EFFECT OF IMAGERY PSYCHOLOGICAL SKILL TRAINING ON HANDBALL GAME PENALTY SHOOTING IN HAWASSA CITY ADMINISTRATION U-17 MALE HANDBALL PROJECT

Muluken Derar Tesfaye

[1]Sport Science Department, College of Natural and Computational Science,
University of Gondar, P.O. Box 196, Gondar, Ethiopia,
derarmuluken@gmail.com,
Phone Number +251926888013/+251910809345.

Abstract

Now a day's handball becomes a tough and categorical sport requiring from players enviable physical, mental, and technical preparedness. Sport psychology has emerged as a field and similar to physical skills, psychological skills increase in physical performance and remove the negative issue. Athletes can use imagery skill to create or recreate an experience in their mind that seems real-life like. So it is important to investigate the effects of imagery skills training in handball game penalty shooting. A total of 30 Hawassa city administration U-17 male handball project players and a coach were selected as participants of the study. Pre and post training test was conducted to measure the variables of the study and the data were collected by using multiple methods. All the selected subjects participated in the designed imagery skills program for consecutive twelve weeks, three days per week and for 15 minutes per day. The data were analyzed using paired-t test and independent sample test with the level of significance at 0.05 by SPSS version 20. After the twelve weeks training, the significant improvement was observed on posttest of experimental group. The result indicates that the mean difference value of paired test of pre and posttest was 1.96 and independent sample test was 3.6. The mean result of experimental group in pretest was 9.06 ± 0.79, whereas 12.86 ± 0.63 posttest; it shows a 3.8 difference on experimental group of the study. This result indicates that the effective change was observed on experimental group than control group. Based on the findings of this study, I recommend that applying imagery, as part of the training, at different level plays a vital role for the success of the team.

1. INTRODUCTION

Currently a large number of sport games are practiced throughout the world; handball is one of these sport games. Millions of participants and spectators enjoy the physical, high-scoring, non-stop action of a handball match (Wagner, Finkenzeller, Wurth, & Von Duvillard., 2014). Team handball is a complex sport game that is determined by the individual performance of each player as well as tactical components and interaction of the team in which players dribble, pass, and shoot the ball with their hands, trying to make it end up as many times as possible in the opponents' net. It is played indoors or outdoors, by both sexes and all ages: young children, juniors, and seniors. Since its very beginnings, in the late 19th century, handball has seen numerous transformations regarding the rules, technique, tactics, training, and preparations. The players' speed, strength, and weight have increased. The game tempo has grown more intense, and special attention has been paid to intensifying the power of the shot (Taborsky, 2007).

Handball has today definitely become a tough and uncompromising sport requiring from players enviable physical, mental, and technical preparedness. It is an Olympic sport ball game that is characterized by fast pace defensive and offensive action during the game with the objective of the game to score goals (Bilge, 2012). According to Wagner, Kainrath and Muller (2008) in team-handball, the offensive players attempt to throw a ball on goal from a position without being tackled or obstructed by the opposing defensive players. This is accomplished using tactical components of passing the ball and utilizing different throwing techniques. In competition, (73%-75%) of all throws during the game constitute jump throws, followed by the standing throw with run-up (14%-18%), penalty throw (6%-9%), diving throw (2%-4%) and direct free throw (0%-1%). The physical and psychological demands necessary to reach an elite level of play in handball are extraordinary. Handball at the highest level of play demands the development and refinement of much fitness, technical, tactical and psychological skills.

Sport psychology has emerged as a field with a research tradition that provides a foundation for direct application with athletes. As the role played by psychological factors in the performance and overall well-being of athletes has become better understood, interventions have been designed to favorably affect athlete behavior throughout their involvement in sport and beyond. Although practiced widely among elite athletes in many sports, sport psychology is still gaining acceptance. With further expansion of the field comes the potential to help ensure that the psychological needs of athletes at all levels of competition are addressed (Mamassis & Doganis,. 2004). According to Britton (2009) Sport performance has been the subject of psychological inquiry for more than a century, and a concise summary of what is known about the effects of motivation, cognition, stress, confidence, mental preparation, and team dynamics on performance. The use of psychological methods to calm the mind, relax the body, or otherwise

alter mental and physical states of being dates back millennia, particularly in several Eastern traditions.

The use of such methods for the enhancement of sport performance is, however, a more recent phenomenon. Sport psychologists use a variety of methods to help athletes address their concerns, with the specific techniques and approach depending on the nature of the problem and the resources as well as the preferences of the athlete. Similar to physical skills, psychological skills such as maintaining and focusing concentration, regulating arousal levels, enhancing confidence, and maintaining motivation also need to be systematically practiced.

Several techniques, however, are used frequently across multiple types of problems for which sport psychologists are consulted, especially those that are performance-related. These techniques, which are often combined in the form of psychological skills training are goal setting, relaxation, imagery, self-talk, self-confidence, arousal regulation and concentration. Researchers and athletes have long recognized the performance benefits of physical practice. However, the latter part of the twentieth century has seen a broadening acceptance of alternative methods to improving physical performance. Since the 1960's mental imagery has been given considerable attention in the sports psychology literature as evidenced by the number of reviews on the subject (Grouious, 1992). As a result, it has become one of the most popular psychological strategies employed by athletes, coaches, and sport

psychologists. For example, Ronaldinho, a former midfielder for FC Barcelona and one of the world's best footballers, eloquently described his use of imagery before the World Cup in 2006 in an article appearing in the Journal of Imagery Research in Sport and Physical Activity:

When I train, one of the things I concentrate on is creating a mental picture of how best to deliver that ball to a team-mate, preferably leaving him alone in front of the rival goalkeeper. So what I do, always before a game, always, every night and every day, is try and think up things, imagine plays, which no one else will have thought of, and to do so always bearing in mind the particular strengths of each team- mate to whom I am passing the ball. When I construct those plays in my mind I take into account whether one team-mate likes to receive the ball at his feet, or ahead of him; if he is good with his head, and how he prefers to head the ball; if he is stronger on his right or his left foot. That is my job. That is what I do imagine which will apply practically during the game.

(4 June 2006)

According to modified version of Morris, Spittle and Watt., (2005) Imagery, in the context of sport, may be considered as the voluntary or involuntary creation or recreation of an experience generated from memorial information, involving quasi-sensorial, quasi-perceptional, and quasi-affective characteristics

which may occur in the absence of the real stimulus antecedents normally associated with the actual experience and which may have physiological and psychological effects on the imager. In using imagery, athletes create or recreate an experience in their mind that seems real-life like. Imaging a sport skill is similar to actually performing the skill, except that instead of actually physically performing the skill, only experience the skill in our mind. Characteristic of imagery is that it is poly-sensory it involves all of the senses. Although many coaches and athletes use the term's imagery and visualization simultaneously, imagery is more than just visualization. Imagery can involve all of the sense and not just the visual test. In fact, one key to create a clear, real life-like image is to involve all of the sense including visual (sight), kinesthetic (sense of the movement), tactile (touch), auditory (sound), olfactory (smell), and gustatory (taste) (Martin, K., Moritz, S., & Hall, C, 1999).

2. RESEARCH METHOD

2.1 Study Design

The quasi-experimental design was employed for the researcher manipulated treatment to intervene experimental group. According to Cooley et al., (2013); Cumming et al., (2004); Li-Wei et al., (1992); Rodgers et al., (1991) the imagery training programs ranging from 7 to 16 weeks are most successful to achieving desired outcomes than shorter or longer programs. Therefore, this study was held for twelve weeks, three days per week and 15 minute per day.

2.2 Sample and Sampling Technique

For this study census method was used due to the entire populations (trainees) was included in the study and simple randomizing technique was used to divide the trainee in to experiment and control group. The total sample for this study is 30 under 17 male handball project players of Hawassa city administration.

2.3 Data Collection Instrument

For this study, the researcher used three data collection instruments namely: pre-posttests (pre and posttest of penalty shooting), questionnaire, and interview.

2.4 Source of Data

The sources of data for this study were 30 U-17 male handball projects players of Hawassa city administration. The primary data was collected from experimental and control groups through pre and posttests of penalty shooting performance of project handball players, questionnaire, and interview.

2.5 Method and Procedure of Data Collection

For the research the quantitative and qualitative data was used. Quantitative data was collected through questionnaire and penalty shooting test from the project players whereas the qualitative data was collected through interview. Before starting the collection of data and actual training, the project players were briefed about the overall task and training. What they are going to do, the benefits of the training and how the task to be accomplished. Questionnaire was administered to assess the player's knowledge

about imagery skills and attitudes before and after the intervention. Then, the experimental group was selected by simple random sampling technique, after that pre-test was conducted for both groups, followed by education phase which includes the imagery psychological skills of penalty shooting was given for two weeks to the experimental group. Finally, intervention started right after the education phase and at the end post-test was conducted for both groups. During the experimental part of the study, all the participants (control and experimental groups) continued to participate in the traditional training as they had before the experiment. The researcher used assistance and different materials like handballs, cones, thick rope, pen, paper and whistle as instruments to collect the data during the test. The data was recorded by the researcher with the help of assistance.

2.5.1 Skill Training Protocol

The skill training contains education and training phases. In education phase the trainees were taught about the meaning and role of imagery skills, the relationship with performance and ways of imagery skills training with the help of imagery type videos in different sports. According to Martin et al. (1999) of "what you see really is what you get". After they watched video of how to create an image the researcher prepared handball court chart which is drown in different colors and brought two different balls. The trainees' watched and study it. Then trainees' were trying to image the handball court which was draw by different colors about what color is that, how

big does it and what shape does it have. In addition, they image the two types of ball in size, color and the one filled by air and the other is not. They image what color is that and the size of the ball. Then, a script to training was prepared and the selected subjects were engaged in training that involved some of the senses of visual (sight), kinesthetic (sense of the movement), tactile (touch), and auditory (sound). The intervention time was divided in discussion with investigator, sensing the ball, moving inside the court, imaging prepare to shoot the ball, and imaging while shooting the ball. The training was given in a way that simple to complex imagery training techniques. These technique were include on the training script which was prepared by the investigator with the help of psychologist, applied method used by different scholars and video aids.

2.6 Method of Data Analysis

The data collected through questionnaire, pre and posttests was tabulated, analyzed and interpreted in to a meaningful manner in relation to the variable (imager psychological skill relative to handball penalty shooting) changes observed among participants depending on training program. After collecting the data from questionnaire, pre and post-test of control and experimental group, the next step was analyzing the given data. At the same time data obtained through interview was used to support and triangulate information obtained by other data collections instruments. Especially the questionnaire analyzed in two way's such as separate subscale and global measure according to the nature of the SIAQ.

Both qualitative and quantitative methods were employed to analyze the data. The Data obtained from questionnaire, pre and posttests was subjected to inferential statistics (T- test) and analyzed by using statistical package for social sciences (SPSS) version 20. Level of significance was set at 0.05.

3. RESULT AND FINDING

3.1 Analysis of Experiment Result

Analysis of Mean Score Difference of Experimental and Control Group

Table 1: Analysis of difference in mean of experimental and control groups

Test	Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Control	15	9.1333	0.91548	0.23637
	Experiment	15	9.0667	0.79881	020625
Posttest	Control	15	9.2667	0.96115	0.24817
	Experiment	15	12.8667	0.63994	0.16523

Table 1 show that the mean difference of experimental group and control group of pretest and posttests. The mean score value of control group in pretest is 9.13 ± 0.91 and posttest is 9.26 ± 0.96. This value shows that there is a very small difference in control group in pre and posttest; this difference might be due to the physical training they take as they had before. The mean score value of experiment group in pretest is 9.06 ± 0.79 and posttest is 12.86 ± 0.63. The mean score value of experiment group shows a 3.8 change after taking the twelve week imagery skill training. This indicates that the experimental group shows an improvement on the skill because of the intervention they take for twelve week. In general the mean value of experimental group shows an increment which indicates that improvement appears on the players. It can be said that this change is due to 12 week imagery skill training program that they were engaged in. The results clearly showed that giving imagery psychological skill training regularly improves player's performance of visualizing creating an image in their mind related to their sport and help them to improve their penalty shooting skill.
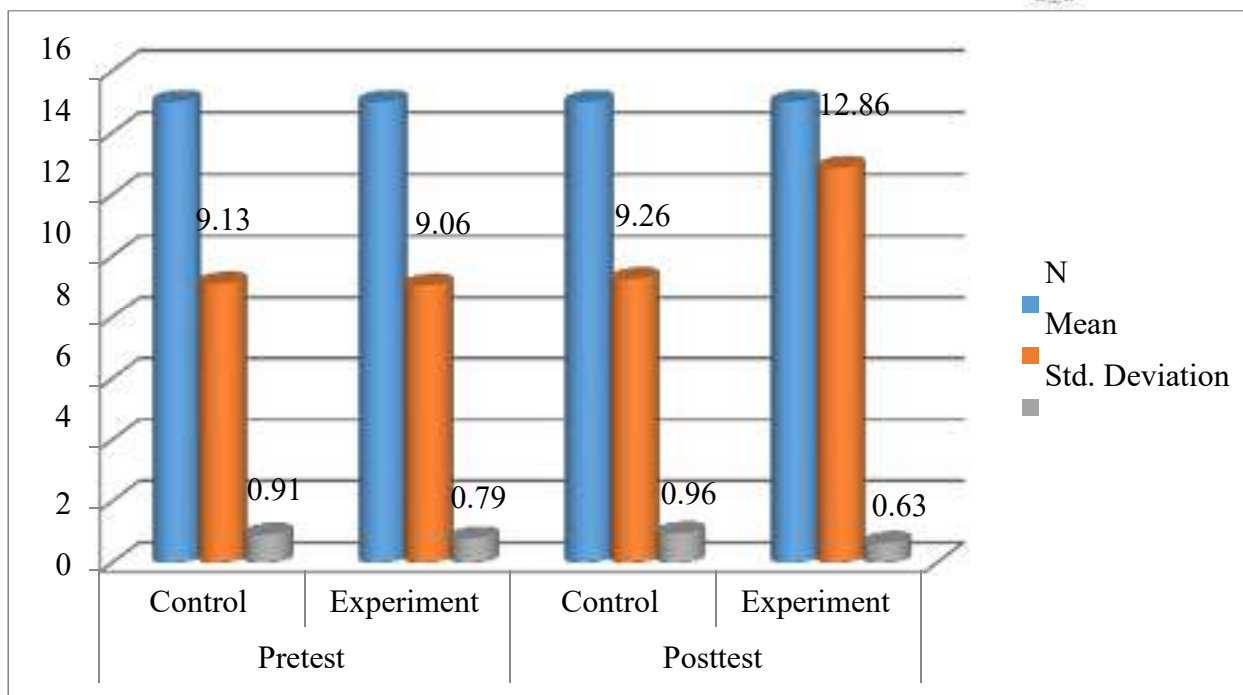
Graphical illustration to mean difference of experimental and control group

Figure 1: Graphic presentation for pre and post-test mean score of experimental and control of imagery skill.

The figure 1 in the above clearly showed the difference of mean score of experimental and control group level of acquisition of imagery skill as a result ok of twelve week training program they are engaged in. The figure clearly shows experimental group's extent of increment of imagery psychological skill relative to their sport in comparison to control group.

Analysis of Paired Mean Difference of Pre and Post test

Table 2: Paired difference analysis of pretest and posttest

		Paired Differences					**T**	**Df**	**Sig. (2-tailed)**
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
					Lower	Upper			
Pair	posttest – Pretest	1.96	2.05	.37	1.19	2.73	5.2	29	.000

The mean difference between post and pre is 1.967 and it's CI (1.19, 2.73). Based on paired test at 0.05 level of significance; there is a significant difference between posttest and pretest, because the p-value is less than 0.05 p-value=0.000<0.05. That means there is an improvement of imagery skill in posttest of experimental group compared with pretest. No probability to be equal based on CI and sig level (p-value) since p-value is less than 0.05. The

Cited as: *Muluken Derar Tesfaye, (2022). Effect of Imagery Psychological Skill Training On Handball Game Penalty Shooting In Hawassa City Administration U-17 Male Handball Project.*

increment of result in posttest of experimental group revealed that the trainees improve imaging performance. Increasing in imaging performance becomes a cause of improving their penalty shooting. So, one can say that the performance improvement is appear on the trainees due to the imagery skill training that the participants have taken for twelve weeks.

Independent Sample Test Analysis of Comparing Experimental and Control Groups

Table 3: Analysis of independent sample test to compare experimental and control group imagery skill result

		t-test for Equality of Means						
		T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI Difference	
							Lower	Upper
Post	Equal variances assumed	12.0	28	.000	3.6	.29	2.98	4.21

The mean difference between experimental group and control group is 3.6 with CI (2.98, 4.21), it shows that there is a significant difference between experimental and control group since p-values is less than at significant level 0.05 assuming variance. In assume` variance the confidence intervals relative to the average mean score is between 2.98 and 4.21. In this case there is no probability the result of experimental group and control group to be equal and zero since the value of CI positive and no probability of zero. This indicates that there was a penalty shooting performance improvement in the experimental group when compared to control group on the imaging skill or visualizing skill. The result revealed that in posttest the experimental group showed an improvement of imagery skill which is in turn improved penalty shooting performance after taking the twelve week imagery skill training

3.2 .Analysis of Questionnaire

Global Measure Analysis of Questionnaire

The sport imagery ability questionnaire is analyzed based on the value that ranges from 1= very hard to image up to 7 easy to image. The total number of respondents was thirty (30). So based on the response of the respondents, the researcher analyzed the Minimum, Maximum and Mean. Based on mean and standard deviation of the respondents the value is clearly shown in the table below.

1= very hard to image, 2= Hard to image, 3= somewhat hard, 4= Neutral 5= somewhat easy, 6=easy to image and 7= Vary easy to image.

Table 4: Posttest analysis of questionnaire to global measure of imagery skill of the project players.

No	Question item	Group	N	Mean	Std. Deviation	Std. Er Mean
1	Making up new plans/strategies in my head	Experiment	15	4.666	.72375	.18687
		Control	15	2.600	.63246	.16330
2	Giving 100% effort even when things are not going well	Experiment	15	4.466	.83381	.21529
		Control	15	2.733	.79881	.20625
3	Refining a particular skill	Experiment	15	5.400	.82808	.21381
		Control	15	2.400	1.05560	.27255
4	The positive emotion I feel while doing my sport	Experiment	15	4.866	.74322	.19190
		Control	15	1.800	.67612	.17457
5	My self-winning a medal	Experiment	15	4.333	1.04654	.27021
		Control	15	2.733	.88372	.22817
6	Alternative plan / strategies	Experiment	15	5.333	.81650	.21082
		Control	15	2.533	.83381	.21529
7	The anticipation and excitation associated with my sport	Experiment	15	5.133	.91548	.23637
		Control	15	2.466	.91548	.23637
8	Improving a particular skill	Experiment	15	5.666	.89974	.23231
		Control	15	2.333	.97590	.25198
9	Being interviewed as a champion	Experiment	15	4.733	.70373	.18170
		Control	15	2.666	.89974	.23231
10		Experiment	15	5.066	.70373	.18170

		Control	15	2.533	.83381	.21529
11	The excitement associated with Performing	Experiment	15	5.066	.79881	.20625
		Control	15	2.600	.91026	.23503
12	Making corrections to physical skill	Experiment	15	5.533	.83381	.21529
		Control	15	2.666	.89974	.23231
13	Creating a new event s/ game plan	Experiment	15	5.333	.72375	.18687
		Control	15	2.333	.97590	.25198
14	Myself winning	Experiment	15	5.000	1.000000	.258199
		Control	15	2.800	.861892	.222539
15	Remaining confident in a difficult situation	Experiment	15	4.866	.91548	.23637
		Control	15	2.466	.63994	.16523
16	Grand mean	Experiment	15	5.044	0.831	0.2224
		Control	15	2.511	0.8481	0.2179

As can observed from Table 4 above, the mean value shows a difference between experimental and control group. That is, the mean value of experimental group is 5.044 ± 0.831, and the mean value of control group is 2.511 ± 0.848. The value shows that a difference of mean on both (experimental and control) groups. The mean value of experimental group found between neutral (not easy or hard to image), somewhat easy to image and easy to image, while the mean value of control group found between hard to image and somewhat hard to image. This indicates that there is difference of imagery skill after the twelve weeks intervention time between experimental and control group. Therefore, it can be said that the change appeared on experimental group was due to the imagery skill training given for them. Thus, the result shows that the imagery skill training changes the trainees' penalty shooting performance.

3.3 Separate Subscale Measure Analysis of Questionnaire
Table 5: Description for the separate scale of imagery ability

N	Subscale Item	Group	N	Mean	Std. Deviation	Std. Error Mean
1	Skill	Experiment	15	5.5333	.82424	.21282
		Control	15	2.4667	.94952	.24516
2	Strategy	Experiment	15	5.1111	.70897	.18306
		Control	15	2.4889	.77528	.20018
3	Goal	Experiment	15	4.6889	.85882	.22175

Cited as: *Muluken Derar Tesfaye, (2022). Effect of Imagery Psychological Skill Training On Handball Game Penalty Shooting In Hawassa City Administration U-17 Male Handball Project.*

		Control	15	2.7333	.85635	.22111
4	Affect	Experiment	15	5.0222	.79149	.20436
		Control	15	2.2889	.79549	.20539
5	Mastery	Experiment	15	4.8000	.77460	.20000
		Control	15	2.5778	.71787	.18535

As the mean value showed in the above table, Table 9 for separate scale measure, the mean value of skill imagery ability is 5.53 ± 0.82 for experimental group which is found the scale between somewhat hard to image and easy to image while the mean value of control group is 2.46 ± 0.94 which indicates that it found between hard to image and somewhat hard to image. The mean value of strategy imagery ability for experimental group is 5.11 ± 0.70 which is found between not easy or hard, somewhat hard and easy to image and for control group is 2.48 ± 0.77 which indicates that the value found hard to image. The mean value of goal imagery ability for experimental group is 4.68 ± 0.85 which indicates that the score found between somewhat hard to image and easy to image for control group is 2.73 ± 0.85 which indicates that the mean score found between hard to image and somewhat hard to image. The mean value of affect imagery for experimental group is 5.02 ± 0.79 which indicates that the mean value score founds neutral (not hard or easy), somewhat easy and easy to image and foe control group if 2.28 ± 0.79 which indicate that the value founds between very hard to image, hard to image and somewhat hard to image. The mean value mastery imagery for experimental group is 4.80 ± 0.77 which indicates that the mean value score founds between neutral (not hard or easy), somewhat hard to image and easy to image and for control group is 2.57 ± 0.71 which indicates that the score of mean value founds between hard to image and somewhat hard to image. Generally the value shows a change appear on experimental group than control group when compared the groups even if a little change also seen on control group. So, one can say the change appear on experimental group is due to imagery skills training they have taken.

Graphical illustration to separate subscale measure of imagery skill of posttest
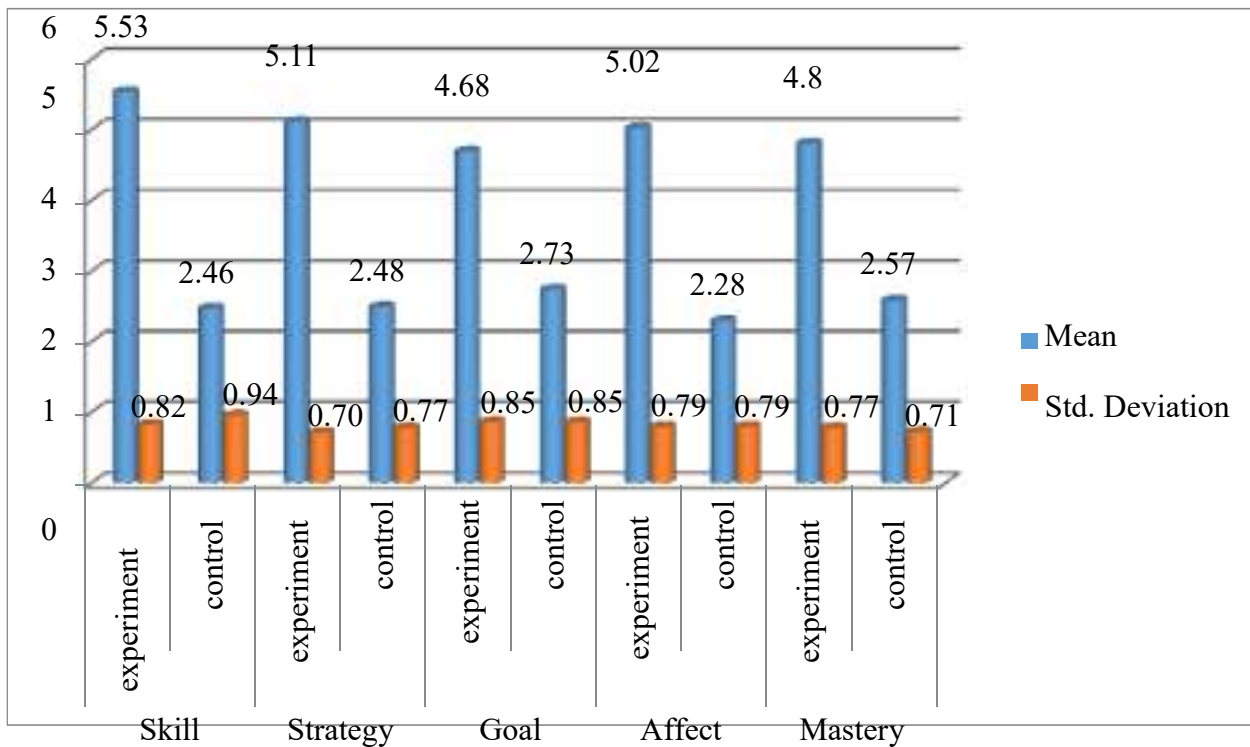

Figure 2: Subscale measure of imagery ability during posttest

The graph clearly shows that the mean difference of experimental and control group on the performance of shooting which appears as a result of taking imagery psychological skill training, it indicates that the change was occurring on their imagery skill after the twelve week skill training. As it can be seen from chart 4 above, the trainees show a development on the skill in the order of higher change to lower change relatively. Thus, they are skill imagery with the mean of 5.53, strategy with a mean of 5.11, affective imagery with a mean of 5.02, mastery with the mean of 4.80 and goal with a mean of 4.68. Generally, even if they differed in means, all skills have shown improvement.

3.4 Analysis of Interview

Interview analysis of the trainees and the Coach

In order to achieve the objectives of the study, the researcher interviewed three trainees from the experimental group. Thus, the result of the interviewees' for the semi-structured questions revealed that;

The trainees' benefited from the intervention and improved their imaging performance which in turn that they are improved their shooting performance. It indicates that the trainees can create and visualize themselves, able to create a mental image and visualize themselves while they are in the field of play. Thus, this helped the player to improve their imaging skill and in turn the players' penalty shooting performance is improved. Moreover, the skill training

positively affected and improved creation and recreation of mental picture and visualization performance. Whereas, the interview result of the coach revealed that; the experiment group improved their penalty shooting performance after they had taken a 12 week imagery training or in post experiment test. The responses of the interviewees (project players) and the coach indicates that the treatment group have shown an improvement in penalty shooting performance, that can be the result of improving their imagery psychological skill which means creating mental image and visualizing themselves when playing and taking a penalty shoot. So, one can conclude from the result that the twelve weeks imagery skill intervention helped them to improve their imaging skill performance which in turn improved their penalty shooting skill. Finally, creating a mental image and visualizing about themselves in a game situation helped them to improve their shooting performance.

4. CONCLUSION

Based on the major finding of the study, the following points are stated as conclusions: an important finding emerged in this study was that the 12 weeks' imagery psychological skills training which showed a significant effect in U-17 male handball project players. Similarly, this study found that a progressive improvement in penalty shooting performance of the player after the intervention. Therefore, players those participated in imagery skills training (the experiment group) did better in imaging (visualizing) skill which is in turn increased penalty shooting performance. Contrary to this,

the control group showed little change, might be the physical training they had similar before.

Generally, the study has shown that twelve weeks on imagery psychological skills training has brought significant change (penalty shooting performance improvement) on experimental groups. As a result, they out performed than the players in control group who didn't take part in training.

5. RECOMMENDATION

Based on the finding of this study, the following recommendations are made.

- The coach should include imagery skill training on their training schedule to improve shooting and the other performance of the players.
- City sport federation and other concerning body should give training about imagery psychological skill to the player, coach and coaching staff.
- As a means to improve performance of the players the imagery skill training should be given equal emphasis with physical training program.
- The government should create and prepare different forum, seminar and workshop about imagery skills training to educate the players.
- Sport professionals should guide and teach the players and coach about imagery and other psychological skills.
- Since much investigator have not been made on it in our country, correspondingly in all diversity further research should be conducted in the

area of imagery and other psychological skills to improve penalty shooting and other skills of the players.

Generally, physical training program should incorporate imagery psychological skills training at different levels and such program should include others psychological skills components so that this will equip the player with more skills of psychology.

6. REFERENCE

Bilge, M. (2012). Game analysis of Olympic, World and European championships in men's handball. *Journal of Human Kin*etics, 35, 109-118. doi: 10.2478/v10078-012-0084-7.

Britton W. Brewer (2009). Sport psychology: *Hand book of sport medicine and science* (1ˢᵗ Ed). USA: John Wiley & