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Music in Sporting Practices: A Study on Traditional Archery Team

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Abstract

Sport is an important phenomenon that supports psycho-social and physical development in both individual and social contexts. Music has an important place among the factors affecting the sportive process. In this study, the effect of music on sportive activities was examined according to some demographic factors in the context of motivation, physical strength and performance, and psychological resilience. The research data were obtained from 36 athletes competing in the archery branch in the 2020-2021 season Senior Turkey Championship Final Competitions. Scanning model was used in the research. In this context, the Effect of Music

on Sportive Practices scale developed by Karayol and Turhan (2020) was used. In the analysis of the data, descriptive statistics for demographic variables, the Mann-Whitney U Test, which is a nonparametric test, to test the difference between the mean of two independent groups, and the Kruskal Wallis Test, which is one of the nonparametric tests, were used to compare more than two independent groups. In addition, Spearman test was applied to determine the relationship between two or more variables. As a result of the research, there were no significant differences according to the variables of gender and personal income, but significant differences were found between the variables of education status, listening to music in training and training place and some sub-dimensions of the scale. According to this; Significant differences were found in favor of those with university education, those who listen to music in training and those whose training place is in the district. In addition, a negative significant relationship was found between listening to music in sports activities and daily training time. According to the findings, the effect of music in sportive activities decreases as the training time increases, and listening to music during training increases motivation and performance.

Keywords: Sports, Archery, Music

1. Introduction

"Music", which has affected people and societies the most both emotionally and intellectually from ancient times to the present, emerges as a phenomenon that moves people to action. İlyasoğlu (1996), who revealed that the concept of "music" comes from the word "muse" in Greek mythology, stated that music has always had a positive effect on human life from past to present. Music constitutes an important aspect of human culture and evolution (Mithen, 2011; Patel, 2010), which expresses feelings and thoughts beyond speech and words (İngersoll, 2009). Music, as a part of human nature, is an important argument that almost all people of different ages and cultures have used for thousands of years, from the most primitive societies to the most advanced ones (Levitin, 2006). From past to present, it can be said that music accompanies human activities in many fields such as wars, ceremonies, weddings, openings, Olympics and other sports organizations. During the 2008 Beijing Olympic games, American swimmer Michael Phelps listened to music on his portable music device until two minutes before the competition in order to put himself in the right mental motivation (Terry & Karageorghis, 2011). Another example that can be shown to the music-sports relationship is the attempt to increase sportive motivation with the "Haka", also called war music, which is regularly performed by the New Zealand national rugby team before competitions (Karageorghis & Priest, 2012). Bale and Bateman (2009) argued that music is the primary phenomenon associated with a sporting event and viewed music and sport as two of the most popular and culturally common activities in which individual and collective identities come together. Similarly, (Strauss, 1966) suggested that both music and physical movement have a phenomenological commonality. In this direction, although music and sports are thought to be very different fields from each other in many respects, it is seen that they have many common points (Long, 2020). From the past to the present, many athletes have tried different methods in order to maximize their performance (Atan, 2013). One of the methods of better preparing the athletes for competitions and maximizing their

performance is to use the existing positive effects of music (Yamamoto et al., 2003). It has been stated in the studies in the literature that music keeps the athletes more fit during the training and delays the fatigue to continue the training and supports the performance of the athletes (Szmedra et al., 1998). In addition, it has been determined that music has an effect on athletes' capacity to do work, demonstrated power density, and oxygen utilization capacity (Terry et al., 2012). As a matter of fact, studies in the literature generally show that music has a psychological, physiological and ergogenic effect. Studies have shown that listening to music is not only effective in enjoying activity, regulating arousal, reducing perceived difficulty, improving motivation, but also increasing exercise performance (Eliakim et al., 2007; Hutchinson et al., 2011; Miller et al., 2010; Yamoto et al., 2003). However, it has been emphasized by various researchers that music increases attention, raises positive mood and emotions, keeps memory awake, promotes rhythmic movements and causes higher functional functionality (Karageorghis, 2008; Sohn, 2011; Terry et al., 2012). On the other hand, Karageorghis (2008); Meeks and Herdegen (2002) revealed that music improves the motivational qualities of athletes.

