



Efficacy of Cognitive Behavior Therapy with Positive Imagination of Success During Hypnotism on Athletic Performance

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Abstract

Objectives: The purpose of this study was to evaluate the efficacy of cognitive-behavioral therapy accompanied by positive imagination of success during hypnosis on athletic performance.

Methods: The research method was experimental with a pre-test, post-test, and control group. The sample consisted of two teams of 14-year-old players (n = 30) who were matched from age, educational status, absence of physical and mental disorder, as well as other criteria considered in this research. Then, they were randomly divided into two groups, experimental and control group. The pre-test was administered to both groups. The research instrument was Yeagly's Football standardized test (YFT). The experimental group administered eight sessions of group cognitive-behavioral therapy with hypnotism and positive imagination, however, the control group did not receive any intervention. In addition, the experimental group, during the eight weeks of cognitive-behavioral group therapy, enjoyed three sessions of positive imagination during the hypnosis, whereas the control group did not receive any intervention.

Results: The data analysis results showed that the experimental group had a significant difference with the control group ($P < 0.001$). The performance of experimental group significantly increased in comparison with pre-test and control group.

Conclusions: Cognitive-behavioral therapy accompanied by the positive imagination of success during hypnosis significantly increased the athletic performance in the experimental group in three items of shoot to the target, fixed pass, and moving pass. Therefore, to improve the performance of a soccer team, the use of cognitive behavioral techniques and hypnotism with positive imagination of success is recommended.

Keywords: Athletic Performance, Cognitive-Behavioral Therapy, Hypnotism

1. Background

The status of sports and sportsmen in the international community and the information era is constantly elevating; winning colorful medals in competitions will earn glory for both athletes and their country. Millions of dollars from the annual state budget would be spent on the athletes where the country expects their championship and its flag will stand tall among other countries, for this purpose they spare no effort. Recently, psychologists, especially sports psychologists, have focused their attention on achievement motivations, due to the fact that it is one way of understanding a difference among individuals in progress and performance. They try to find an answer for questions like why some people are spontaneously and actively engaged in athletic fields and they succeed, while some are reluctant to do so and accordingly do not have any achievements.

In every instance, due to its complex nature, education and training calls for more expertise. One of its technical forms is training and preparation of athletes, especially in the national level in order to earn international achievements. Attending to the psychological issues of the athletes is often more important than the biological aspects. For example, many of the champions perform some innovative acts in the training time, however, when in the competition field, head to head with the opponent, or in the position of being watched and judged by the public and the media they fail to fulfill the expectations of fans, coaches, and themselves due to stress. Inner uncertainties, lack of self-confidence, irrational fears, problems regarding the attention and concentration, hastiness, excessive perfectionism, and muscle cramps caused by that are among the problems that can be treated with cognitive-behavioral therapy method and by this method reaching

higher levels of athletic performance is achievable. Kerr et al. (1) believes that stress and anxiety of competition, the stress before and in the midst of the competition, has made it necessary for athletes to receive professional services.

In a study titled "use of relaxation skills in differentially skilled athletes" Kudlackova et al. (2) investigated the effect of relaxation on a group of 150 people in three levels of amateur (casual), university student, and professional athletes. The aim of study was to decrease the amount of competition anxiety and daily stress; the results revealed that muscle relaxation along with positive imagination of success would decrease competition anxiety among the athletes. In another study titled "assessing the immediate and maintained effects of hypnosis on self-efficacy and soccer wall-volley performance", which was done by Barker et al. (3), the effect of hypnosis on self-efficacy in one of the football functions-shooting toward a circle on the wall as a target-was investigated. In this study, 59 university student football players were randomly selected and divided into a treatment group of 30 people and a control group of 29 people. In addition, these people were being monitored and investigated by video cameras. After giving the post-test to both groups, the results showed that after the intervention, the treatment group, which had received positive imagination during the hypnosis, had better performance than the control group in gaining the acquisitive scores from the mentioned test (4). This difference was investigated and followed-up for the next four weeks and it was found that the effects of intervention are persistent. This study showed that hypnosis has the ability to be used for elevating self-efficacy and continuity of it in shooting toward the circle.

