failed backgrounds may not continue training (Matsuo et al., 2015). At the same time, it was stated that strong athletic skills are the determinants of high self-efficacy (Koçak, 2015). Therefore, observing especially successful people and their behaviours in a specific task can be a positive resource for self-efficacy development (Yoon et al., 2013). Besides, positive social and verbal persuasion can support the self-efficiency (Kudo and Mori, 2015). The negative physiological response experienced in physical activity may also interfere with a continuous exercise program (Barnett, 2013). Increased self-efficacy results to perform a crucial function in participation in the exercise (Hortz et al., 2015; Strachen et al., 2015). It is a common opinion that groups with high self-efficacy have higher performance levels. Those who have firm beliefs of self-efficacy set enhanced goals for oneself, and they increase their motivation and success levels (Sanli, 2014). There are studies in the literature that self-efficacy is the determinant of intrinsic motivation (Bakker and Demerouti, 2017; Bakker and van Woerkom, 2017).

Motivation is a sum of stimuli that direct the organism to be precise and orderly behaviour. The motivation theory of success has tried to explain the reasons why people participate in physical activity for many years. Motivation in this process is the force that influences the direction of the individual (Bora and Cengiz, 2016). According to Atkinson, the motivation for success involves between a two-person structure that includes the motivation to succeed and the motivation to avoid failure. While the achievement motivation is defined as the experience of pride and satisfaction from the success achieved, the motivation to avoid failure can be defined as the ability to experience shame or sadness from unsuccessful results (Tazegul, 2013).

Generally, sport motivation is related to self-confidence (Mouratidis and Michou, 2011). The beliefs perceived by the players are assumed to act within their competences. These beliefs are also regarded as a predictor of motivation (Matosic, Cox and Amorose, 2014). Additionally, several studies have reported a positive relationship between two variables in the literature (Reeve and Deci, 1996; Benabou and Tirole, 2002; Pajares, 2003).

One of the ways to increase the motivation of the players is to help the athlete to realize his limitations and set goals that they can achieve. To achieve this, the player' perceptions of self-efficacy are crucial (Sivrikaya, 2019; Mouloud, 2017). In this context, general self-efficacy perceptions and sports motivation of table tennis players are essential. Hence, this study aims to examine the self-efficacy perceptions and motivation sources of elite players of Turkish Table Tennis Federation. Moreover, self-efficacy and motivation have been reviewed by researchers for a long time, but there is relatively little research directly comparing the effects of these variables in sport. For this purpose, the study will seek answers to the following questions:

1. What is the level of motivation and general self-efficacy of Table Tennis Super League Athletes?
2. Does the general self-efficacy of Table Tennis Super League Players predict their motivation in sports?

METHOD

The research is a descriptive research in relational screening model. Motivation factors stay at the centre of the research model. In the study, it was determined that the elite table tennis players were the main factors affecting these two variables. These are sports, motivation and self-efficacy.

H1- "The external sub-dimension of sport motivation has a positive and significant effect on self-efficacy of Table Tennis Players".

H2- "The amotivated sub-dimension of sport motivation has a negative and significant effect on self-efficacy of Table Tennis Players".

H3- "The intrinsic sub-dimension of sport motivation has a positive and significant effect on self-efficacy of Table Tennis Players".

H4- "The introjected sub-dimension of sport motivation has a positive and significant effect on self-efficacy of Table Tennis Players".

H5- "The integrated sub-dimension of sport motivation has a positive and significant effect on self-efficacy of Table Tennis Players".

H6- "The identified sub-dimension of sport motivation has a positive and significant effect on self-efficacy of Table Tennis Players".

Participants

The sample of this study consisted of 95 players selected by the volunteer selection method among a total of 164 elite table tennis players. They are playing in the Turkish Table Tennis Super League in 2018-2019 season.

After Turkish Table Tennis Federation approval, elite table tennis players were informed about the objectives and use of the information. Players who voluntarily participated online questionnaire.

Measurement

"Sport Motivation Scale (SMS-II)" which is improved by Pelletier et al (2013); "The General Self-Efficacy (GSE) Scale" which is improved by Schwarzer and Jerusalem (1995) are used as a data gathering instruments in the research. The Turkish version of the SMS-II was carried out by Öcal and Sakallı (2018), and Cronbach's alpha for the total scale was found 0.76 in this study. The GSE Scale was adapted to Turkish by Aypay (2010), and Cronbach's alpha for the total scale was found 0.83. Sport Motivation Scale has six dimensions including external, amotivated, intrinsic, introjected, integrated, identified, and the General Self-Efficacy Scale was evaluated in one dimension.