Sports scientists have constantly been involved in different studies to increase the performance of their athletes more. One of the newest ideas in the field of sports today is the idea of using music to improve performance. In this direction, the aim of the research is to examine the effect of music on athletes in traditional archery in the context of motivation, physical strength and performance, and psychological resilience. In this context, our research sub-problems are: a) Does the effect of music differ significantly according to gender in sportive practices? b) Does the effect of music differ significantly according to education level in sportive practices? c) Does the effect of music differ significantly during sportive practices compared to the state of listening to music in previous workouts? d) Does the effect of music differ significantly according to personal income status in sportive practices? e) Does the effect of music differ significantly according to the training place in sportive practices? f) What is the relationship between the effect of music and the daily training time in sports activities? It is important that the research is conducted in the traditional archery branch, as well as contributing to the limited literature in the field of music and sports, and presenting a correct perspective to the athletes and coaches in the relationship between music and sports. In this study, rather than comparing sports and music, it is thought that revealing how both contribute to sports, athletes and the process when they come together will contribute much more to the literature.

2. Method

In this study, screening model has been used. The screening model is a study conducted to determine the specific characteristics of a group (Büyüköztürk et al., 2012). In this context, the Effect of Music on Sportive Practices scale developed by Karayol and Turhan (2020) has been used.

2.1 Research Group

Research data have been obtained from 36 athletes competing in the Turkish Senior Championship Final Competitions in the traditional archery branch of the 2020-2021 season.

2.2 Data Collection Tool

The data have been collected with the scale of Effect of Music on Sportive Practices developed by Karayol and Turhan (2020). The Effect of Music on Sportive Practices Scale: The scale, which uses 5-point Likert-type grading, consists of 18 items and 3 sub-dimensions. Sub dimensions; Motivation (1, 2, 3, 4, 5/min. 5 max. 25), physical strength and performance (6, 7, 8, 9, 10, 11/min. 6 max. 30), psychological resilience (12, 13, 14, 15, 16, 17, 18/min 7 max. 35). The general reliability of the scale is Alpha = 0.885. The scale is applied in three stages as before the sportive application, during the sportive application and after the sportive application. In this study, the scale has been applied to the participants during the sportive activity application. The scale used in this study has been found to be highly reliable with Cronbach's Alpha coefficients of 0.80 < 0.100 for sub-dimension and total scores.

2.3 Process

Athletes in the archery branch who have voluntarily accepted to participate in the research have been informed about the purpose of the research. As a result of this information, 36 of the athletes competing in the Turkish Senior Championship Final Competitions in the traditional archery branch of the 2020-2021 season have agreed to participate voluntarily. Participants have been asked to listen to music during the competition and express their views during the sportive activity by filling out the "The Effect of Music in Sportive Practices" scale. For the research, the ethics committee report dated 22/12/2021 and decision numbered 197 has been obtained from the Social and Human Sciences Scientific Research and Publication Ethics Committee of Bayburt University.

2.4 Analyzing the Data

Statistical analyzes have been applied with SPSS 24.0 program. The reliability analyzes of the obtained data have been tested on the Cronbach's Alpha value. The normality distributions of the research data have been decided by considering the kurtosis, skewness values, Shapiro-Wilk, Histogram graph and the number of participants per group ($n < 30$). According to the analysis made separately for the variables, it is seen that the data are not normally distributed. In this context, Mann-Whitney U Test has been applied for the measurement results that have not met the normality distribution of the two independent groups and Kruskal Wallis Test has been applied for the measurement results that have not met the normality distribution of more than two independent groups. In order to determine the direction and strength of the relationship between two or more variables, the Spearman test has been applied to the measurement results that have not met the normality distribution. The significance level in the analyzes has been interpreted as $p < 0.05$. The reliability and normality distributions of the scale used in the study have been calculated and presented in the form of tables below.

Table 1. Cronbach's Alpha values obtained in the study

	Sub Dimensions	Item Numbers	Cronbach's Alpha
The Effect of Music in Sports Scale	Motivation	1, 2, 3, 4, 5	**0.92**
	Physical Strength and Performance	6, 7, 8, 9, 10, 11	**0.94**
	Psychological Resilience	12, 13, 14, 15, 16, 17, 18	**0.96**
	EMSS Total	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	**0.97**

Cronbach's alpha coefficients for the sub-dimension and total scores of the scale used in the study are seen to be highly reliable in the range of 0.80 < 0.100.

