

## The Impact of a Recreational Sports Program on Enhancing Psychological Hardiness Among Hypertensive Patients

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Received: 08/2024, Published: 10/2024

### Abstract

Through this article, the researchers aim to identify the impact of a recreational sports program on enhancing psychological hardiness among hypertensive patients and determine its effect on their psychological hardiness (commitment, control, and challenge). Furthermore, it seeks to highlight the psychological problems faced by hypertensive patients and how to address them through recreational sports practice. The article also emphasizes the positive benefits of these activities, which help improve and develop the psychological state of hypertensive patients.

The researchers used the descriptive-analytical method to answer the proposed hypotheses and employed the psychological hardiness scale. The study sample consisted of 8 individuals suffering from hypertension in Laghouat Province. The researchers concluded that recreational sports programs are vital as they are essential to managing and treating hypertension. Physical activity also contributes to enhancing adherence to treatment and healthcare in general. Participation in sports programs should continue to be encouraged and promoted to improve hypertensive patients' quality of life and maintain their overall health.

**Keywords:** recreational sports program, psychological hardiness, hypertension.

### 1- Introduction:

One of the social phenomena prevalent in human societies is recreation, which varies across these societies based on their cultural, social, and economic contexts. Recreational activities are essential for occupying free time, and the advancement of nations is often measured by how well their citizens use their leisure time. Given the significant importance of recreation in contemporary times, many developed countries such as the United States, England, France, and others have integrated topics on leisure and recreation into their curricula at various educational institutions (schools, institutes, universities). These institutions also train learners to engage in recreational activities (Abdel et al., p. 01).

Essential hypertension is one of the most dangerous psychological and physical disorders affecting humans, making individuals more susceptible to atherosclerosis and arterial blockage. It refers to chronic high blood pressure without a known organic cause, often from psychological factors. In about half of hypertension cases, there is no apparent organic cause. Therefore, the term "essential" demonstrates that its medical cause is unknown (Nait, 2013, p. 98).

Hypertension is one of the most affected psychosomatic diseases influenced by emotional stress, psychological tensions, and nervous excitement. Furthermore, many people suffer from high blood pressure, which is a significant cause of disability and death due to stroke, heart attack, or kidney failure, among others (Sheldon Sheps, 2000, p. 49).

Hanton demonstrated that an individual with psychological hardiness effectively utilizes assessment and coping strategies, indicating high psychological confidence and motivation for achievement. This enables the individual to face stressful situations with minimal threat and reframe them positively, although this does not occur with everyone. Therefore, many researchers have focused on this strong psychological hardiness, notably Kobasa, aiming to identify the psychological and social variables behind individuals maintaining their mental health (Al-Mufarahi, 2008, p. 89).

Magdy (2007) indicated that psychological hardiness means a high ability to confront pressures positively, face future challenges, and employ all appropriate means to interpret and deal with these events, fulfilling success in life (Aradat, 2017, p. 07). People with psychological hardiness are not impacted by loss or stressful and traumatic life events like others; they can maintain emotional balance and the healthy functioning of their psychological and physical states (Al-Kilani, 2015, p. 03).

Based on the above, we raise the following problem statement: **Is the recreational sports program enhancing psychological hardiness among hypertensive patients?**

**2- Sub-questions:**

- Are there statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing commitment among hypertensive patients?
- Are there statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing control among hypertensive patients?
- Are there statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing challenge among hypertensive patients?

**3- General Hypothesis:**

A recreational sports program enhances psychological hardiness among hypertensive patients.

**3-1- Sub-Hypotheses:**

- There are statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing commitment among hypertensive patients.
- There are statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing control among hypertensive patients.
- There are statistically significant differences at the significance level  $\alpha \leq 0.05$  between the pre-test and post-test in favor of the post-test in enhancing challenge among hypertensive patients.

**4- Reasons for Choosing the Topic:**

- The scientific value of the research topic, which involves evaluating the effect of a recreational sports program on enhancing psychological hardiness among hypertensive patients;
- Highlighting the significance of recreational sports practice for individuals with hypertension and its positive effects on their mental health;
- The reluctance of individuals with hypertension to engage in recreational sports and the significant negative consequences of this reluctance;
- Emphasizing the reality of recreational sports practice regarding its health and psychological benefits for individuals with hypertension.