The validity and reliability of the scale were examined by confirmatory factor analysis. Reflective scales were used for all variables as Kleijnen, Ruyter and Wetzels (2007) studies. To evaluate the psychometric properties of the measurement instruments by using SmartPLS program; a null model without any structural relationship was calculated. Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) parameters are used to calculate reliability. For all measurements, Cronbach's alpha and PLS based CR values are above the threshold value of 0,70 and AVE values exceed 0.50. characteristics.

Data Analysis

Partial Squares (PLS-Smart 3.0 package program) method was chosen as a method within the scope of "Structural Equation Model" (SEM) to analyze the measurements and structural variables discussed in the research. The PLS method represents a new component-based method and approach that differs from conventional covariance-based approaches such as Analysis of Moment Structures (AMOS) and Linear Structural Relations (LISREL). In SEM, classical approaches based on covariance are suitable for models with up to 8 latent variables and large sample groups. In contrast, Component-Based SEM approaches (PLS) are included in the literature as an optimal method of analysis for smaller sample groups and for complex models (no upper limit for latent / latent variable numbers is specified in the PLS model) (Tenenhaus, 2008).

FINDINGS

Descriptive statistics of the study participants are as follows. 69.5% (n = 66) of the participants were male, 30.5% (n = 29) were female, and 73.7% (n = 70) of the participants were single. The largest age group was 15-19 years with 34.7% (n = 33); 52.6% (n = 50) of the participants are university graduated. Among the participants, 35.8% (n = 35) the group of 4000 TRY and over were the most dominant group in terms of monthly income. Moreover, when we look at the number of participants times in the Super League event so far, 1-2 times of participants are the largest group with 44.2% (n = 42), and 46,3% (n = 44) of the participants were doing sport 4-5 days a week.

Table 1. Reliability and validity values

Variables	"Cronbach's Alpha"	"Composite Reliability"	"Average Variance Extracted (AVE)"
External	0,615	0,751	0,625
Self-Efficacy	0,929	0,940	0,609
Amotivated	0,875	0,918	0,789
Intrinsic	0,938	0,960	0,890
Introjected	0,746	0,871	0,773
Integrated	0,936	0,959	0,886
Identified	0,887	0,930	0,815

"Cronbach's Alpha", "Composite Reliability" (CR) and "Average Variance Extracted" (AVE) parameters are used to calculate reliability. All measurements expect external, Cronbach's alpha and PLS based CR values are above the threshold value of 0,70 and AVE values exceed 0.50. Also, external still has an acceptable value of 0.615 Cronbach's Alpha (Uzunsakal and Yıldız, 2018).

Table 2. Factor loads for endogenous variables

	External	Self-Efficacy	Amotivated	Intrinsic	Introjected	Integrated	Identified
gdd1	0,997						
gdd3	0,606						
gg1			0,832				
gg2			0,948				
gg3			0,881				
gia1					0,785		
gia2					0,965		
gig1				0,948			
gig2				0,952			
gig3				0,929			
go1						0,933	
go2						0,938	
go3						0,951	
goy1		0,714					
goy10		0,739					
goy2		0,729					
goy3		0,817					
goy4		0,777					
goy5		0,750					
goy6		0,843					
goy7		0,841					
goy8		0,779					
goy9		0,803					
gozum1							0,861
gozum2							0,933
gozum3							0,913

The standardized loading of the measurements on the relevant concepts was calculated by confirmatory factor analysis (CFA) and it was found that all the measurements tested in convergent validity showed that a standardized loading exceeding 0,60 to their factors.

After that, "Pearson Correlation Analysis" performed to examine the correlation between motivation, life satisfaction and success perceptions. The correlations between the variables are given in the table 3.

Table 3. Fornell-Larcker and latent variable correlation values regarding measurement model

	External	Self-Efficacy	Amotivated	Intrinsic	Introjected	Integrated	Identified
External	**0,791**						
Self-Efficacy	0,107	**0,780**					
Amotivated	0,479	-0,230	**0,888**				
Intrinsic	0,321	0,321	-0,035	**0,943**			
Introjected	0,297	0,314	-0,056	0,716	**0,879**		
Integrated	0,318	0,271	-0,059	0,622	0,791	**0,941**	
Identified	0,359	0,327	-0,088	0,731	0,695	0,731	**0,903**

According to the results in table 3, there is a positive relationship between all dimensions of motivation, life satisfaction and success perception. Besides, the square root of the AVE values is higher than the correlation pairs. Thus, it can be said that our measurements meet the required validity and reliability criteria.