Table 2. Kurtosis-Skewness and its values in relation to the normality distribution

	sub dimensions	N	Lowest	Most	Ave.	Ss	Skewness	Kurtosis
EMSS	Motivation	972	1.00	5.00	2.93	1.47	0.001	-1.315
	Physical Strength and Performance		1.00	5.00	2.63	1.23	0.073	-0.954
	Psychological Resilience		1.00	5.00	2.57	1.23	0.069	-1.036
	EMSS Total		1.00	5.00	**2.69**	**1.22**	**-0.065**	**-1,146**

Table 2 when the tables on the normality distribution are examined, it is seen that the kurtosis-skewness values are among the acceptable values.

Table 3. Kolmogorov-Smirnova-Shapiro-Wilk results on the normality distribution

	Kolmogorov-Smirnova				Shapiro-Wilk		
		Statistics	Df	Sig.	Statistics	Df	Sig.
EMSS	Motivation	.156	36	.026	.889	36	.002
	Physical Strength and Performance	.157	36	.026	.913	36	.008
	Psychological Resilience	.166	36	.014	.902	36	.004
	EMSS Total	.140	36	.074	.927	36	.021

When Table 3 is examined, it is seen that Kolmogorov-Smirnova and ShapiroWilk values do

not comply with the normality distribution. Considering that the number of participants in the groups (n < 30) has been small in the study and the Histogram appearances have not indicated normality distribution, nonparametric analyzes have been decided.

3. Results

3.1 Descriptive Statistics

The frequency and percentage distributions related to the descriptive statistics of the study are presented below as a pie chart.

Figure 1. Gender distribution

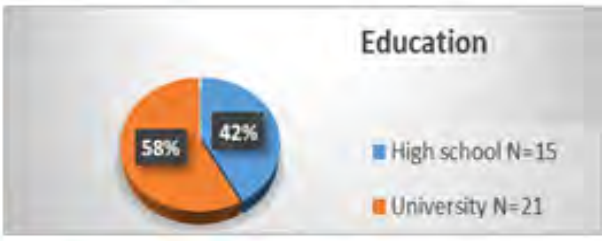

Figure 2. Educational status distribution

When the Figures 1 and 2 is examined, it is seen that the number of male athletes is 16, the number of female athletes is 20, there are 15 athletes whose education status is high school and 21 athletes whose education status is university.

Figure 3. Income distribution

Figure 4. Distribution of the training place of the athletes

When Figures 3 and 4 is examined, it is seen that 36% of the athletes have an income of TL 2500 and below, 31% of them have an income of TL 2501-3500, 33% of them have an income of TL 3501 and above and when the distribution of training places is examined, it is seen that 56% of them are metropolitan, 25% of them are city and 19% of them are district.

Figure 5. Distribution of listening to music

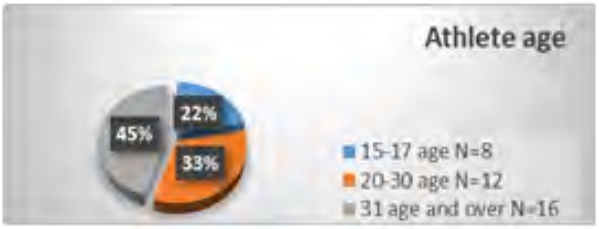

Figure 6. Distribution of sportsman age in training

When Figures 5 and 6 is examined, it is seen that 28% of the athletes listen to music during training and 72% of them do not listen to music during training. 22% of the athletes are between the ages of 15-17, 33% of them are between the ages of 20-30 and 45% of them are aged 31 and over.

Figure 7. Distribution of daily sports hours

In Figure 7 when the distribution of daily sports hours is examined, it is seen that 69% of them are 2 hours and 31% of them are 3 hours.

The median and quartile distribution of the effect level of music in the sports practices of the athletes in the study group is presented in Figure 8.

