



## **The psychological skills of basketball athletes: Are there any differences based on the playing position?**

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### **Abstract**

Player-based psychological skills are an important factor that any coach should understand. Unfortunately, up to date there has not been any study that deals with the disclosure of player-based psychological skills especially for basketball athletes. Therefore, through the conduct of the study the researchers would like to identify the psychological skills of basketball athletes based on the playing position namely forward, guard and centre. The nature of the study is a quantitative-descriptive research with the retrospective causal-comparative design or ex-post factor design. Then, during the conduct of the study the researchers selected 24 basketball athletes who consisted of 11 forwards, 9 guards and 4 centres as the sample. In gathering the data, the instrument that had been implemented was the Psychological Skills Inventory for Sports (PSIS R-5). After the data had been gathered, the data were analysed by means of one way-ANOVA with the support from SPSS for the calculation. The results of the study show that there are significant differences on the psychological skills of the basketball athletes based on the playing position. Furthermore, it is also found that the basketball players who occupy the forward position has higher score of psychological skills in comparison to the basketball athletes who occupy the guard position and the centre position.

**Keywords:** basketball athletes, psychological skills, playing position

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### **INTRODUCTION**

The success of an athlete is influenced by several factors. In general, the factors that have been considered to influence the success of an athlete are physical, technical, tactical and psychological skills. In accordance to the statement about that the success of an athlete is influenced by the psychological factors, Weinberg & Gould (2011) explain that not less than 50% of the success in sports is defined by the mental factors; in fact, within the sports such as golf, tennis and figure skating, the influence of the mental factors might achieve 90%. Similarly, Middelkamp, van Rooijen, Wolfhagen, and Steenbergen (2017) explain that there is a rapid and very dramatic developing on the use of self-efficacy intervention toward the achievement that should be achieved among the members of a fitness club. Other psychological skill, such as motivation, has significant influence on anxiety and tactical performance indicators. As a result, psychological skills are considered important to be included into

the training program for achieving the success among the athletes (Menegassi et al., 2018).

Furthermore, Farias-Junior et al. (2019) explain that there is a difference among the players with achievement in soccer when they compare their physiological and psychological response toward the session of low volume-high intensity interval training (LV-HIIT) and the different duration of performance recovery. There is not any significant difference from one player to another with regards to the two responses; instead, both responses assist the players in dealing with the session of low volume-training. The only difference is found in the different performance duration. In addition, a study about motivation by Ntoumanis (2001) shows that there is not any difference between the individual sports and the team sports on the psychological skills from the perspective of motivation prior to having a game. On the contrary, the characteristics of each player in each position might pose certain differences and



these differences thus influence the athlete performance on the field (Köklü, Alemdaroğlu, Koçak, Erol, & Findikoğlu, 2011). The idea in the study then was tested by Tedesqui and Orlick (2015), who explored the focus of attention that the elite soccer players experienced in numerous playing position. With regards to the test, the results of the study by Najah and Rejeb (2015) conclude that there are differences on the psychological skills between the offensive players and the defensive players within soccer. Departing from the overall elaboration, it is clear that any study with regards to the differences on the playing position within basketball certainly implies different psychological skills from one player to another (Pion et al., 2018).

For basketball athletes, every playing position has different characteristics. In relation to the different characteristics of the playing position, the aspects of psychological skills that might have been identified are namely motivation, self-confidence, self-efficacy and imagery. Then, the significant psychological skills are observed based on the playing position on the aspects of aggressiveness, pudency, interpersonal passiveness, low positive emotion and inefficiency (Tayari, Kamkary, Roohi, & Shokrzade, 2012). Delextrat and Kraiem (2013) explain that the presence of anxiety among the basketball players might be assessed based on the heart rate in relation to their playing position. Similarly, te Wierike, Elferink-Gemser, Tromp, Vaeyens, and Visscher (2015) explains that every position has differences in performing the ball arrangement and the self-regulation during a game. Sood (2017) further asserts that there have been significant differences on the psychological skills of the basketball players based on the playing position. Specific to the case of the study, the intended playing position is guard, forward and centre. During the development of a basketball game, there are three positions that should be given special position namely guard, forward and center (Kryeziu & Asllani, 2016).

