

Attention Flexibility and its Relationship to Decision-Making Using the Mental Resilience and Performance (HRP) System Among the Al-Qadisiyah University Female Volleyball Team

Khamaal Mohsen Shadhan^{1*}, Noor Lateef Abdul Zahre², Dunya Abdulsalam Fadhil³

¹ Al-Qadisiyah University

² University of Kufa

³ Najaf Vocational Preparatory School for Sports Sciences

DOI:

<https://doi.org/10.47134/jpo.v3i3.2529>

*Correspondence: Khamaal Mohsen Shadhan

Email:

Khamaal.mohsen.shadhan@qu.edu.iq

Received: 09-02-2026

Accepted: 09-03-2026

Published: 09-04-2026



Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Abstract: The current research aims to investigate the relationship between attention flexibility and decision-making using the Mental Resilience and Performance (HRP) system among female volleyball players of the Al-Qadisiyah University team. The study is based on the premise that performance in team sports relies not only on physical and technical aspects but is significantly linked to the efficiency of cognitive processes that regulate motor behavior under competitive conditions. The researcher employed a descriptive correlational approach, utilizing the HRP system tests as a standardized tool on a sample consisting of all (6) university team players. Statistical results revealed variations in attention flexibility levels (Mean: 103.7, SD: 25.1) compared to decision-making scores (Mean: 100.7, SD: 6). The findings demonstrated a strong positive correlation (0.83) at a significance level of (0.05), indicating that higher levels of attention flexibility are directly associated with improved decision-making quality during competitive situations. These results confirm that attention flexibility is a pivotal cognitive factor influencing the efficiency of tactical and technical performance. Consequently, the study recommends integrating specialized training to develop this cognitive aspect within training programs, alongside adopting scientific assessment tools to monitor mental development

Keywords: Attentional Flexibility, Decision-Making, Human Resilience Profile (HRP), Cognitive Performance in Sports, Volleyball Players

Introduction

Volleyball is among the sports activities that demand a high level of physical and mental preparedness, in view of the fast tempo and multiplicity of changing competitive situations. Throughout a game, the player experiences periods of expectancy and observation. Then, situations requiring rapid and accurate decision-making emerge. This is followed by the sequential implementation of many different and high-level complex motor processes, such as serving, receiving, setting, spiking, and blocking. These motor acts and processes can be arranged hierarchically to achieve the most favorable team performance (Abu Al-Ela Abdel Fattah, 2012).

In volleyball, the successful execution of performance comprises a variety of physiological, cognitive and emotional, especially psychological factors of the player where the most prominent one is the degree of player's experience. Besides, the players' mental and physical preparedness play a critical role along with levels of psychological arousal.

There are several other factors, including the adequacy of sleep, as well as energy and fluid levels in the body, in addition to psychological stress, cognitive load, and attentional distraction as a result of sports competition, such as the audience, media, and the place of the competition. (Ali Omar Bin Al-Khattab, 2020)

Attention is one of the basic psychological dimensions in sports training and competition. The attention of the player who can direct concentration is a decisive factor in sports like volleyball. This decision has a direct impact on the quality of his technical and tactical performance (Hassan Hussein Abdel Salam, 2015). In the context of a competitive game, attentional flexibility refers to a player's ability to rapidly and efficiently change his attentional focus from one stimulus to another in accordance with the need of the game situation. In essence, they should be able to adapt to sudden changes in a game.

The athlete faces an array of stimuli affecting their performance. These may be external, like the sudden movement of the ball and the movements of teammates or opponents. They also face internal stimuli like feelings of fatigue or stress. The screen of the eye, along with the retina, is involved in the process of sensation during vision. Consequently, the player directs the awareness and attention of the subject according to the requirements of the situation. The processes of attention, attentional flexibility, and perception are the sources of a sound decision during the performance of sports.

For successful performance in sports activities, especially in team sports the most important requirement is attention. Coaches know how important it is for them to reach optimum performance. Therefore, they are gradually trying to develop attentional focus and mental alertness in the players. In contrast, the weakness of attention constitutes one of the main causes of a decrease in performance levels and an increase in technical errors, which has a negative impact on the match result. (Osama Kamel Rateb, 2010) It has been stated that the attention is highly dependent on the level of arousal, which in turn relates to the player's awareness of stimuli and reactive to demands within a competitive environment. Alertness is a clear mental process which is often revealed in psychological energy indicators. A player's capacity to have the mental energy to select, shift and sustain attention while performing a skill decreases when he is faced with mental fatigue (Mohamed Al-Arabi Shamoun, 2007).