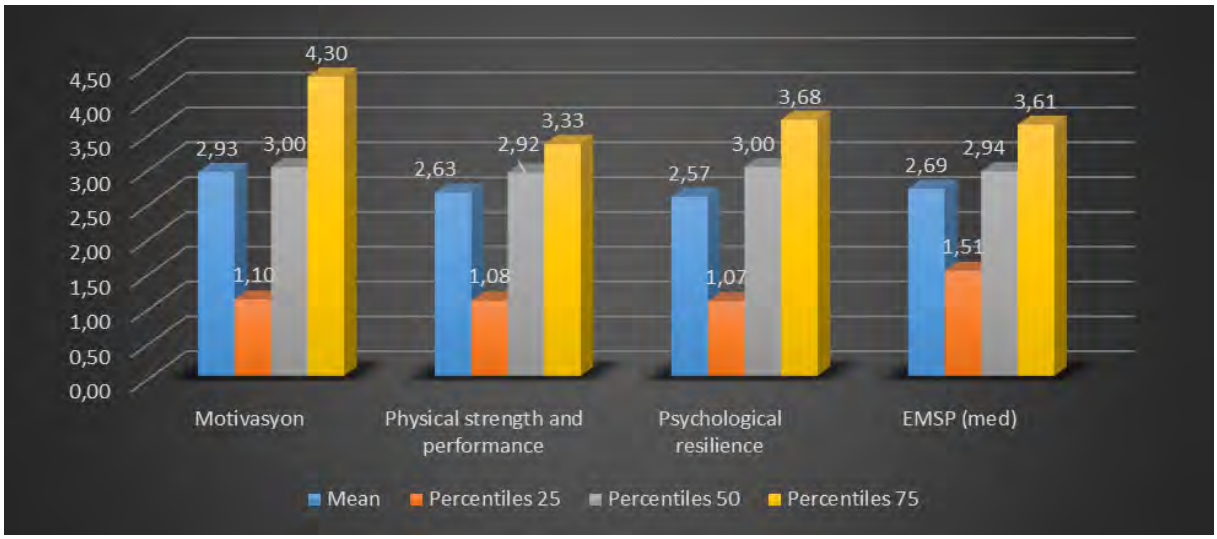

Figure 8. Median and quartile distribution of the data obtained in the study

When the graph in the figüre 8 is examined, it is seen that the measurement medians are in motivation (med = 3), physical strength and performance (med = 2.92), psychological resilience sub-dimension (med = 3) and EMSS (med = 2.94) and also it is seen that the quartile distributions are found in motivation (Q2 = 1.10, Q3 = 4.3), physical strength and performance (Q2 = 1.08, Q3 = 3.3), psychological resilience sub-dimension (Q2 = 1.07, Q3 = 3.67) and EMSS (Q2 = 1.5, Q3 = 3.61).

The findings related to the relationship and difference analyses of the study are given below.

Table 4. Comparison of the mean rank of the participants according to the "gender" variable

Measurement		N	Average rank	Row ball	U	p
Motivation	Man	16	16.06	257	121	0.210
	Woman	20	20.45	409		
Physical Strength and Performance	Man	16	16.94	271	135	0.421
	Woman	20	19.75	395		
Psychological Resilience	Man	16	15.44	247	111	0.114
	Woman	20	20.95	419		
EMSS Total	Man	16	16.34	261	125	0.269
	Woman	20	20.23	404		

Table 4 shows the findings of the Mann Whitney U-test, which is one of the nonparametric tests used to determine whether the effect of music during sportive practices differs significantly according to the gender variable. When the findings have been examined, it has been determined that the mean rank of the 2 independent groups do not differ significantly.