Departing from the review in the previous studies toward the athlete psychology and the playing position in basketball, the researchers have found that every position that a basketball player occupies display differences in terms of psychological skills. Therefore, through the study the researchers would like to identify the presence or the absence of the psychological skills among the basketball athletes based on the playing position. The findings and the differences that have been found in the study will be

disclosed more comprehensively and the disclosure later will include the aspects of motivation, self-confidence, anxiety control, team significance and concentration based on the playing position in the basketball game.

## **METHOD**

Within the conduct of the study, the method that had been implemented was the quantitative descriptive method while the type of the study was the retrospective causal-comparative design or also known as *ex-post facto* design. The selection of both the method and the technique was that the objective of the study had been to identify the presence or the absence of the psychological skills among the basketball athletes based on the playing position. The instrument that had been implemented in the study was the Psychological Skills Inventory for Sports (PSIS R-5). This instrument had been adopted from Mahoney, Gabriel, and Perkins (1987) and consisted of 44 items that disclosed 6 aspects of psychological skills namely 8 items of Motivation, 8 items of Self-Confidence, 8 items of Anxiety Control 6 items of Mental Preparation, 7 items of Team Significance and 7 items of Concentration. The instrument that had been implemented also referred to Tenenbaum, Eklund, and Kamata (2012) and was validated in order to be adjusted to the language and the use in the study. The instrument was also assessed by three rates from the domain of language, sport psychology and materials. After the assessment had been performed, the instrument was administered to 76 athletes who had similar characteristics. After the overall data had been attained, the researcher ran the one way-ANOVA analysis in order to disclose the comparison on the psychological skills of the basketball players based on the playing position. The data then were analysed by means of SPSS Version 22 Software.

The study itself took place for six months, starting from the permit processing to the Indonesia Asian Games Organizing Committee (INASGOC), which had been the organizing committee of Asian Games, up to the data gathering activities from the basketball athletes of Asian Games in Jakarta. The INASGOC facilitated the researchers by distributing the research instrument to the athletes and meeting the needs for the data gathering activities. Then, the INASGOC suggested the researchers to hold a meeting with the National Olympic Committee (NOC) – Indonesian Representatives. After holding a meeting with the National Olympic

Committee (NOC) – Indonesian Representatives, the researchers were directed to meet again the NOC Assistant who directly handled the basketball games. During the data gathering activities, the researchers were prohibited to meet the basketball athletes directly. Instead, the researchers were accompanied by the NOC Assistant. In this occasion, the NOC Assistant distributed the instrument to the basketball athletes because the athletes had tight schedules. The data gathering activities were performed when the athletes took their resting time in the Athletes Village (AV) during the Asian Games for five days (from September 2<sup>nd</sup> until September 4<sup>th</sup>, 2018). Prior to completing the instrument, the basketball athletes were shortly briefed about the objective and the significance of the instrument completion; in the brief, it was emphasized that the instrument should be completed in a fair manner according to the psychological conditions of the athletes. After the overall data that had been gathered, the researcher clarified the data of the psychological skills from the basketball athletes. The total number of the sample was 24 basketball athletes from the Indonesian National Basketball Athletes who played in the 18<sup>th</sup> Asian Games 2018 in Jakarta. The composition of the 24 basketball athletes was 12 male athletes and 12 female athletes and the mean of the athletes’ age was 22.80 years old. Based on the playing position, the respondents were divided into 11 forwards, 9 guards and 4 centres.

**RESULTS AND DISCUSSIONS**

In this section, the researchers will elaborate the results that have been attained from the data gathering activities. Afterward, the researchers will discuss these results based on the objective of the study namely to identify the presence or the absence of psychological skills among the basketball athletes during a game based on the playing position.