The degree of attention depends upon the level of arousal which arises from awareness of sensory stimuli that cause a response of the individual. Alertness involves employing the mind, so it is assessed via psychological energy indicators. The psychological energy that the brain needs to engage in selection of attention, shifting attention, and concentration skills becomes difficult when the mind becomes tired (Mohamed Al-Arabi Shamoun, 1996, p.279). Therefore, the attentional flexibility to modern psychological concepts is a concept of great importance in the field of sport. The athlete's ability to control, distribute, and concentrate attention according to the demands of the competitive configuration. The athlete's ability to adapt and cope with positive and negative changes of

performance or the environment as a result of exercise-induced fatigue and nervousness, and to mitigate the limitation of attention when there is too much stress or fatigue. The ability to broaden or narrow our focus depending on the skill and required performance, flexibility of attention helps to enhance our sensory perception and decision making in a timely manner with greater accuracy. The effective performance of the athlete is significantly enhanced under all competitive conditions due to the successful and effective application of the performance of the technical elements.

Making decisions is a fundamental axis of both the technical and administrative work in volleyball, whether by the head coach, coach, referee or supervisor. Sports leadership is responsible for making many decisions regarding setting goals, selecting methods of implementation, making organizational adjustments and preparing sufficiently appropriate environments to aid the acceptance of these decisions by the team. According to Imad Samir Al-Hakim in 2014, decision making is the primary factor through which a sports leader manages and leads. In various training and competitive situations, it represents the very core process relied upon. Which leads to a change within the team may it be a win or loss.

In this context, improper decisions issued by referees or coaches may create a clear distracting effect on volleyball players, which may negatively affect their technical and tactical performance and weaken their ability to concentrate, especially during critical moments of the match. This effect may extend to disrupting the balance of team performance, directly influencing the outcome of the match. Hence, the importance of preparing volleyball players psychologically and educationally to accept different decisions and deal with them with awareness and emotional control, which contributes to maintaining concentration, sustaining effective performance, and achieving the best possible results (Mostafa Hussein & Samir Gad, 2004, p. 153).

Studies show that fatigue and mental strain of volleyball players increase as the concentration and visual monitoring time gets longer, especially in situations that need tracking shots, the positioning of team-mates and moves of the opponent team. We see the effects of psychological pressure more clearly in situations of attention and not so much in situations with evoking events. The reason for the clear emergence of psychological pressure lies more with the extent and breadth of attention than the number of situations. According to support for continuous attentional focus would be greater than that of the burdens resulting from the number of executed technical or tactical tasks, from one side, the player has to deal with many suspicious situations who require fast response and decision-making (for example, anticipating the direction of serve from fault line, tracking the spiking of the attacking player and covering the court during defensive and offensive transitions, Ali Omar Al-Khattab, p. 3).

Making decisions are numerous successive steps starting with a clear recognition of the actual problem. followed by collecting data bearing on the problem at hand. Then a look at the available choices, weighing the pros and cons of each choice. From there, choosing the most appropriate alternative and then putting it into practice. Finally, assessing the results achieved. Making the right decision involves examining a set of factors, utilizing a rational or intuitive method depending on the multiplicity of the factors and the ability of the individual (Ibrahim Afif Muhanna, 2006). Analytical decision-making is based on

objective information which entails a thorough analysis of the information while intuitive decision making does so from past experiences as well as instinctive perception. Feelings and personal experiences will influence our instincts. In some cases, the one's ability to recognize patterns will lead to a mistake. For a sound decision and more effective solutions in various situations, it is therefore essential to have rational thinking as well as intuitive decisions (Hassan Hussein Abdel Salam, 2015).

As we grow older we can get better at knowing which decision is best, thanks to the principle of neural plasticity. The PFC and hippocampus neural activities are important for the processing of incoming sensory inputs and the retrieval of complementary information that is useful for decision-making. The social context and culture influence decision-making as well. We should appreciate that certain disorders, such as addiction or attention deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD) and certain dementias could interfere with the decision process through interference with particular neural pathways or conflict between evaluative systems (Rogers, 2011).

