

Identification the Relation between Active Basketball Classification Referees' Empathetic Tendencies and Their Problem Solving Abilities

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Abstract This study aims to determine the relation between basketball classification referees' problem solving ability and empathetic tendencies. Research model of the study is relational screening model. Sampling of the study is constituted by 124 male and 18 female basketball classification referees who made active refereeing within Turkish Basketball Federation in 2015-2016 season. Personal information form, Problem Solving Inventory (PSI) which was developed by Heppner and Peterson [1] and Empathetic Tendency Scale (ETS) which was developed by Dökmen [2] were used as data collection tools. Data were analyzed by used SPSS Package Program. Pearson Product – Moment Correlation Coefficient was used to determine relations between variables. Kruskal Wallis, T-test and Mann- Whitney U Test were used to analyze differences according to the variables such as gender, classification year, education and classification of basketball referees. A positive significant difference was determined between basketball referees' empathetic tendencies and problem solving abilities ($r = .170$, $p < .05$). When educational level is considered, a significant difference was determined in empathy total scores in favor of master degree referees ($U = 1041.50$, $p < .05$). Any significant difference was not found between basketball referees' problem solving abilities and total score of empathetic tendencies and their gender, classification year and classification variables. Again, any significant difference was not found between totals scores of problem solving ability and the variable of educational level.

Keywords Referee Education, Basketball Referee, Empathetic Tendency, Problem Solving

1. Introduction

Basketball referees are one of the most important

components of a game. They are responsible for the fair play. For this reason, performance of referees is critical for the match result [3].

Basketball refereeing is physical activity having psychological and cognitive dimensions. Desire of more challenging performance due to professional development of basketball game reveal that basketball referees should have a certain degree of competence in terms of physical and psychological performance and regulations [4-5]. Decision making process of a referee is affected not only by the quality of personal performance on the pitch but also pressure and behaviors of audience, trainers, managers and players. Such an interaction set limitations to the referees for making an objective evaluation and decision. A basketball referee make over a hundred decisions in a match. They can experience the protests of audience, trainers, managers and players at the time of making decisions. A referee should consider personal development to make a right decision in such situations [6].

A referee should generate some alternatives against varied conditions on the pitch although his/her performance is in the top level. Such conceptions may stemmed from negative behaviors of players, trainers, managers and audience and their pressures. Moreover, conflicts among the referees may arise in the match [4]. These changing conditions in a competition are mostly the problems which should be solved by referees. Proper solutions of these problems are important for high-level performance of a referee. A referee should complete the process of seeing, defining and solving a problem as soon as possible [7]. Thus, s/he contributes to game in terms of providing a game excitement by maintaining fluency of the game.

In this context, it is important how the problems are dealt with. Positive approach to problems and positive communication with the shareholders of the game can be considered as an effective way in problem solving. Communication is an essential activity of the life [8]. In order to establish a health communication with others, a

person should have necessary communication skills. In several studies, it was seen that certain communication skills such as being respectful to others, transparent, concrete and empathetic with others are important for a health communication. Empathy is especially accepted as one of the important components of general communication skill in interpersonal relations [9-10-11].

Empathetic behaviors of individuals take an important place in sport athletic activities as much as social life. While refereeing a competition, competencies like recognizing the athletes, establishing a positive dialogue with them, understanding them and managing their emotions require emotional intelligence, knowledge of regulations, leadership, effective communication and empathy skill. In this case, referees' understanding and managing of only their own emotions and desires are considered as an inadequacy [13]. Referees, who are refereeing the game in athletic activities, should also understand emotions of players, trainers and audience and empathize with them [5-14]. Due to empathetic behaviors of referees, players and trainers are pleased and the audience is satisfied. Thus, they can be successful actors in decreasing and solving problems on the pitch [15] While Caminsky [14] specifies traits of an excellent referee, he states that empathizing with others makes positive contributions to the game, decreases the problems and facilitates the problem solving.

In this perspective, referees' empathetic tendencies and problem solving abilities are considered important for high-level refereeing performance. In this study, it was aimed to reveal the relation between referees' empathetic tendencies and problem solving abilities.

1.1. Problem Solving

Problem solving is a complicated process involving cognitive skills as well as affective and behavioral characteristics. It cannot be observed directly due to its cognitive characteristics [16-17]. Problem solving process is a process starting with perceiving a situation as a problem and involves selection and application of the best choice among others [18]. As a process, problem solving method involves certain activities such as trial-and-error, acquisition of insight and finding cause and effect relationships [19].