**Results**

The reliability and the validity test results for the instrument of psychological skills might be consulted in Table 1. For Motivation, the validity score is 0.679 while the reliability score is 0.792. Then, for Self-Confidence the validity score is 0.636 while the score reliability is 0.775. Next, for Anxiety Control the validity score is 0.779 while the reliability score is 0.914. Afterward, for Mental Preparation the validity score is 0.839 while the reliability score was 0.803. Last but not the least, for Concentration the validity score is 0.731 while the reliability score is 0.856.

On the other hand, the athlete demography that has been implemented in the study contains the personal data of the athletes. The personal data discuss more about the athlete’s playing position, sex, height and weight, age and basketball club of origin from the athletes who have joined the Indonesian National Basketball Team for the Asian Games XVIII 2018. The data of the athlete demography might be consulted in Table 2.

The results in Table 2 show that from 24 basketball athletes in the Indonesian National Basketball Team for the Asian Games XVIII 2018 12 athletes are male and 12 athletes are female. Then, in terms of playing position 9 athletes are guards, 11 athletes are forward and 4 athletes are centres. Then, the height of the 24 basketball athletes is various namely: (a) 165 cm (1 athletes); (b) 167 cm (2 athlete); (c) 170 cm (1 athlete); (d) 171 cm (1 athlete); (e) 173 cm (2 athletes); (f) 175 cm (1 athlete); (g) 176 cm (1 athlete); (h) 177 cm (1 athlete); (i) 178 cm (1 athlete); (j) 179 cm (one athlete); (k) 180 cm (1 athlete); (l) 181 cm (1 athlete); (m) 184 cm (2 athletes); (n) 1 athlete (187 cm); (o) 190 cm (1 athlete); (p) 191 cm (1 athlete); (q) 193 cm (1 athlete); (r) 195 cm (1 athlete); (s) 196 cm (1 athlete); (t) 198 cm (1 athlete) and (u) 202 cm (1 athlete).

Table 1. Instrument Validity and Reliability

Psychological Skills	Coefficient of Validity (Aiken’s V)	Coefficient of Reliability (Cronbach’s Alpha)
Motivation	0.679	0.792
Self-Confidence	0.636	0.775
Anxiety Control	0.779	0.914
Mental Preparation	0.839	0.921
Team Significance	0.665	0.803
Concentration	0.731	0.856

Table 2. Athlete Demography of Indonesian National Basketball Team for the Asian Games XVIII 2018

No.	Player's Position	M/F	Height (cm)	Weight (kg)	Age				Club
					17-20	21-24	25-29	30-34	
1.	Guard	M	175	76			X		Pelita Jaya
2.	Guard	M	180	77		X			Stapac Jakarta
3.	Guard	M	181	81				X	Pelita Jaya
4.	Guard	M	190	68				X	CLS Knight
5.	Forward	M	191	103				X	Pelita Jaya
6.	Forward	M	196	95				X	Satria Muda
7.	Forward	M	184	88			X		Clis Knight
8.	Forward	M	193	110			X		Pelita Jaya
9.	Center	M	202	94			X		Satria Muda
10.	Forward	M	195	91		X			Satria Muda
11.	Center	M	198	108			X		Pelita Jaya
12.	Guard	M	187	90				X	Satria Muda
13.	Forward	F	178	71	X				Sahabat Semarang
14.	Forward	F	167	60		X			Surabaya Fever
15.	Forward	F	176	73	X				Surabaya Fever
16.	Guard	F	165	68	X				Surabaya Fever
17.	Guard	F	173	64	X				Bima Sakti Malang
18.	Forward	F	171	68		X			Surabaya Fever
19.	Forward	F	167	64	X				Tanago Friesian Jakarta
20.	Guard	F	179	66			X		Surabaya Fever
21.	Guard	F	173	88		X			Tenaga Baru Pontianak
22.	Forward	F	170	62		X			Merpati Bali
23.	Center	F	184	60			X		Surabaya Fever
24.	Center	F	177	75		X			GMC Cirebon