According to Abu Jado (2010), cognitive flexibility is an individual's ability to create new alternative ideas and easily shift between them depending on varying situations and unexpected conditions as well as to accept new ideas and view problems from many angles according to changing situations and different opinions.

Cognitive flexibility is divided into two main types:

1. Adaptive flexibility: the individual's ability to modify their thinking style and strategies when facing problems and to seek solutions through various methods.
2. Spontaneous flexibility: the individual's ability to move quickly from one idea to another automatically without being restricted to a single pattern of thinking.

Cognitive flexibility is viewed as an essential element of creativity and innovation. It enables the individual to see subtle relationships and slight differences between different situations and to use various thinking patterns during cognitive and creative performance. Those who have a high degree of cognitive flexibility are those who are metacognitively aware and able to solve problems in a creative manner (Mostafa Fadel Waheed, 2017).

The HRP is a tool designed to measure a person's capacity for mental adaptation and flexible thinking in the face of a changing environment. The system represents the capacity of the individual.

1. Change thinking patterns quickly and flexibly to suit situational changes.
2. Manage psychological stress and deal with difficult conditions without affecting performance.
3. Make appropriate decisions at the right time, even in complex situations.
4. Focus attention on the most important aspects and control surrounding stimuli during performance.

The researcher is capable of measuring cognitive flexibility as well as attention using the HRP system and relating that to individuals' performances. Cognitive flexibility is important in the sport, especially on a player of team sports like Volleyball. The competition requires a good ability of these sportsman to adapt to change or any situation during performance. This concept has been applied to an intentional sample of the female players

of the University of Al-Qadisiyah volleyball team, where the cognitive flexibility contributes to speeding up decision making, dealing with the psychological pressures faced by the players during critical moments of the competition, and adjusting tactical plans according to developments of the match, which in turn positively reflects on individual and team performance (Abdel Karim Ghali et al. 2018).

With continuous training and education, you can develop cognitive and intellectual flexibility, and more. This calls for the consideration of embedding creative thinking skills within the educational and training programs, which helps in preparing people who can face various problems and challenges in an efficient and flexible way in a changing environment Hala Kamal Al-Din Moqalled (2020).

Research Problem

It is stated that psychological and cognitive variables are considered to be one of the main most important factors for sports performance. This is particularly true for team sports like volleyball which is fast-paced, presents multi-stimuli and changing situations constantly. This game is dependent on the player's ability to take in information quickly, switch flexible between different stimuli and make appropriate decisions at the right time. Because of the need for neuromuscular coordination, speed and agility in performing skills.

This may refer to swift actions in covering the front and back areas on the court, quick responses to the ball for reception, blocking, or spiking, and making quick decisions regarding the type of hit, or choosing the position for passing and setting.

Taking into account the nature and multiplicity of these skills, the player's attentional flexibility becomes one of the determinative elements of the quality of performance since it helps the player adapt to sudden changes and to make the appropriate response at the right moment to score points. Thus, the HRP system is an appropriate mean to measure such ability as it can measure an individual's ability to mentally adapt and their flexible thinking towards a variety of situations. This system enables the researcher to assess the player's capability to:

1. Change thinking patterns quickly and flexibly according to the situation.
2. Manage psychological stress and deal with difficult conditions without affecting performance.
3. Make appropriate decisions at the right time, even in complex situations.
4. Focus attention on the most important aspects and control surrounding stimuli during performance.

Based on the field observation of the researcher as a volleyball coach, it was found that the performance level of some players was affected in situations which require speed of reasoning and accuracy of decision making, which might be related to the player's ability to flexibly direct attention and to mentally adapt to the demands of play. If you have weak flexibility, a delay in choosing the right method of response may occur, which in turn has a negative effect on your technical and tactical performance

Thus, the research problem is to identify the relationship between attentional flexibility and decision making using the HRP system and its effect on the performance level

of female volleyball players of the University of Al-Qadisiyah team with an aim to reach useful results in benefiting from it for developing the training process and improving the performance of the players.