1.2 Empathy

Empathy is one's considering the situations by putting himself/herself into someone's shoes, understanding and feeling emotions and thoughts of others properly and transmitting this situation to them [20]. Within the empathy process, it is important that the one should establish a correct understanding of emotions and thoughts of the others with whom s/he is in direct communication. At the same time, it is important that the one who empathizes with others should transmit the perception properly [21-22]. It can be said that the more empathetic skills, the easier the

problems are solved [23]. In interpersonal relations, empathetic skill is considered as one of the important components of general communication skill [9-10-11].

2. Method

2.1. Model of the Study

In this study, research model was determined as a relational screening model because it is aimed to determine the relation between active basketball classification referees' problem solving abilities and empathizing abilities. Relational studies enable us to make several inferences for cause and effect relationships by using some advanced statistical techniques although it does not prove the presence of a causality in real terms [24].

2.2. Study Group

Population of the study is constituted by 250 basketball classification referees who were active in the 2015-2016 season within the Turkish Basketball Federation. 13% of them (n = 32) are female and 87% of them (n = 118) are male. 4.4% of them are in FIBA, 8.4% of them are in A, 24.4% of them are in B and 66.8% of them are in C classifications [25].

In this study, application of data collection tools was performed on a voluntary basis in a day in which there was no competition. Population was successfully reached but 142 referees out of 250 participated in the data collection tool. The number of people who participated in the questionnaire creates the sampling of the study. 87% of the sampling is constituted by male and 13% of it is constituted by female referees. 6% of them (n = 9) are in FIBA, 13% of them (n = 19) are in A, 21% of them are (n = 30) in B and 59% of them are (n = 84) in C classifications. In addition to this, bachelor's degree referees constitute 78% of the sampling (n = 111) while master degree referees constitute 12% of it (n = 31). Moreover, the referees who make refereeing 1-5 years constitute 63% of the sampling (n = 89) while referees who are active for 6 and more years constitute 37% of it (n = 53).

2.3. Data Collection Tools

Problem Solving Inventory (PSI): This inventory was used to measure basketball referees' problem solving abilities. This inventory which measures self-understanding of individuals about problem solving abilities is a Likert type scale composed of 35 items and evaluated according to a scoring system with the numbers of 1-6. The lowest score that can be obtained from the inventory is 32 and the highest score is 192. Higher scores obtained from the scale indicate self-inability perception of individual about problem solving abilities and lower scores show that the one perceives himself/herself as adequate. 9th, 22nd and 29th items in scoring order are out of scoring in accordance with protocol.

Moreover, 1st, 2nd, 3rd, 4th, 11th, 14th, 15th, 17th, 21st, 25th, 26th, 30th and 34th items were inverse-scored [1]. Items were assumed to represent problem solving abilities adequately.

After studies conducted, Cronbach Alpha internal consistency coefficient obtained for whole scale was found as 90 and coefficients obtained for subscales were found between 72 and 85. After studies conducted, it is stated that the scale consists of three factors of "Reliance on Problem Solving Ability" (items of 5, 10, 11, 12, 19, 23, 24, 27, 33, 34, 35, $\alpha=0.85$), "Approach-Avoidance" (items of 1, 2, 4, 6, 7, 8, 13, 15, 16, 17, 18, 20, 21, 28, 30 and 31, $\alpha=0.84$) and "Personal Control" (items of 3, 14, 25, 26 and 32, $\alpha=0.72$). The range of correlation coefficients among these three factors vary from 0.38 to 0.49 [1].

Empathetic Tendency Scale (ETS): This scale was used to evaluate the potential for empathizing of basketball referees'. It was developed by Dökmen [2] in order to evaluate the emotional component of empathy and the potential for empathizing of individuals in daily life. ETS is a likert scale; consists of 20 questions, and states to what extent individuals agree on the opinion on that item by giving points from 1 to 5 for each question. 8 items of ETS consist of negative statements to balance the tendency of respondents to mark "yes". Individuals give points from 1 to 5 for 20 questions in the scale. While summing up points, 3rd, 6th, 7th, 8th, 11th, 12th, 13th and 15th questions are summed up in reverse order.