**5- Research Objectives:**

- The researchers aim to identify the impact of a recreational sports program on enhancing psychological hardiness among hypertensive patients;
- Identifying the effect of the recreational sports program on the dimensions of psychological hardiness (commitment, control, challenge) in hypertensive patients;
- Determining the psychological issues faced by hypertensive patients and how they can be addressed through recreational sports practice;
- Highlighting the positive benefits of recreational sports through various diverse activities that help enhance and develop the psychological state of hypertensive patients.

**6- Research Importance:**

The importance of this research lies in the significance of the topic being addressed: investigating and understanding the effect of a recreational sports program in promoting psychological hardiness among patients with hypertension. This is achieved by determining and strengthening areas of hardiness and pinpointing areas of weakness to address and correct. The significance of this study is evident in the fact that recreational sports are one of the critical pillars of societal advancement and development. They offer spaces that include a significant segment of the population, which must be considered. Through this segment, progress and the elevation of individuals in all areas of life can be fulfilled.

**7- Terms Definition:**

**7-1- Recreational Sports Program:**

Recreational physical activity, in its specific concept, refers to those games or sports practiced during leisure time, free from intense competition (Taqiuddin, 2016, p. 401).

**7-2- Psychological Hardiness:**

It refers to the traits in an individual's personality that protect them from difficult life events. It is a drive within the individual that allows them to use all their resources to face life's challenges, enabling them to live positively (Aradat, 2017, p. 04).

### 7-3- Hypertension:

It is the force exerted by blood on the walls of blood vessels as it circulates to supply all body tissues and organs with nutrients, oxygen, water, and enzymes known as the circulatory system (WHO, 2021). Hypertension usually refers to the pressure within the body's main arteries, resulting from the heart pumping blood and the resistance of peripheral arteries to its flow. Oxygenated blood flows from the heart due to the contraction of the left ventricle, reaching the aorta, the body's main artery, which branches into several arteries (Mohammed et al., 2000, p. 11).

### 8- Methodological Procedures for the Field Study:

#### 8-1- Pilot Study:

The pilot study is significant in every academic research and scientific study. It is the cornerstone on which the researcher builds their hypotheses and initial perceptions about the study and its application field. The researcher selects the method and scientific foundations for the research tools through this study. The pilot study period extended between September and October 2023

#### 8-2- Research Methodology:

*Methodology* is defined as "the way the researcher relies on to fulfill his desired goal, and its function in social sciences is to explore the principles that regulate social phenomena, education, and humanities in general, leading to their occurrence so that they can be explained, controlled, and managed in light of these principles" (Ghbari et al., 2013, p. 85). To address the problem statement and hypotheses proposed in our study, the descriptive method was utilized due to its suitability for our study's nature by identifying the impact of the recreational sports program on enhancing psychological hardiness among hypertensive patients. The descriptive method is "concerned with determining the characteristics of the phenomenon or problem, identifying the reasons for its existence, diagnosing it, and finding out how to change it. It describes phenomena objectively through the data obtained by employing scientific research tools and techniques" (Hamed, 2008, pp. 43-44).

#### 8-3- Research Population:

The research population is a group of individuals and objects that share specific features of interest to the researcher. In other words, it is the total units of research from which we seek to obtain data. (Al-Homani, 2003, p. 236). Our research population consists of all diabetic patients in Laghouat Province.

#### 8-4—Research Sample:

The research sample is a small group selected from the primary research population specifically to apply the study to them. The pilot study tools were applied to a sample of 8 individuals suffering from hypertension.

**A/ Sample Selection Method:** The pilot study sample was intentionally selected. **B/ Sample Features:** The sample included 8 individuals with hypertension.

Table No. (01) Illustrates the Features of the Pilot Study Sample.

Blood Pressure	Total
8	8
% 100	% 100

It is clear from the above table that the number of individuals suffering from hypertension is 8.

#### 8-5- Tools Utilized in the Research:

After studying the topic, reviewing previous studies and related subjects, and consulting with a sample of experts in research methodologies, we determined that the most suitable tool for gathering information is the questionnaire. It is "a tool or means for collecting data in the form of a printed form including a list of questions directed at the respondents for them to answer on their own, to obtain information about a specific topic" (Mohammed Al-Saadani et al., 2013, p. 79).