Research Objectives

This research aims to:

1. To identify the level of attentional flexibility among female volleyball players of the University of Al-Qadisiyah team.
2. Ascertain the level of decision making using Human Resilience Profile (HRP) system among female volleyball players of University of Al-Qadisiyah team.
3. Investigate the connection between decision-making and attentional flexibility through HRP system amongst the female players of University of Al-Qadisiyah volleyball team.

Research Hypotheses

The study findings indicate that there is a significant relationship between attentional flexibility and decision-making using the HRP system among female volleyball players.

Research Scope

1. The volleyball players' team (6 players) of the University of al-Qadisiyah are the human domain
2. The Graduate Studies Hall at the College of Physical Education and Sport Sciences, University of Al-Qadisiyah.
3. The test was conducted between September 21st, 2025 to December 7th, 2025.

Definition of Terms

1. Attentional flexibility is a modern psychological concept of growing importance in sports psychology. This refers to the athlete's ability to switch, distribute and focus his/her attention on various stimuli efficiently according to the demands of the competitive situation. It also helps to enhance the accuracy of sensory perception and to make proper decisions at the right time.
2. The process of decision making consist of sequential steps commencing with correctly defining the problem followed by collecting relevant data, studying available alternatives, weighing their advantages and disadvantages, choosing the most suitable alternative, acting upon it and finally evaluating the results achieved.
3. Human Resilience Profile 3. Human resilience profile system (HRP) is definable as an evaluative system based on a set of mental tasks or tests aimed at evaluating the capacity to control attention and to respond flexibly to stimuli or changing conditions in a variety of situations. Individuals are capable of adjusting their course of behaviour from one stimulus to another upon a possibly sudden change in these conditions. One's thinking style, response time, and decision-making are explained by it, particularly in

circumstances that need a lot of cognitive effort, like competitive sport. The researcher implemented standardized tests to assess the attentional flexibility, cognitive flexibility, and decision-making of female volleyball players at the University of Al-Qadisiyah team, which will be through numerical indicators that reflect the level of mental performance under situations similar to the conditions of the game.

Methodology

The researcher employed the descriptive method, which aims “to describe phenomena, events or specific objects, and the collection of facts, information, and observations about them, describe their condition and assess their status as that phenomenon exists in reality” (Mushtaq, 2016, p. 123), to solve the research problem.

Research Sample

The research sample included players of the University of Al-Qadisiyah female volleyball team. In order to acquire complete-collected data for each subject accurately and to make full-information decisions or at least because these subjects are important in achieving the arrangement and representation of the university team, the entire population 06 male players. The sample is defined as “a model which consists in a group of some characteristics the original research population, by which representation is achieved through its common components eliminating the necessity of studying all units of the original population, especially in situations when studying all those units is difficult or impossible” (Issam Ali, 2014, p. 74)

Devices, Tools, and Used in the Research

The data collection and processing was done through the questionnaire forms for attentional flexibility questionnaire (6 copies), decision making questionnaire (6 copies), observation, Arabic and foreign references and sources, personal interview, assistant research teams, the internet, the HRP system, the laptop (Hp g6, Core i5), and the camera (Nikon D750, Japanese origin, 1 unit).

Cognitive Flexibility Tests

In this study, cognitive flexibility was measured according to the international HRP system, where the standardized tool constituted various obsessive-affective tests formulated according to criteria on the characteristics of subjects, like age, gender, training level, and educational level, which established the tool’s suitability to the nature of the sample, thus improving the effectiveness of the test.

The researcher adopted an application mechanism of an objective type in the multiple-choice form which helps in controlling measurement procedures and limiting response bias. To prevent the linguistic element from influencing the results of the study, a scientific translation of the test content was performed with the objective of ensuring clarity of instructions and understanding.

The system comprised a set of interactive activities designed as standard electronic games to assess certain dimensions of cognitive flexibility and decision making in an

organized digital environment. This helps to yield more accurate and objective information on the cognitive capacity level of the participants. Refer to Table 1.



Figure 1. shows how to answer the attentional flexibility test in the international HRP system.

Decision-Making Tests

The HRP system known as Human Resilience and Performance is British, so all information is in English until the beginning of the eight tests. The first four tests-intelligence tests, attention tests, processing speed and working memory have visual presentations so that the non-Englishers can deal with them. Nonetheless, the remaining four tests (decision-making, cognitive flexibility, emotional intelligence and mental health) are in English questionnaire form().