Schnur et al. (5) surveyed the efficacy of cognitive-behavioral therapy and hypnosis intervention on positive and negative effects during the radiotherapy for breast cancer. For this study, 40 ladies who attended the medical centers were selected and randomly divided into an experimental and a control group. The experimental group received cognitive-behavioral therapy with hypnosis in order to decrease negative feelings and increase positive feelings in the course of the radiotherapies, however, the control group did not receive such service and they were only under radiotherapy. The results showed that the cognitive-behavioral method can decrease the level of negative feelings and at the same time significantly increase the positive feelings of the treatment seekers in comparison to the control group.

Heydari et al. (6) studied the effect of hypnosis on athletic performance of football players and the results showed that there is a significant difference between the control and the experimental group in instances of shoot to the target, passing, and on the move passing. The per-

formance of experimental group significantly increased in comparison with pre-test and control group.

In another survey, Teimoori et al. (7) studied the effects of hypnotic and non-hypnotic imagery on free throws in basketball. The results revealed that both methods of imagery have positive effects on free throws, however, hypnotic imagery provides further improvement in comparison to non-hypnotic imagery.

The studies have shown that thanks to hypnosis, athletes can go further than their best records. In fact, all the reports have shown that the quality improvement of sport competitions is happening more through psychological factors rather than physiological ones. Internal autogenic reflects protect the athlete from the extreme efforts in all levels of consciousness. Meyers et al. (8) showed that cognitive-behavioral methods like hypnosis effects the performances of athletes. The ability to make extensive and deep differences in athletic performance in a sport like gymnastics, which requires using complex skills, has shown the capabilities of hypnosis even better. Positive imagination of success during hypnosis can increase the speed and learning rate of different and complex techniques and performing them as well as increase flexibility and help the athletes to concentrate on their strength. Liggett and Hamada (9) as well as Ranganathan et al. (10), showed the effect of mental exercises on increasing strength of skeletal muscles also. Jacobson and Mattheaus (11) showed that in order to increase the performance and self-confidence in athletics, using cognitive behavior therapy and hypnosis along with positive imagination of success is more effective than cognitive behavioral interventions alone. Their findings suggested that mental imagination along with hypnotic suggestions makes a significant progress in the self-efficacy of technical form and performance, which is much better than using imagination in upgrading self-efficacy. Previous researches on basketball players' performance improvement hypothesis suggested that positive imaginations of success during hypnosis can improve jumps and throw direction; moreover, it would increase emotions and cognitions associated with peak performance. Since Iran is an Islamic country and the religious teachings, the Holy Prophet, and the Imams orders emphasize on keeping both mind and body healthy, for those Muslim athletes whom try to train their bodies it is a duty to also attend to mental elements and try to reach the supreme levels of both body and soul growth. Therefore, using cognitive-behavioral therapy helps the athletes know their mind better and makes their mind go with their bodies, which is coordinated by positive imagination of success under hypnosis and reaching to the highest levels of athletic performance.

It is noteworthy that controlling emotions and high

energy of young and adult athletes by using cognitive-behavioral techniques and hypnotism has a long history in developed countries as they hire sports psychologists, its results is visible in the competition fields. Some athletes fail to show their true performance due to anxiety and stress or being monitored by the spectators and the media. In fact, in addition to the daily stresses, the athletes would be under special stress of the competition field, which needs psychological interventions (12). McGuir and Storch (13) stated that stress and anxiety of competition and the unpleasant feelings after losing a game or the stresses before, after, or during a game are all among the reasons that make it necessary for athletes to receive professional services.

According to the findings of Morris and Summers (14) athletes need to control their thoughts and feelings and make positive changes in their behavior. In addition, the research report of Poerio et al. (15) showed that the collection of unpleasant feelings (anxiety, anger, temper tantrums, physical and mental tensions, feeling of humiliation, fear, and so forth) has been increased among the athletes and strongly affected their performance. Therefore, this shows it is necessary that experts diagnose and treat these feelings and also shows the importance of medical interventions through positive imagination of success under hypnotism in order to improve athletic performance. This importance becomes clear when we know millions of dollars have been spent on a team, e.g. the national football team. In a game for the world cup qualification all eyes are on the legs of the player who is supposed to score the last penalty; in a normal situation, this professional player would score a goal, however, now, due to the importance of the game and stress, he shoots the ball out of the target and therefore, all the hopes of a nation and millions of dollars that has been spent on the team would be lost. The negative feeling from the loss of success will remain for days in the mind of the athletes and the nation, however, if the psychological interventions would have happened, the result would have been completely changed. If just a portion of the millions of dollars that have been spent on preparation of the team had been spent on their mental preparation none of the problems would have happened and the results would have been in favor of the players and the country (16). Therefore, in order to determine the level of effectiveness of cognitive-behavioral therapy accompanied by positive imagination of success during hypnosis, the present studies have been done.