On the other hand, the weight of the 24 basketball athletes in the Indonesian National Basketball Team for the Asian Games XVIII 2018 are also various. The composition of the athletes' weight are as follows: (a) 60 kg (2 athletes); (b) 62 kg (1 athlete); (c) 64 kg (2 athletes); (d) 66 kg (1 athlete); (e) 68 kg (2 athletes); (f) 71 kg (1 athlete); (g) 73 kg (1 athlete); (h) 75 kg (1 athlete); (i) 76 kg (1 athlete); (j) 77 kg (1 athlete); (k) 81 kg (1 athlete); (l) 88 kg (1 athlete); (m) 90 kg (1 athlete); (n) 91 kg (1 athlete); (o) 94 kg (1 athlete); (p) 95 kg (1 athlete); (q) 103 kg (1 athlete); 108 kg (1 athlete); and 110 kg (1 athlete).

Furthermore, the 24 basketball athletes from the Indonesian National Basketball Team for the Asian Games XVIII 2018 are from different ages. The range of the 24 basketball athletes is as follows: (a) 17-20 years old (5 athletes); (b) 21 – 24 years old (7 athletes); (c) 25 – 29 years old (7 athletes); and (d) 30 – 34 years old (5 athletes).

Last but not the least, the 24 basketball athletes of the Indonesian National Basketball Team for the Asian Games XVIII 2018 come from 11 basketball clubs that compete in the Indonesian Basketball League Competition. The list of the basketball clubs along with the

composition of the athletes are as follows: (a) Pelita Jaya Jakarta (5 athletes); (b) Satria Muda Jakarta (4 athletes); (c) CLS Knight Surabaya (2 athletes); (d) Stapac Jakarta (1 athlete); (e) Surabaya Fever (6 athletes); (f) Sahabat Semarang (1 athlete); (g) Bima Sakti Malang (1 athlete); (h) Tanago Friesien Jakarta (1 athlete); (i) Tenaga Baru Pontianak (1 athlete); (j) Merapi Bali (1 athlete); and (k) GMC Cirebon (1 athlete).

The results of the study show that there have been differences on the psychological skills of the Indonesian basketball athletes in the Asian Games XVIII 2018 in terms of playing position. These results might be consulted in Table 3 and 4 below.

Table 3. Results of One Way-ANOVA for the Psychological Skills of the Indonesian Basketball Athletes Based on the Playing Position

Sum of Square	df	Mean Square	F	Sig.
2313.069	2	1156.535	5.416	.0137
4484.556	21	213.550		
6797.625	23			

Table 4. Descriptive Data on the Psychological Skills of the Indonesian Basketball Athletes based on the Playing Position

Position	N	Mean	Std. Deviation	Std. Error
Forward	11	152.00	14.677	4.425
Guard	9	133.22	12.458	5.153
Center	4	130.50	19.053	9.526
Total	24	141.38	17.192	3.509

Both Table 3 and Table 4 above show the calculation results that have been attained from the operation of one way-ANOVA analysis for the psychological skills of the 24 Indonesian basketball athletes in the Asian Games XVIII 2018 based on their playing position. From the results of the analysis, the researchers have found that the sig. value =  $0.0137 < 0.05$ . Consequently, the null hypothesis or  $H_0$  is rejected. Consequently, it might be concluded that there are significant differences on the psychological skills of the 24 Indonesian basketball athletes based on their playing position. The highest score of psychological skills are attained by the forwards, followed by guards and centres. The score of psychological skills for the forwards is 152.00, while the score of psychological skills for the forward 133.22 and eventually the score of psychological skills for guards is 130.50. Therefore, it might be safely concluded that there are differences on the psychological skills of basketball athletes based on their playing position.