The researcher printed out the decision-making questionnaire forms, which are the main focus of this research, and presented them to translation experts for translation into Arabic, with the aim to prevent problems for participants who are not English proficient. The questionnaire has (13) items, and each item has five response options (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree). There is no timing for the answering of these items.

After administering the questionnaire to the sample and applying their responses, the answer was entered into the system for obtaining the final results, which were afterward statistically analysed, as shown in Table (2).Table (2) shows how to answer the decision-making test in the HRP system.

Devices Used in the Tests

Human Resilience and Performance System (HRP)

It means mental functioning, adaptability and effectiveness. It is a British testing system, designed by the British scientist Mark Ashton Smith, applied cognitive neuroscientist and supplier of evidence-based brain training. It is a battery of psychometric tests that enables rapid and scientifically robust assessment of cognitive health, cognitive flexibility and performance.

The system also allows for the training period of (4–6) weeks to provide the training for the shift in cognitive flexibility to achieve significant gains in test scores, and comparison of pre-test results with current scores to provide objective measures. This system requires determining two values in a test referred to as a fluid intelligence test. The fluid intelligence test will be explained below. The other test batteries are built on these two values.

Unlike the Vienna system, the RehaCom system, and the CogniPlus system, this system is capable of achieving high training intensity.

1. It is a standardized system, that is, the non-subjective results are incorporated and measurement norms exist for them.
2. A collection of various tests which together form a battery to create an overall comprehensive score made up of all sub-results.

Result and Discussion

In this chapter organized and systematic presentation analysis and discussion of the study findings are done. Tables and graphical forms of data presentation clarify the nature of the variables in terms of their quantitative values and distribution patterns. Tables and graphs can be effective scientific devices for clearly and directly expressing results and showing the relationships and differences between variables.

Organizing and analyzing the results in a logical sequence enhances the power of scientific inference, justification of statistical analysis and minimizes the risk of error in the following stages of research including the discussion of results along with linking them to theory and previous work.

As a conclusion, the presentation of results in the form of a method is not purely formal, but it is a necessary step to construct the scientific argument and enhance the reliability of the conclusions.

Presentation of Descriptive Values of the Two Variables

This section's concept is based on a scientific principle without the knowledge of a complete description of measures of central tendency no inferential statistical can be taken. The author would have to provide a complete description of the nature and distribution of all the variables that form the basis of verification of later hypotheses.

Table 1. Descriptive values of the two variables

No.	Variables	Mean	Standard Error	Standard Deviation	Minimum Value	Maximum Value	Sample
1	Attentional Flexibility	103.7	10.3	25.1	78	145	6
2	Decision-Making	100.7	2.4	6	90	107	6
3	Attentional Flexibility	103.7	10.3	25.1	78	145	6

Presentation and Discussion of Attentional Flexibility and Decision-Making Results

Table 2. Results of Attentional Flexibility and Decision-Making

Variables	Correlation Coefficient	Sig	Significance Level	Significant
Attentional Flexibility × Decision-Making	0.83	0.05	0.36	Not Significant

The study results were manifested in the measuring of the variables of attentional flexibility and decision-making of female volleyball players of the University of Al-Qadisiyah team. According to the descriptive values in the table (3), the mean of attentional flexibility reached (103.7) with a standard deviation of (25.1) and a mean of decision-making reached (100.7) with a standard deviation (6). The variability of the player's performance in attentional flexibility was significantly greater than of decision-making. Such result reveals that attentional flexibility is a more sensitive cognitive variable as compared to decision-making because the former process involves shifting attention between discrete game elements and interaction with shifting match conditions .

Standard error is one of the important measures of dispersion because it reached (10.3) for attentional flexibility and (2.4) for decision making. This shows just how accurately the means of the two variables in the sample can be estimated and how far statistical conclusions drawn from them can be trusted.

The relationship between the two variables has been analyzed taking (0.05) significance level and found very strong and positive correlation coefficient of (0.83) and (0.36) effect size. According to the Arabic literature in sports psychology, the cognitive processes form an important basis for the efficiency of motor and tactical performance. According to Mohamed Hassan Allawi (1998) sports attention is one of the central mental processes whose activity directly affects response speed and accuracy of behavior in competitive situations. Players who are able to direct attention flexibly are better at making decisions during matches. Thus, it is suggested that flexibility may be a key factor in success .