The minimum score to be obtained in the scale is 20 and the maximum one is 100. Total score implies the scores of respondents' empathetic tendency. High scores show that empathetic tendency is high, and low scores show that empathetic tendency is low. ETS was applied twice to a student group of 70 people with the method of scale replication by Dökmen [2] in the way of applying the second one after three weeks. The reliability of the scale obtained from this practice is 0.82. The reliability of half finishing the scale among respondents' scores from odd and even items of the scale was found as 0.86. The reliability coefficient computed with Cronbach Alpha for research staff of the scale was found 0.72. EST's validity study was performed by Dökmen [2], as well. The validity of the relation between the scores of respondent group with 24 people getting from "Understanding Feelings" chapter of Edwards Personal Preference Inventory and ETS was found 0.68.

2.4. Analysis of the Data

Analysis of the data was done in SPSS 21.0 program. To define relations between variables, Pearson Product-Moment Correlation Coefficient was used. In the analysis of basketball referees' difference based on the demographic variables such as gender, classification year, education and classification, kruskal Wallis test, T test and Mann-Whitney U test were used.

3. Findings

Table 1. U- Test Result of total scores of Empathetic Tendency Scale and Problem Solving Inventory according to gender

	Group	<i>n</i>	Sequence Average	Sequence Sum	<i>U</i>	<i>p</i>
ETS TOTAL	Female	18	63.47	1142.50	971.50	.37
	Male	124	72.67	9010.50		
PSI TOTAL	Female	18	64.22	1156.00	985.00	.42
	Male	124	72.56	8997		

According to the table, any significant difference was not found based on the gender in referees who have participated to the study ($U = 971.50, p > .05$). Moreover, any significant difference was not found between score averages belonging to lower dimensions and sum of problem solving ability and gender ($p > .05$).

Table 2. t-Test result of classification year with total scores of Empathetic Tendency Scale and Problem Solving Inventory.

	Refereeing year	<i>n</i>	\bar{X}	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
ETS TOTAL	1-5 year	89	72.22	8.62	140	.93	.35
	6 and over	53	73.64	8.94			
PSI TOTAL	1-5 year	89	104.20	104.20	140	.93	.35
	6 and over	53	102.86	102.86			

Any significant difference was not found between total scores of empathetic tendencies and classification years of referees ($p > .05$). Again, any significant difference was not found between lower dimensions and total scores of problem solving ability and referees' classification years in all the lower dimensions and total score ($p > .05$).

Table 3. U-test Result of Empathetic Tendency Scale and Problem Solving Inventory according to educational level

	Group	<i>n</i>	Sequence Average	Sequence Sum	<i>U</i>	<i>p</i>
ETS TOTAL	Bachelor's	111	63.47	65.38	1041.50	.04*
	Master Degree	25	72.67	82.34		
PSI TOTAL	Bachelor's	111	69.43	7706.50	1284	.56
	Master Degree	25	64.38	1609.50		

When the total scores between empathetic tendency and educational levels are analyzed, a significant difference was found in empathy scores ($U = 1041.50, p < .05$). When sequence averages of total scores of empathetic tendency scale are considered, scores of master degree referees are higher than of bachelor's degree referees.

Any significant difference was not found between total scores of problem solving ability and referees' educational

levels ($p > .05$).

Table 4. Kruskal-Wallis test result of Empathetic Tendency Scale and Problem Solving Inventory according to classification

	Classification	N	Seq. Avg.	sd	χ^2	P
ETS TOTAL	C	84	70.17			
	B	30	72.82	3	.708	.87
	A	19	70.25			
	FIBA	9	81.89			
PSI TOTAL	C	84	71.87			
	B	30	69.18	3	.327	.06
	A	19	70.53			
	FIBA	9	70.83			

When the total scores between empathetic tendency and referees' classification are analyzed, any significant difference was not found ($p > .05$).

Again, any significant difference was not found between total scores of problem solving ability and referees' classification ($p > .05$).

Table 5. Correlation between problem solving ability and empathetic tendency

Variables	1	2
1. Problem solving	1.00	.170*
2. Empathy	.170*	1.00

* $p < .05$

When table 5 is analyzed, it can be seen that there is a significant difference between problem solving abilities and empathic tendencies of basketball classification referees.

4. Discussion

In our study, Empathetic Tendency Scale scores of male basketball referees was found as higher than of female referees. However, differences between them is not significant statistically. In their studies, Korkmaz et al. and Karabulut et al. (2014) did not find any significant differences according to gender. These results support our study. However, they found that female referees have higher empathetic tendency compared to the male referees in the studies conducted on different groups in literature unlike our study [28-29-30-31-32-33-34]. Dökmen [2] has explained that these results are related to females' giving more emotional reactions compared to the males, females' being provided a quitter, milder and more thoughtful role towards events and "female sensitiveness".