#### 8-6 Recreational Sports Program

##### 8-6-1- Objectives of the Recreational Sports Program:

The objectives upon which the program is based must be defined. The primary objectives include promoting psychological hardiness among individuals with diabetes and hypertension to enhance their condition. Additional objectives are:

- Physical Objectives: Rehabilitating the physical aspect and gradually transitioning from inactivity and laziness to physical activity through general muscular activation;
- Psychological Objectives: Seeking to help the affected individual understand themselves, satisfy their needs, bring joy to them, and develop motivation and drive in their personality;

- Social Objectives: Promoting various types of communication and interaction (verbal and physical) among program participants through activities that foster team spirit and self-reliance, overcoming loneliness and social isolation.

Specific objectives of the program include:

- Enhancing emotional aspects through participation in recreational sports activities for the sample members;
- Improving the body's physical and physiological efficiency and enhancing physical fitness;
- Maintaining physical fitness;
- Enhancing mood, reducing stress, and fostering social skills.

**8-6-2- Content of the Proposed Recreational Sports Program:**

The program will be conducted over three months, involving 36 sessions, with three sessions per week. Each session lasts 50 minutes and is divided into three parts:

- **Warm-up:** This lasts 10 minutes, including warming the body and preparing it physiologically and psychologically for physical activity. This seeks to stimulate the nervous system, central system, and motor system and increase respiratory activity;
- **Main Part:** Lasts 30 minutes and encompasses games and recreational sports activities conducted in a group setting, with attention to the objective conditions of each exercise regarding intensity, volume, and rest periods to fulfill the desired results;
- **Cool-down:** Lasts 10 minutes and is the final part that follows the main session. It includes several relaxation exercises to return the body to its natural state.

**8-7- Psychometric Features of the Psychological Hardiness Scale:**

**Face Validity:** After preparing the questionnaire in its draft form, it was essential to introduce it to experts and specialists in psychology and sports to obtain their opinions on the suitability of the scale for the study.

**Reliability of the Questionnaire (Internal Consistency):** Reliability refers to the ability of a measure to produce consistent results if applied more than once. To verify internal consistency, we calculated each dimension's correlation coefficient with the scale's total score. Furthermore, we calculated the correlation coefficient between the score of each item and the total score of the dimension to which it belongs. The following table illustrates this:

**Table No. (02): Results of Internal Consistency Validity for Dimensions and Total Score of the Psychological Hardiness Scale**

Dimension	Pearson	Correlation Coefficient	Spearman	Correlation Coefficient	Level of Significance
Commitment		0.875		0.872	0.000
Control		0.902		0.896	0.000
Challenge		0.917		0.908	0.000

**Source:** Prepared by the researchers using SPSS software outputs.

From Table No. (02), the calculated correlation coefficients for the three dimensions are above the average thresholds. The correlation coefficient for the commitment dimension was (0.875), for the control dimension was (0.902), and for the challenge dimension was (0.917). Therefore, the correlations were high and significant at the (0.01) level, demonstrating that the scale is valid.

**9. Presentation, Interpretation, and Discussion of Results:**

**9-1- Discussion of Results in Light of the Main Hypothesis:**

**Table No. (03): Differences in (T-test) between the Mean Scores of the Pre-test and Post-test for the Experimental Group of Sample Members with Hypertension in Terms of Psychological Hardiness.**

Samples	Sample Size	Mean	Standard Deviation	(T.test)	Degrees of Freedom	P-Value (Sig.)
Pre-test	8	74,63	5,73	2,51	14,00	0,02
Post-test	8	83,13	7,66			

**Source:** Prepared by the researchers using SPSS software outputs.

**Statistical Analysis:**

In Table No. (03), we observe significant differences between the pre-test and post-test scores for the experimental group of sample members with hypertension. The mean score of the pre-test was (74.63) with a standard deviation of (5.73), while the mean score of the post-test was (83.13) with a standard deviation of (7.66). The T-test value was (14.00) with a significance level of (0.02), which is less than the significance level (0.05). These results confirm statistically significant differences between the mean pre-test scores and the mean post-test scores for the experimental group of sample members with hypertension in terms of psychological hardiness.

Based on the T-test results, the small p-value (0.02) demonstrates a statistically significant difference between the mean psychological hardiness scores of patients with hypertension before and after participating in the recreational sports program. This suggests that participation in the program significantly enhances psychological hardiness in patients with this condition.

Thus, it can be highlighted that incorporating physical activity as a fundamental part of managing and treating hypertension can promote adaptability and enhance patients' overall mental health.