Table 5. Comparison of the mean rank of the participants according to the variable of "educational status"

Measurement		N	Average rank	Row sum	U	p	Significant Difference
Motivation	High school	15	14.37	215.50	95,500	**0.044**	**1-2***
	University	21	21.45	450.50			
Physical Strength and Performance	High school	15	12.70	190.50	70,500	**0.005**	**1-2***
	University	21	22.64	475.50			
Psychological Resilience	High school	15	15.43	231.50	111,500	0.135	
	University	21	20.69	434.50			
EMSS	High school	15	13.73	206	86	**0.021**	**1-2***
	University	21	21.90	460			

Table 5 shows the findings of the Mann Whitney U-test, which is one of the nonparametric tests used to determine whether the effect of music during sportive practices differs

significantly according to the educational status variable or not. When the findings are examined, it is seen that motivation (U = 95.500, p < 0.05), physical strength and performance (U = 70.500, p < 0.05), sub-dimensions of EMSS (U = 86, p < 0.05) and mean rank differ significantly. The significant difference in favor of which group over the rank scores has been interpreted according to the cross-table distributions. According to the results of the cross table, it has been determined that the motivation ($\bar{x}$ = 3.35), physical strength and performance ($\bar{x}$ = 3.11), sub-dimensions and EMSS total ($\bar{x}$ = 3.08) score averages of the athletes with university education have been higher than the motivation ($\bar{x}$ = 2.35), physical strength and performance ($\bar{x}$ = 1.96), sub-dimensions and EMSS total ($\bar{x}$ = 2.14) score averages of the athletes with high school education. Accordingly, the athletes with a university education level perceive the effect of music in sportive activities more in terms of motivation, physical strength and performance than the athletes with high school education. When the detected effect size is examined, it is seen that the motivation (r = -0.34), physical strength and performance (r = -0.47) and the total difference in EMSS (r = -0.39) have a medium level of effect and 15% of the total variance is explained by the music variable.

Table 6. Comparison of the participants' "listening to music in training" variable rank averages

Measurement		**N**	**Average rank**	**Row Sum**	**U**	**p**	**Significant Difference**
Motivation	Yes	10	27.40	274	41	**0.001**	**1*-2**
	No	26	15.08	392			
Physical Strength and Performance	Yes	10	24.45	244.50	70.500	**0.034**	**1*-2**
	No	26	16.21	421.50			
Psychological Resilience	Yes	10	21.50	215	100	0.283	
	No	26	17.35	451			
EMSS	Yes	10	24.50	245	70	**0.033**	**1*-2**
	No	26	16.19	421			

Table 6 shows the findings of the Mann Whitney U-test, which is one of the nonparametric tests used to determine whether the effect of music during sportive practices differs significantly according to the status of listening to music in training. When the findings are examined, it is seen that motivation (U = 41, p < 0.05), physical strength and performance (U = 70.500, p < 0.05), EMSS (U = 70, p < 0.05) with its sub-dimensions mean rank differ significantly. The significant difference in favor of which group over the rank scores has been interpreted according to the cross-table distributions. According to the cross-table results, it has been determined that the motivation ($\bar{x}$ = 4.16, physical strength and performance ($\bar{x}$ =

3.33), sub-dimensions and EMSS ($\bar{x}$ = 3.41) total score averages of the athletes who have answered yes to the question "Do you listen to music during training?" have been higher than the motivation ($\bar{x}$ = 2.46), physical strength and performance ($\bar{x}$ = 2.36), sub-dimension and EMSS ($\bar{x}$ = 2.41) total score averages of the athletes who have said no. Accordingly, the athletes who listen to music in training perceive the effect of music on motivation, physical strength and performance more than the athletes who do not listen to music in training. When the detected effect size is examined, it is seen that motivation (r = -0.53), physical strength and performance (r = -0.35), and EMSS total (r = -0.36) difference have a medium level of effect and 13% of the total variance is explained by the variable "listening to music in training".

Table 7. Comparison of the participants' mean rank of the "personal income" variable

Measurement		**N**	**Average rank**	**sd**	**x ^{2}**	**p**	**Significant Difference**
Motivation	2500 TL and below	13	15.38	2nd	2.160	0.340	-
	2501-3500 TL	11	21.59				
	3501 TL and above	12	19.04				
Physical Strength and Performance	2500 TL and below	13	14.58	2nd	2.994	0.224	-
	2501-3500 TL	11	19.95				
	3501 TL and above	12	21.42				
Psychological Resilience	2500 TL and below	13	16.50	2nd	0.772	0.680	-
	2501-3500 TL	11	19.95				
	3501 TL and above	12	19.33				
EMSS	2500 TL and below	13	15.65	2nd	1.532	0.465	-
	2501-3500 TL	11	20.50				
	3501 TL and above	12	19.75				

Table 7 shows the findings of the Kruskal-Wallis test, which is one of the nonparametric tests used to determine whether the mean rank of the athletes differs significantly according to the variable of "personal income status" during sports practices. When the findings are examined, it is seen that the mean rank of EMSS (X2 (2) = 1.532, p > 0.05) and its sub-dimensions do not differ significantly.