2. Methods

The research method of this study was experimental with pre-post test and follow up. In order to investigate the

effects of cognitive-behavioral therapy along with the positive imagination of success among soccer boys in Malayer province in Hamedan province who were fully matched in terms of age, gender, socioeconomic status, and absence of acute physical and psychological illnesses, 30 subjects were randomly selected and then randomly divided into two groups, experimental and control. For the experimental and control group, a pre-test was first administered, which included standard football tests, in three standard football items i.e. shoot to the target, fixed pass, and moving pass was evaluated and recorded. Then the experimental group administered eight sessions in eight weeks of cognitive-behavioral therapy, hypnotism with positive imagination of success during hypnotic trance, whereas the control group did not receive any intervention. After the final session of cognitive behavior therapy and hypnotism with positive imagination, we used the post test to evaluate their performance in three standard football items i.e. shoot to the target, fixed pass, and moving pass was evaluated and recorded. The experimental group administered a program of eight weeks of group cognitive behavior therapy and hypnotism with positive imagination in eight sessions, of which the first session took 20 minutes and the next sessions included 30 - 40 minutes of deep hypnosis. During the hypnotic trance, positive imagination of success was carried out around the issues such as mental image of success (winning), excellent performance on mental shoots and success in competitions, and the harmony between mind and body of the athletes. The following is a description of eight sessions of cognitive therapy along with imaginations during the hypnosis:

2.1. 1st Week

Clinical evaluation and identifying personal fears and familiarizing the athletes with inefficient thoughts and beliefs. During the first session of using Jacobson's progressive muscle relaxation technique, it was attempted that the athletes reach a preliminary relaxation and a light hypnosis; then, they received suggestions related to concentration on shooting toward the target and scoring as well as positive imagination of success in this function. In the end, the conditioning stage with three deep breaths was done in order to speed up the process of reaching to the deep levels of hypnosis.

2.2. 2nd Week

During this session athletes were taught how to fight dysfunctional thoughts and the relation between thoughts, feelings, and behavior were explained to them. Then, conditioning with three breaths and Jacobson's relaxation was started and when the hypnosis reached to

the deeper levels, the players received suggestions as positive imagination of success on shooting towards the target, fixed pass, and moving pass. Afterwards, some imaginations on coordinating body and mind, and finally conditioning with three breaths were administered.

2.3. 3rd Week

This session was dedicated to working on deepening the hypnosis and then working on the sense of accomplishment after shoots and the enjoyable sense of victory. Afterwards, some suggestions were given and finally the respiratory conditioning was done.

2.4. 4th Week

With three deep breaths and prior conditioning, athletes reached to deeper levels of hypnotic trance. Relaxation practices continued, then, positive imagination of success on shooting to the target, fixed pass, and moving pass was given; in addition, imagination of victory moment and its positive aspects was worked on. Finally, they were suggested mental relaxation and the session was ended with conditioning the athletes for the next time.

2.5. 5th Week

During this session, mechanism of deep breath conditioning led to deeper levels of hypnosis. After that, thanks to the imagination of success in numerous shoots, the visual memory of athletes was filled with positive aspects of success. Then, they received more suggestions related to seeing and imagining success cases and the session ended with conditioning.

2.6. 6th Week

At the beginning of this session, with three deep breaths, athletes were prepared to enter the hypnosis and at deeper levels they were suggested to imagine themselves in a fixed position in a match. Then, with the prior methods, in an imaginary game they had to imagine themselves being successful in moving forward, fixed passing, and passing on the move and scoring more goals. This session was ended with conditioning.