The following table shows the results of the hypothesis tests, path analysis and structural model of the research.

Table 4. Path analysis values concerning the structural model testing of the research

	Original Sample (β)	**P Values**
"Self-Efficacy" -> "External"	0,107	0,504
"Self-Efficacy" -> "Amotivated	-0,230*	0,045
"Self-Efficacy" -> "Intrinsic"	0,321**	0,000
"Self-Efficacy" -> "Introjected"	0,314**	0,000
"Self-Efficacy" -> "Integrated"	0,271**	0,001
"Self-Efficacy" -> "Identified"	0,327**	0,000

As shown in the table, the results confirm some of the research hypotheses. Sport Motivation Dimensions including intrinsic (β: 0,321, $p<0,05$), introjected (β: 0,314, $p<0,05$), integrated (β: 0,271, $p<0,05$), identified (β: 0,327, $p<0,05$) sub-dimensions have a positive and significant effect on self-efficacy, while amotivated (β: -0,230, $p<0,05$) sub-dimension has negative effect on self-efficacy. The findings do not support the existence of a statistically significant

relationship between general self-efficacy and external which is one of the sport motivation sub-dimension.

DISCUSSION AND CONCLUSION

This study has explored the factors that motivate the elite table tennis players participating in the Turkish Table Tennis Super League in the 2018-2019 season and to compare these factors with their self-efficacy beliefs. The results of this study have shown that sub-dimensions of intrinsic (β:0,321, p<0,05), introjected (β:0,314, p<0,05), integrated (β:0,271, p<0,05) and identified (β:0,327, p<0,05) have a positive and significant effect on self-efficacy. On the other hand, a motivated (β:-0,230, p<0,05) sub-dimension has a negative effect on self-efficacy. Moreover, the findings do not support the existence of a statistically significant relationship between general self-efficacy and external motivation.

It can be said that the belief of self-efficacy is a positive effect on players' motivation and performance. The findings of the study were supported by several types of research Gibson et al., (2000); Vancouver et al., (2008), Schmidt and DeShon (2009) and Bandura (2012). This research article can contribute to the existing literature in three ways.

The first outcome of our study is the positive relationship between sub-dimensions of motivation including intrinsic (β:0,321, p<0,05), introjected (β:0,314, p<0,05), integrated (β:0,271, p<0,05) and identified (β:0,327, p<0,05) and self-efficacy. Table Tennis Players who feel high perceived self-efficacy also can be positive relation with intrinsic, introjected, integrated and identified motivations. The finding in Table 4 is consistent with many studies in the literature (De Young, 2000; Thøgersen-Ntoumani and Ntoumanis, 2006; Tabernero and Hernández, 2010). Consider the studies; it is stated that the relationship between self-efficacy and intrinsic motivation is positive. It can be said that athletes with firm self-efficacy beliefs have high intrinsic, introjected, integrated and identified motivation. This result showed that self-efficacy is an important component of the motivation among table tennis players.

The second outcome in Table 4 is the negative relationship between sub-dimensions of motivation, including a motivated (β:-0,230, p<0,05) and self-efficacy . The self-efficacy is a significant indicative of motivation for the elite Turkish Table Tennis Players. Table Tennis Players who feel low perceived self-efficacy also can be developed of amotivation among them. These outputs are supported by Aydın (2015) and Nilsson (2017) findings. Therefore, the self-efficacy of athletes who are neither internally nor externally motivated will also be negatively affected.

The third outcome of the study is that there is not any statistical relationship between self-efficacy and external motivation (β:0,504, p<0,05). The finding in Table 4 does not match the results of Kheirkhah et al. (2017). Additionally, these findings show that intrinsic motivation over self-efficacy is more dominant than extrinsic motivation. It can be interpreted that the use of external motivation sources of table tennis clubs does not create a statistically significant relationship for table tennis athletes. In the emergence of this result, young athletes may be more intensely devoted themselves by the intrinsic motivation sources such as trying to be indispensable group member of team and achieving their personal goals.

In conclusion, these findings show that the belief of self-efficacy as players' motivation and performance increases. It is important that trainers and club managers know ways to increase the general self-efficacy perceptions of players. Trainers can increase their general self-efficacy

beliefs thanks to teaching them enriched with new training techniques, psychological support and creating effective learning environments.

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