Table 8. Comparison of the participants' mean rank of the "where they train" variable

Measurement		N	Average Rank	Sd	x^2	p	Significant Difference
Motivation	Metropolitan	20	16.35	2nd	6.071	**0.048**	**1, 2-3***
	City	9	16.50				
	District	7	27.21				
Physical Strength and Performance	Metropolitan	20	16.68	2nd	2,673	0.263	
	City	9	18.17				
	District	7	24.14				
Psychological Resilience	Metropolitan	20	17.28	2nd	0.624	0.732	
	City	9	20.06				
	District	7	20.00				
EMSS	Metropolitan	20	16.85	2nd	2,193	0.334	
	City	9	18.17				
	District	7	23.64				

Table 8 shows the findings of the Kruskal-Wallis test, which is one of the nonparametric tests used to determine whether the mean rank differs significantly according to the variable of "where the athletes train" regarding the effect of music during sportive practices. When the findings have been examined, it has been determined that the motivation (X2 (2) = 6.071, $p < 0.05$), sub-dimension rank averages differ significantly, while the EMSS (X2 (2) = 2.193, $p > 0.05$) and the other two sub-dimension rank averages do not differ significantly. The rank scores of the motivation sub-dimension have differed significantly in favor of which group has been examined with the Mann Whitney U test. According to Mann Whitney U test, a significant difference has been found between metropolitan-district motivation ($U = 28.50$, $p < 0.05$), and city-district motivation ($U = 12$, $p < 0.05$). According to the cross-table distributions made to determine the significant difference found in favor of which group, it has been determined that the average score of the athletes training in the district ($\bar{x} = 4.20$), is higher than the average score of the athletes training in the metropolitan ($\bar{x} = 2.65$) and city ($\bar{x} = 2.58$). Accordingly, the athletes whose training place is in the district perceive the effect of music more in the motivation sub-dimension. When the effect size determined in the motivation sub-dimension is examined, it shows that the difference of motivation ($\eta 2$) = 0.17 has a large effect power and its variance is explained by 17%.

Table 9. Comparison of the relationship between listening to music in sports activities and daily training time

	Daily training time	Motivation	Physical Power Performance	Psychological Resilience	EMSS
Daily training time	one	-.379*	-.392 **	-.391*	-.418*
		0.23	.018	.018	.011

In Table 9, the results of the nonparametric Spearman's correlation analysis performed to determine the direction and strength of the linear relationship between the daily training time of the athletes in the research group and the EMSS and its sub-dimensions are presented. According to this, a moderate and negative significant relationship has been found between the effect of music in sportive activities and daily training time in terms of motivation ($r = -0.379^*$ $p < 0.5$), physical strength and performance ($r = -0.392^*$, $p < 0.5$), psychological resilience ($r = -0.391^*$, $p < 0.5$), and EMSS ($r = -0.418$, $p < 0.5$). This finding shows that the effect of music in sportive activities decreases as the training time increases. When the detected effect size is examined, it is seen that motivation ($r2 = -0.379$), physical strength and performance ($r2 = -0.392$), psychological resilience ($r2 = -0.391$), and the EMSS total ($r2 = -0.418$) have a moderate effect power and explain 17% of the total variance.