2.7. 7th Week

After entering deep hypnosis, athletes concentrated on clearer imaginations of success and its positive feelings and they were told that each of them, at their discretion, had 20 imaginary successful shoots toward the target. Relaxation suggestions ended the session.

2.8. 8th Week

During the last session, after conditioning with the three deep breath technique, athletes reached a deeper hypnosis. Then, they were suggested to visualize a live game in the present time and were asked to be in their imaginary position. At the command of the hypnotizer, the player was told to imagine the ball moving toward them or the target and practice some desired and ideal movements.

2.9. Statistical Population (Participants)

The research population in this research included 14-year-old football (non-star) soccer boys in Malayer province in Hamedan province who were fully matched in terms of age, gender, socioeconomic status, and absence of acute, physical, and psychological illnesses. Then, two soccer teams (non-star players) were randomly selected. For the current study, 15 subjects were selected from each team. Thirty individuals were randomly divided into two groups, experimental and control.

2.10. Research Instruments

In order to evaluate performance of experimental and control group, Yeagley's (17, 18) standardized test of football skills was used in the present research to study and determine the basic personal skills of the athletes. In this test, some tables were used in order to keep the record of penalty shoot-outs to the left and right top corners, and the marks of fixed and moving passes. These tables were used to evaluate their performances in pre-test and post-test. The reason that the tables were used was that they make it possible to record the performance of the athletes. In addition, due to being standard, there was no change in the tests and the condition was the same for all. The scale of this test for grading athletes' performance is the same for all and it is repeatable anyplace anytime. This test, which is invented by the American research centers, has a desirable and acceptable validity and reliability and it has been approved by FIFA. In order to participate in pre-test, both teams attended the club in separate times and took the test. Three-item tests including shooting towards the gate from 20 meters of distance, fixed pass with 20 meters distance, and moving pass from the same distance was given to each team. Each player had five chances and in the end, the results were recorded in the tables. The following are the guidelines for each item of the test: For shooting to the target, first it was divided into three equal sections and both corners were the main targets. Considering the player is left or right footed, each player would select a corner of the goal and if they could send the ball to

the selected corner they won two scores and for the center they would get one score, obviously shooting the ball out of the target had no scores. Due to the fact that each player had five chances, the overall score for each member was between zero to 10. For the fixed passes in 20 meters of distance, two colored cones were placed half a meter from each other (resembling the body of a teammate). Sending the ball between the cones gained one score and out of the cones gained no score for the athletes. For the moving pass, the distance and situation of the cones and the grading was the same, however, this time the player had to start from five meters earlier and when reaching to the marked zone of 20-meter-distance they had to pass the ball. Descriptive statistics were used to set tables and calculate mean, standard deviation, and Shapiro-Wilkes test to evaluate the normal distribution of variables in the two groups. In addition, for controlling the effect of pre-test and comparing the control and experimental groups in terms of dependent variables, the data were analyzed by SPSS 21 using MANOVA and MANCOVA.

3. Results

Table 1 illustrates the mean and the standard deviation of athletic performance scores of treatment and control groups during the pre-test and post-test. In order to observe the equality of variances presupposition, the variable were used from Levene's test, which the results can be seen in Table 2. The results of Kolmogorov-Smirnov test for the presupposing of normal distribution of scores and the results of Homogeneity of regression gradients tests for the variables are shown in Tables 3 and 4.

As shown in the table, the null hypothesis of equality of variances for all variables scores between the two groups is confirmed. Therefore, the assumption of equality of variances score in both experimental and control groups was confirmed. However, when the samples are of equal numbers, the significance of Levene's test will not have a significant effect on nominal alpha level.

As seen in Table 3, the null hypothesis for the normal distribution of scores in athletic performance variables in both groups is confirmed. The assumption of the normal distribution of scores in pre-test and in both experimental and control groups was confirmed.

3.1. The Homogeneity of Regression

While it is assumed that the variables in the analysis of covariance in the data should show linearity, this assumption must also be taken into account that the regression lines for each group in the study must be the same. If the regression is heterogeneous, then co-variance would not be

an appropriate analysis. The assumption of homogeneity of regression is a key issue in covariance (19).