**9-2- Discussion of Results in Light of the First Hypothesis:**

**Table No. (04): Differences in (T-test) between the Mean Scores of the Pre-test and Post-test for the Experimental Group of Sample Members with Hypertension in Terms of the Commitment Dimension.**

Samples	Sample Size	Mean	Standard Deviation	(T.test)	Degrees of Freedom	P-Value (Sig.)
Pre-test	8	23,50	2,45	2,55	14,00	0,02
Post-test	8	26,00	1,31			

**Source:** Prepared by the researchers using SPSS software outputs.

**Statistical Analysis:**

In Table No. (04), we note significant differences between the pre-test and post-test scores for the experimental group of sample members with hypertension. The mean score of the pre-test was (23.50) with a standard deviation of (2.45), while the mean score of the post-test was (26.00) with a standard deviation of (1.31). The T-test value was (-2.55) with a significance level of (0.02), which is less than the significance level (0.05). These results confirm statistically significant differences concerning the commitment dimension between the mean pre-test and post-test scores for the experimental group of sample members with hypertension.

Based on the T-test results, the small p-value (0.02) demonstrates a statistically significant difference in commitment levels after participating in the recreational sports program for patients with hypertension. This suggests that participation in the program enhanced the level of commitment among these patients, indicating the program's effectiveness in promoting their adherence to health guidelines and protocols.

**9-3- Discussion of Results in Light of the Second Hypothesis:**

**Table No. (05): Differences in (T-test) between the Mean Scores of the Pre-test and Post-test for the Experimental Group of Sample Members with Hypertension in Terms of the Control Dimension.**

Samples	Sample Size	Mean	Standard Deviation	(T.test)	Degrees of Freedom	P-Value (Sig.)
Pre-test	8	25,00	4,04	-0,88	14,00	0,39
Post-test	8	27,13	5,46			

**Source:** Prepared by the researchers using SPSS software outputs.

**Statistical Analysis:**

In Table No. (05), we observe the significance of the differences between the pre-test and post-test scores for the experimental group of sample members with hypertension. The mean score of the pre-test was (25.00) with a standard deviation of (4.04), while the mean score of the post-test was (27.13) with a standard deviation of (5.46). The T-test value was (-0.88) with a significance level of (0.39), which is greater than the significance level (0.05). These results demonstrate no statistically significant differences between the mean pre-test and post-test scores for the experimental group of sample members with hypertension in terms of the control dimension.

Based on the provided data and current results, no definitive conclusion can be drawn concerning the presence of a statistically significant difference in the level of control after participating in the recreational

sports program for patients with hypertension. Further analysis and study are needed to determine potential factors that more clearly impact the results.

**9-4- Discussion of Results in Light of the Third Hypothesis:**

**Table No. (06): Differences in (T-test) between the Mean Scores of the Pre-test and Post-test for the Experimental Group of Sample Members with Hypertension in Terms of the Challenge Dimension.**

Samples	Sample Size	Mean	Standard Deviation	(T.test)	Degrees of Freedom	P-Value (Sig.)
Pre-test	8	26,13	3,44	2,57	14,00	0,02
Post-test	8	30,00	2,51			

**Source:** Prepared by the researchers using SPSS software outputs.

**Statistical Analysis:**

In Table No. (06), we note the significance of the differences between the pre-test and post-test scores for the experimental group of sample members with hypertension. The mean score of the pre-test was (26.13) with a standard deviation of (3.44), while the mean score of the post-test was (30.00) with a standard deviation of (2.51). The T-test value was (-2.57) with a significance level of (0.02), which is less than the significance level (0.05). These results demonstrate statistically significant differences regarding the challenge dimension between the mean pre-test and post-test scores for the experimental group of sample members with hypertension.

Based on the provided data and current results, the small p-value (0.02) shows a statistically significant difference in the level of challenge for patients with hypertension after participating in the recreational sports program. This suggests that participation in the sports program has enhanced the challenge level for these patients, demonstrating the program's effectiveness in promoting their ability to handle various challenges. These results emphasize the significance of including physical activity as a core element of managing and treating hypertension, as physical activity can foster challenge and adaptability to various environmental and health changes. This conclusion also underscores the importance of integrating sports programs as a fundamental part of a comprehensive approach to managing hypertension to enhance patients' quality of life and overall health.

**10-2-3- Discussion of Hypothesis Results:**

- **Presentation, Analysis, and Discussion of the Main Hypothesis:**

From the table above, it is evident that there are statistically significant differences between the pre-test and post-test regarding the level of commitment among patients with hypertension. The T-test value demonstrates an increase in the mean score of the second sample (83.13) compared to the mean score of the first sample (74.63). The significant value (Sig.) is 0.02, much lower than the commonly accepted significance level of 0.05. Based on the findings, we can firmly conclude that there is a statistically significant increase in the level of psychological hardiness among patients with hypertension.