### Discussion

The results of the study show that there are differences on the psychological skills of the Indonesian basketball athletes based on the playing position. The number of studies on the psychological skills based on the playing position is indeed very limited but these studies point to almost similar results. For example, the results of a study by (Köklü et al., 2011) explain that the characteristics of the basketball players in their respective position display differences and have significant influence on the athlete performance during the game. Similarly, (Pion et al., 2018) state that in each position basketball players will display different characteristics of performance from one to another.

Furthermore, Sampaio, Godoy, & Feu (2004) explain that based on the game statistics basketball players have differences from one to another in relation to their playing position since the points of observation within the game

statistics are the duties of offensive, defensive, rebound, assist, point scoring, team performance and team work. The position of guard and center is more dominant on the defensive aspect, the rebound aspect and the team work aspect. On the other hand, the position of forward is more dominant on the offensive aspect and the point scoring aspect. In performing assist, the position of guard is better than the others. In the same time, the position of guard has better team work characteristics than others.

Tayari et al. (2012) explains that there are significant differences on the psychological skills of the basketball players from the aspect of aggressiveness, pudency, interpersonal passivity, low positive emotion and inefficiency. He further asserts that forwards have the highest score on all of the five aspects in comparison to guards and centres whereas guards occupy the second highest score on all of the five aspects and centres occupies the third or the last place.

Delexrat & Kraiem (2013) explain that the presence of anxiety among the basketball players might be measured from their heartbeat based on the playing position. Furthermore, they explain that the position of center has more regular heartbeat and anxiety in comparison to the other positions during a game. On the contrary, the position of guard and forward does not display any significant differences on both aspects. In other words, the position of guard and forward has less regular heartbeat and anxiety in comparison to the position of center during a game.

te Wierike et al. (2015) explains that each playing position has different pace in arranging the ball and the self-control during a game. She further suggests that the position of guard and forward has better ball control in comparison to the position of center. Similarly, the position of guard and forward has better self-control than the position of center; these differences influence the performance of each playing position during a game.

Sood (2017) explains that there are significant differences among the basketball players based on the position namely guard, forward and center. The aspects that have been analysed during his study is related to the emotional intelligence, which dimension consists of Self-Awareness, Empathy, Emotional Stability, Relationship Management, Integrity and Commitment.

### Psychological Skills of Guard

The results of the study show that there are differences among the players who have been assigned into the position of guard, forward and center. In this study, the position of guard has better psychological skills than the position of center but lower psychological skills in comparison to the position of forward. The players in the position of guard has higher concentration in comparison to the two other positions. Then, in the aspects of mental skills the position of guard and center does not indicate any significant difference. Unfortunately, the position of forward has earned the lowest score in these aspects of mental skills. Dereceli (2018) explains that there are differences on the psychological skills among the basketball players from the aspects of concentration and of mental preparation.

The basketball players who occupy the position of a guard possess leadership characteristics and team significance in comparison to the players who occupy the position of a forward or a centre. As a guard, the basketball players should understand the personalities of their teammates and thus they should develop a kind of relationship with their teammates. Then, the basketball players who occupy the position of a guard usually have better and more stable personality and emotion level in comparison to the basketball players who occupy the other positions (Chartrand, Jowdy, & Danish, 2016).

Guard is the position in which the height of the player is not taller than forward (Köklü et al., 2011). The position of a guard is lower and the lowest body fat percentage in comparison to a forward and a center. Kucsa & Mačura (2015) (2015) and Nešić, Fratrić, & Vukašinić (2013) state that guard has the highest amount of body mass and the lower height in comparison to centre.

The main objective of playing as a guard is to dribble and to pass the ball to the teammates (Khoeron, 2017, p. 36). He explains further that guard is tasked to control the game and to be the leader in the field. In the same time, guard is also tasked to distribute the ball equally to the teammates and to be responsive so that he or she can mark the teammates who are out of the opponents' marking. Similarly, (Giannini, 2009, p. 6) explains that guard should be occupied by the basketball players who have good shooting capacity but the players who occupy the other positions should also have good shooting

capacity so that the point of victory might be assured.