It should be noted that in this study, the post-test of athletic performance and its components were considered as dependent variables and pre-tests as auxiliary variables (covariate). The homogeneity slopes will be accepted only if the auxiliary variables (here the pre-test) and dependent variables (in this study post-test) in all operating levels (control and experimental groups) would be equal, which would be considered a non-significant interaction between the dependent variables and auxiliaries (covariates).

In this study, before analyzing the data to study the homogeneity of regression slopes, there must be equality between covariates (pre-test) and dependent (post-test) in all the operating levels (the treatment and the control groups).

As can be seen in Table 4, the value of F in interaction is not significant for all variables. Therefore, the assumption of homogeneity of regression is confirmed.

3.2. First Hypothesis

Offering cognitive-behavioral therapy accompanied by positive imagination of success under hypnosis effects the increasing athletic performance of youth football players.

As shown in Table 5, by controlling the pre-test, there is a significant difference between the experimental group and the control group in terms of performance of youth football players ($P < 0.0001$, $F = 116.22$). Therefore, the first hypothesis is confirmed. In other words, offering cognitive-behavioral therapy accompanied by positive imagination of success under hypnosis increased the athletic performance of youth football players. This effect or difference is equal to 0.81, in other words, 81% of individual differences in athletic performance scores is related to the effect of implementing cognitive-behavioral approach (group membership). The statistical power is 1.00, hence there is no possibility for errors of second type to occur.

4. Discussion

The present research aimed to study the effects of cognitive-behavioral therapy along with positive imagination of success during hypnotism on athletic performance. Based on the tests on the treatment group and studying and comparing the results with the control group, it was cleared that by controlling the pre-test among youth male football players there is a significant difference between the treatment and the control groups. In other words, considering the average score of the experimental group compared with the control group, teaching the cognitive be-

Table 1. The Mean \pm SD of Athletic Performance Scores of Treatment and Control Groups During the Pre-Test and Post-Test^a

Variable	Statistical Index Group	
	Experimental, N = 15	Control, N = 15
Athletic performance		
Pre-test	6.67 \pm 2.96	5.80 \pm 2.07
Post-test	10.67 \pm 2.16	5.67 \pm 1.44
Athletic performance on shooting to the target		
Pre-test	3.20 \pm 2.04	2.33 \pm 1.49
Post-test	4.47 \pm 2.13	2.13 \pm 1.40
Athletic performance on fixed pass		
Pre-test	1.87 \pm 1.12	1.93 \pm 1.16
Post-test	3.20 \pm 0.941	1.80 \pm 0.862
Athletic performance moving pass		
Pre-test	1.60 \pm 0.986	1.53 \pm 1.06
Post-test	3.00 \pm 1.00	1.73 \pm 0.799

^aValues are expressed as mean \pm SD.

Table 2. The Results of Levene's Test on the Equality of Variances Presupposition in Both Groups

Variable	F	Degree of Freedom 1	Degree of Freedom 2	P Value
Athletic performance	2.68	1	28	0.112
Athletic performance on shooting to the target	1.51	1	28	0.228
Athletic performance on fixed pass	0.029	1	28	0.865
Athletic performance moving pass	0.152	1	28	0.700

Table 3. The Kolmogorov-Smirnov Test for the Normal Distribution of Assumption of Athletic Performance Scores

Normal distribution	Kolmogorov-Smirnov					
	Experimental Group			Control Group		
	Statistic	df	P Value	Statistic	df	P Value
Athletic performance	0.136	15	0.200	0.205	15	0.090
Shooting to the target	0.148	15	0.200	0.212	15	0.069
Fixed pass	0.214	15	0.063	0.190	15	0.153
Moving pass	0.195	15	0.128	0.203	15	0.095

Table 4. The Results of Testing the Homogeneity of Regression Slopes of Variables Between the Two Groups of the Research

Variable	Changes' Originative	F	P Value
Athletic performance		0.106	0.748
Shooting to the target	*group interaction pretest-test	0.656	0.656
Pass during fixed		3.34	0.079
Pass during moving		0.250	0.621

cess during hypnotism significantly increases the athletic performance of the treatment group in three items of shooting to the target, fixed pass, and on the move pass. The results of the present study is consistent with the following studies: Kudlackova et al. (2), Barker et al. (3), Schnur et al. (5), Kerr et al. (1), Ranganathan et al. (10), Morris and Summers (14), Teimoori et al. (3), and Heydari et al. (6).