According to the results, improving players' attention flexibility will improve decision-making speed and quality. Thus, the study's hypothesis is proved regarding the effect of the systems HRP to raise the performance level of female volleyball players of the University of Al-Qadisiyah team. The attached scatter plot illustrates the relationship between the two variables. The trend line indicates the strength of the positive relationship between attentional flexibility and decision-making.

The strength of this association indicates that the cognitive aspect is also crucial in sporting performance, as a player's success does not hinge only on his/her physical abilities; it is also linked with organizing attention and processing information quickly when under competitive pressure. This demonstrates that attentional flexibility is an ingredient for enhancing the quality of tactical decision making during play. Hussein Ali Al-Taie (2014) in the same context confirms that a successful sports performance is the result of the integration of physical, technical and mental aspects and the neglect of cognitive preparation would restrict the player from optimally using his physical abilities. The evidence from the findings leads to an understanding that attentional flexibility can be conceived as an influential complementary factor of quality decision-making.

Conclusion

In light of the research results, the following conclusions can be drawn:

1. An important finding of this study is that attentional flexibility and decision making among female volleyball players of team Al-Qadisiyah, University of Al-Qadisiyah have statistically significant positive correlation.
2. The study finds that attentional flexibility significantly contributes to raising the level of decision-making according to the competitive performance of the players.
3. When a player demonstrates high attentional flexibility, her decision-making ability gets sharper in tactical situations. This will help her organize attention and process information faster under competitive pressure.
4. The cognitive component, in particular attentional flexibility, contributes to the efficient execution of sports performances alongside physical and skill-related ones.

Recommendations:

Based on the study results, the researcher recommends the following:

1. Including training aimed at forming attentional flexibility in volleyball training programs.
2. Design training situations that realistically simulate competition or game conditions to improve response speed and decision making.
3. Periodic assessment tools are developed that will measure cognitive aspects and link it with technical and tactical performance levels.
4. Informing the coaches and the players of the importance of cognitive preparation as a complementary dimension to physical and skill preparation.

Conduct research in the future that addresses the cognitive variables that help players in a different team sport

References

- Abdel Karim Ghali, Mohsen Al-Samawi, Fajr Hussein: Level of Cognitive Flexibility among University Students, *Basra Research Journal for Islamic Sciences*, (2018).
- Camerer, C., Loewenstein, G., Prelec, D.: Neuroeconomics: How neuroscience can inform economics, *Journal of Economic Literature*, 43, 9–64, Google Scholar (2005).
- Hala Kamal Al-Din Moqalled: Mindfulness and Cognitive Flexibility as Predictors of Creative Thinking among University Students, *Journal of the Faculty of Education, Benha University*, (2020).
- Hassan Hussein Abdel Salam: Theoretical Foundations and Practical Applications in Sports Psychology, Cairo, Anglo Egyptian Library, (2015).

Hussein Ali Al-Taie: Sports Psychology Concepts and Applications, Baghdad, Dar Al-Kutub Al-Ilmiyya, (2014).

Ibrahim Afif Muhanna. The relationship between delegation of authority and the effectiveness of decision-making in academic departments from the perspective of faculty members in Palestinian universities, published master's thesis, Palestine, An-Najah National University (2006).

Mohamed Hassan Allawi: Sports Psychology, Cairo, Dar Al-Maaref, (1998).

Mohammed Bakr Nofal: Practical Applications in Developing Thinking Using Habits of Mind, Amman, Dar Al-Masira for Publishing and Distribution, (2008).

Mostafa Fadel Waheed: Achievement Motivation and Its Relationship with Cognitive Flexibility among University Students (Unpublished Master's Thesis), University of Al-Qadisiyah, (2017).

Mostafa, Doaa Mohammed: Cognitive Flexibility and Its Relationship with Well-being among Inclusion Kindergarten Teachers, Journal of the Faculty of Childhood and Education, Alexandria University, (2022).

Mousa Najib Mousa: The Concept of Decision-Making Process, Alukah Network, (2013).