Any significant difference was not found between total scores of basketball referees' problem solving abilities and the gender. When sequence average of total score of PSI is considered, it has been seen that the average of female referees is lower than of male ones. In this case, it can be thought that female referees' problem solving ability is better than of male referees. Demirtaş and Dönmez [38] obtained findings supporting this study in the study that they

conducted relating problem solving ability of teachers working in secondary school. However, it has been found that there are significant differences on behalf of females in terms of gender in the studies related to problem solving abilities unlike our study [35-36-37-38]. In addition, Türkçapar [39] found a significant difference on behalf of male prospective teachers in the study that he conducted on the students of school of physical education and sports. It is thought that the difference between research results is related to the distinctive patterns of study groups.

Any significant difference was not found between empathetic tendency scores of basketball referees and their classification years. In their studies, Sülün (2013) and Öztürk et al. (2004) did not detect any significant difference between task duration of referees and their empathetic tendencies correspondingly. Nevertheless, in contrast to this study, Karabulut et al. (2014) found a significant difference in terms of task duration of referees in their studies conducted for Reviewing of Empathetic Tendency Levels of Active Basketball Referees in Ankara Region.

A significant difference was not found between basketball referees' problem solving abilities and referees' classification years. In parallel with our study, Demirtaş and Dönmez [38] did not find any significant difference in terms of years of seniority in the profession in the study conducted on teachers' problem solving abilities. In contrary to our study, in his study conducted for defining problem solving and assertiveness levels of active football referees in Bursa, Efe et al. stated that referees' problem solving abilities increase as classification year is advanced.

A significant difference was found between empathy scores and educational levels of basketball referees. When sequence orders of total scores of empathetic tendency scale are considered, it has been seen that scores of master degree referees are higher than of bachelor's degree referees. This case can be interpreted as higher educational levels' causing increased levels of empathy abilities of referees. Unlike our study, in their study conducted on referees' educational levels, Sülün and Öztürk et al. (2004) stated that referees' educational levels do not affect their empathetic tendencies. However, in this study, while high-school graduates and bachelor's degree were evaluated, master degree were not evaluated.

A significant difference was not found between basketball referees' problem solving abilities and educational levels. Considering literature, in the studies conducted by Efe et al. [40] and Mızrak and Katkat [41], it has been concluded that as educational level is advanced, problem solving ability increases, as well unlike our study.

It can be said that there is no significant difference in empathetic tendency scores of basketball referees according to the classification. Nevertheless, when sequence orders of total scores of empathy were reviewed, it has been seen that empathy scores of FIBA referees are higher than of other classifications in spite of no significant difference. This case may mean that FIBA referees are more successful than others in terms of empathizing. Sülün [13] obtained findings

supporting this study in his study. However, in their studies conducted for Reviewing of Empathetic Tendency Levels of Active Football Referees in Ankara Region, Karabulut et al. [27] found a significant difference according to classification in contrary to our study. It is seen that this difference is on behalf of prospective referees.

When sequence order of total scores of PSI, it has been seen that scores of B classification referees are lower than of A, C and FIBA referees. However, the difference between them is not significant. In contrast to our study, in the study conducted by Efe et al. (2008) on Determination of the Problem Solving and the Assertiveness Level of Soccer Referees in Bursa, they found a significant difference in inter-classification problem solving abilities. It can be considered that this difference stems from the classification evaluation difference of referee group in two different branches.

It is seen that there is a positive significant relation between basketball referees' problem solving abilities and empathetic tendencies. This case shows that basketball referees' problem solving abilities are increased as their empathetic tendencies are advanced; basketball referees' empathetic tendencies are increased as their problem solving abilities are advanced. In literature review in detail, it was not met with any study analyzing the relation between basketball referees' problem solving abilities and empathetic tendencies. With this aspect, it is thought that our study will contribute to the literature.

5. Conclusions

A significant difference was found between basketball referees' empathy scores and educational levels on behalf of master degree referees. It has been concluded that there is a positive significant difference between basketball referees' empathetic tendencies and problem solving abilities.

In addition, a significant difference was not found between basketball referees' problem solving abilities and empathetic tendency total scores and their gender, classification years and classification. Moreover, a significant difference was not found between their problem solving ability total scores and educational levels.

6. Suggestions

1. This study is limited with basketball classification referees. Applying the study including different referee groups can contribute to the literature.
2. When planning educational process of basketball referees, studies improving problem solving abilities can be included.
3. When planning educational process of basketball referees, studies improving empathizing abilities can be included.

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