In general, guard is occupied by the players who have defensive capacity and good steal and thus guard becomes the key player who is tasked to distribute the ball and to execute the strategies that will be implemented in the field (Dimiyati, 2018, p. 20). Then, guard has the highest VO<sub>2</sub> Max in comparison to the other positions while center has the lowest VO<sub>2</sub> Max (Sallet, Perrier, Ferret, Vitelli, & Baverel, 2005). According to te Wierike, Huijgen, Jonker, Elferink-Gemser, & Visscher (2018), guard has faster response in comparison to forward and centre. Last but not the least, guard also has better rate of speed and accuracy than the other position (Kucsa & Mačura, 2015).

### Psychological Skills of Forward

The results of the study show that there are differences among guard, forward and centre. With regards to these results, it is found that the players who occupy the position of forward has the highest score of psychological skills in comparison to the other positions. These results are in accordance to the results of the study by (Chartrand et al., 2016), which suggest that a forward usually has better self-confidence and higher focus in comparison to the other positions. During the defensive game, a forward should be under full concentration so that he or she will not commit any foul. Any basketball player who occupies this position should be clever because the position of a forward is very crucial within the defensive line in order to prevent any score that might be made by the opponent's team.

During a basketball game, a forward is required to score a point (Khoeron, 2017, p. 37). In addition, a forward is also required to take over a rebound situation when the opponent player either tries to score a point or break through the defense line. A basketball team heavily relies on this position and therefore the player who occupies the position of a forward should be able to hold the defensive line.

In general, the position of a forward is assigned to the players who are more aggressive when they break through the defensive live of the opponent team. Kucsa and Mačura (2015) explains that the position of forward has better agility in comparison to the position of guard and of centre. Furthermore, during a basketball game the position of a forward is better at rebound, defence, assist, steal and block rather than the other positions (Sampaio et al., 2004). Not to

mention, forward is more aggressive during the defensive rebound in comparison to guard (Nešić et al., 2013).

#### Psychological Skills of Centre

The results of the study show that there are differences among guard, forward and centre in terms of psychological skills and that the position of centre has the lowest score of psychological skills. These results are in accordance to the results of a study by Delextrat and Kraiem (2013) which show that the rate of anxiety among the basketball players can be defined by means of heartbeat measurement. Furthermore, they explain that the position of centre usually has more regular rate of anxiety and heartbeat in comparison to the two other positions during a game. Then, the position of centre is usually occupied by the tallest player in the team. According to Nageswaran (2012), the posture of a centre is usually higher than a guard or a forward. Not to mention, in certain occasion the position of a centre is occupied by the tallest basketball player in a group (Kucsa & Mačura, 2015). Nešić et al. (2013) suggest that a centre player usually has higher longitudinal and transversal dimension and also higher body mass in comparison to the guard player and the forward player.

The main task of a centre is to guard the opponent player so that the opponent player will not score any point (Khoeron, 2017, p. 38). This position is ultimately important because a centre will hold the very end of the defensive line in the team (Dimiyati, 2018, p. 20). A centre is responsible for guarding the opponent player from shooting a point and passing the ball around the vital area. Last but not the least, a centre is expected to give his or her best during the rebound situation (Sport Singapore Council, 2019).

#### CONCLUSIONS

Based on the results of the study and also the discussions in the study, the researchers would like to conclude that there are differences among the basketball players in terms of psychological skills. The players in the forward position has higher score on the aspect of motivation, self-confidence, team significance, anxiety control, mental preparation and concentration in comparison to the other positions. On the other hand, the players in the centre position has lowest score on these aspects whereas the

players in the forward position have the second higher score on the overall aspects.

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