**A recreational sports program significantly promotes psychological hardiness at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test scores in favour of the post-test for individuals with hypertension. This hypothesis is confirmed.**

- **Presentation, Analysis, and Discussion of the First Sub-Hypothesis:**

**There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test scores in favour of the post-test in enhancing commitment among patients with hypertension.**

From the table mentioned, it is apparent that there are statistically significant differences between the pre-test and post-test regarding the level of commitment among patients with hypertension. The T-test value demonstrates an increase in the mean score of the second sample (26.00) compared to the mean score of the first sample (23.50). The significant value (Sig.) is 0.02, much lower than the commonly accepted significance level of 0.05. Based on the results, we can firmly conclude that there was a statistically significant increase in commitment among patients with hypertension after the intervention.

Therefore, the hypothesis stating: "There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test scores in favour of the post-test in enhancing commitment among patients with hypertension" is confirmed.

**Presentation, Analysis, and Discussion of the Second Partial Hypothesis**

**There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test in favor of the post-test in enhancing control among patients with hypertension.**

The results indicate statistically significant differences between the pre-test and post-test scores, with the T-test value demonstrating a difference between the means of the two samples. The mean of the first sample is

estimated at 33.47, while the mean of the second sample is approximately 34.07. The p-value (Sig.) is 0.46, higher than the significance level of 0.05. This means there are no statistically significant differences.

Therefore, we reject the hypothesis: **"There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test in favour of the post-test in enhancing control among patients with hypertension."**

#### **Presentation, Analysis, and Discussion of the Third Partial Hypothesis**

**There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test in favour of the post-test in enhancing challenge among patients with hypertension.**

Based on the provided values, the pre-test mean score for challenge among hypertension patients was 34.47, while the post-test score was 34.93. The apparent similarity between the two values shows no significant difference in the level of challenge before and after applying the post-test program.

However, the p-value (Sig.) was 0.51, meaning no significant differences existed. In other words, the minor differences observed between the two values may not be statistically significant. Therefore, the hypothesis stating: **"There are statistically significant differences at the  $0.05 \leq \alpha$  significance level between the pre-test and post-test in favour of the post-test in enhancing challenge among patients with hypertension" is not confirmed.**

#### **Conclusion**

*Hypertension* is a prevalent condition impacting all age groups and genders. It occurs when persistent pressure on the arterial walls over a long period causes the heart to work harder and the blood vessels to endure more pressure. This condition can lead to serious issues such as strokes, heart failure, and kidney problems. Since hypertension is a lifelong condition, it may also lead to psychological symptoms that can worsen the patient's condition, such as persistent stress and anxiety.

Recreational sports are regarded as one of the most significant activities, gaining significant attention from researchers and specialists due to their significance and benefits for all community segments, including children, youth, the elderly, and individuals with chronic conditions like hypertension. These activities help address and attempt to overcome their issues, with recreational activities being essential. Doctors highlight the importance of physical and sports activities to mitigate physical and psychological health issues, as sports and recreational activities are seen as effective treatments for several conditions, especially psychological ones.

This study attempted to utilize a recreational sports program in two stages: a pre-test and a post-test applied to a sample of hypertension patients. The program included various sessions with different exercises, such as light jogging, walking, stretching, and joint flexibility exercises, to identify the program's effect on the psychological hardiness of diabetes and hypertension patients.

#### **General Conclusions:**

Based on the research, its results, and discussion, and within the limits of the sample, the researchers have reached numerous conclusions:

- The results emphasize the significance of including recreational sports programs as a core element of managing and treating hypertension. Physical activity contributes to enhancing adherence to treatment and healthcare overall. It is significant to continue encouraging and fostering participation in sports programs to enhance the quality of life for hypertension patients and maintain their overall health. Further studies are needed to comprehend the reasons and mechanisms behind this response.
- Recreational sports activities contribute to reducing stress levels among patients with hypertension.

#### **Recommended Actions:**

- Conducting additional studies addressing similar topics to understand psychological hardiness and its effect on various psychological and physical conditions.
- It is advised to carry out comprehensive studies with larger samples and longer follow-ups to understand better the impact of recreational sports programs on control levels among hypertension patients.
- Developing different recreational sports programs to address or reduce psychological issues related to hypertension.

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