4. Discussion

There are many factors that affect sports performance, motivation and psychological resilience in sports activities. In the study examining the effect of music in traditional archery branch, and according to the participants' educational status, listening to music in training and place of training, the determination of significant differences in some sub-dimensions and in the total score averages of the scale is an indication that music affects sportive performance and power and motivation. In this direction, in the study, the athletes with a university education level perceive the effect of music in sports activities more than the athletes with a high school education in terms of motivation, physical strength and performance. We can attribute this result to the fact that even the music perceptions of the athletes whose education level is university change as a result of the differentiation of their expectations from music and their musical cultures. In other words, we can explain the fact that athletes with higher educational status make their musical sensations more meaningful by processing and interpreting them by the brain (Sazak, 2008), and this situation affects their motivation, physical strength and performance at a higher level. According to the variable of listening to music during training of the participants, athletes who listen to music during training perceive the effect of music in the dimensions of motivation and physical strength and performance more than the athletes who do not listen to music during training. As a result of the participants' previous life, experience and habits related to music, the difference in their levels of influence and interpretation of music may have caused them to perceive the effect of music in sports activities differently. Koç and Curtseit (2009) have revealed that motivational music listened to during sportive activity will increase sportive performance.

Regarding this, they have stated that it is possible to increase motivation in strength and resistance exercises when appropriate music is selected. Similarly, in their study (Priest, 2012; Karageorghis, 2008; Bishop, Harmon, & Kravitz, 2007), sports participants have expressed music as a source of motivation during exercise or sports. Yenigün et al. (2007) has revealed in their study that musical training practices have a positive effect on muscle strength and are an effective method in improving muscular endurance. Similarly, Kartal and Ergin (2018) have found in their study that the music listened to by the athletes has contributed to their performance. Bigliassi, Karageorghis, Bishop, Nowicy, and Wright (2018) have revealed in their study that music contributes to exercise performance and motivation, and to the development of endurance capacity by affecting the motor nervous system. In another study, Doiron et al. (1999) have tested the beta-endorphin levels of athletes exercising with and without music in their experimental study, and as a result, they have found that the beta-endorphin levels of athletes exercising by listening to music have increased. This result indicates that athletes with high beta-endorphin levels during exercise feel better and happier, and therefore their motivation is high. According to the variable “where the participants train”, athletes whose training place is a district perceive the effect of music more in the motivation sub-dimension. We can attribute this result to the fact that athletes living and training in cities or metropolises are more exposed to music as a result of spending more time in places such as shopping malls, cafes, restaurants, cinemas, stores, etc., which are called urban spaces, and as a result of spending more time with music, the effect of music on athletes becomes normalized and they become insensitive to music. In this direction, the fact that the athletes living and training in the district do not have these opportunities can be interpreted as the fact that the music culture is low in the place where they work, and that the athletes who encounter music will focus more on music and will be influenced by it. From another point of view, it can be thought that the effect levels of music on people in different regions or areas may be different (Abdurrezzak, 2018).

When the relationship between listening to music in sportive activities and daily training time of the participants is examined, it is seen that the effect of music decreases as the training time in sportive activities increases. Considering that physical fatigue will increase depending on the training period, we can say that there will be a decrease in attention and concentration, and accordingly, the athletes will feel the effect of music less and they will gain insensitivity to music. When we look at the literature regarding this result, it is seen that there are a limited number of studies and these studies have been conducted abroad, and some results do not match with the results of the study. In other words, there are studies that show that music has a positive effect on performance during long-term exercises (Chtourou et al., 2015). We can also explain this situation with the differences in music culture and perception in our country and other countries. In summary, athletes with a university education level perceive the effect of music in sports activities more in terms of motivation, physical strength and performance than athletes with high school education. Athletes who listen to music during training feel the effect of music in the dimensions of motivation and physical strength and performance more than athletes who do not listen to music during training. Athletes whose training place is in the district perceive the effect of music more in the motivation sub-dimension. In sports activities, it is seen that the effect of music decreases as the training time increases. In this

direction, we can say that coaches and athletes can increase their sportive performance and motivation by benefiting from the effect of music. When we look at the effect of music on sports in general, it is seen that the majority of the studies in our country are not experimental studies, unlike the studies abroad. In this context, it is important to support the studies to be carried out with experimental research in order to understand the complex psychophysiological mechanisms underlying the relationship between music and sports. Comparisons can be made by investigating the relationship between music and sports even in other branches other than the traditional archery branch. In addition, the effect of different music styles on the motivation and performance levels of athletes can be investigated. Considering that motivations and emotional responses to listening to music can be influenced by personality factors (Juslin et al., 2011; Rawlings & Leow, 2008), future research may focus on personal variables.

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