Considering the results note that most athletes can perform much better than they think, however, they get influenced by their thoughts and beliefs and act upon them. Generally, athletes for different reasons, including the im-

havioral method along with positive imagination of suc-

Table 5. The Results of Analysis of One-way Covariance (ANCOVA) on the Post-Test Scores of Athletic Performance of Youth Footballers in Experimental and Control Groups with Pre-Test Control

Athletic Performance	Sum of Squares	df	Mean Squared	F	P Value	X ²	Statistical Power
Pre-test	60.38	1	60.38	47.56	0.0001	0.63	1.00
Group	147.56	1	147.56	116.22	0.0001	0.81	1.00
Error	34.28	27	1.27				

portance of achievement or the difference between existing skills and the required skills for performing a move get anxious, this is often a negative agent that intervene their performance. The results of the study indicated the effect of excitement on athletic performance, which in turn shows the importance of the excitement effect, especially anxiety, on the performance of athletes. The study by Kudlackova et al. (2), revealed that muscle relaxation accompanied by positive imagination of success decreases the competition anxiety. In addition, Teimoori et al. (7) argued that hypnotism is a very effective technique in sports and the athletes can be suggested to make changes in their emotions, perceptions, thoughts, and behavior. Hypnosis, with positive imagery of success, influences the performance and focus of the individual. In the process of hypnosis, one can find extraordinary power and is in a position where his mind is open to the therapist's suggestions. Previous research has shown that a positive imagination of success will have a significant impact on a person's positive performance. Positive imagination during hypnosis will prepare the person for a successful encounter. Changes that result from successful positive imagination in a person will increase self-confidence and the ability to fight for success. In fact, hypnotism gives important information regarding self-efficacy as well as enhances the self-efficacy and performance. During a hypnosis, reduction in critical thinking and evaluation of reality happens, however, the domain of reality distortion increases, which considering the depth, it has different levels in different traces and counts as a feature of analogical (deductive) subconscious mind. In such a condition, the subject accepts the suggestion without further critical or analytical thinking. The cognitive-behavioral hypnotism therapy is based on the assumption that most of the psychological disorders are due to a kind of destructive hypnosis or what calls it negative self-hypnosis. He believes negative thoughts and imaginations, which one accepts without any critical evaluation, act like hypnosis and due to the fact that it creates a positive inner dialogue, which is in contrast with negative dialogue features cognitive-behavioral hypnotism therapy, it is helpful in overcoming the negative self hypnosis. Therefore, in this method, through modification and changing cognitive components such as automatic thoughts, inter-

mediate beliefs and core beliefs causes emotional and behavioral changes, thus, influencing the performance of athletes. The application of mental imagination in improving athletes' performance and upgrading their skills was studied and verified in the following studies: The study of Nicholls et al. (20) of increasing skills in golf, Roure et al. (21), Atarodi et al. (22), Brenes et al. (23), and Mihăilescu et al. (24) and Pates et al. (7) studied volleyball, and Heydari et al. (6) studied the application of mental imagination during hypnosis in improvement of futsal player's athletic performance.

One of the limitations of this study is the lack of enough research on hypnosis, coupled with a positive imagination of success. The other limitation of this research is the small size of the sample. Certainly, the generalizability of the results requires further research in this regard. In general, the results of this study have shown that using cognitive behavioral techniques, along with hypnosis and positive imagination of success during hypnosis can increase the performance of athletes in the field of football. Applying the results of this research is a practical application in the field of football, which results in astonishing results that will delight the football team and its supporters and, in fact, the entire community. In the scene of the global competition, the victory and honor of the national football team will be a joy to all people in the community. Therefore, along with spending a lot of money to improve the performance of a soccer team, the use of cognitive behavioral techniques and hypnotized individuals with positive imagery is recommended. The most important limitation of this study is the lack of participation of various age groups, especially adults. It is suggested that further research be done in this area in order to make the results universally applicable.

Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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Footnotes

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Ethical approval: All ethical considerations are observed in this research. The implementation of the plan was under the supervision of the department research center director.

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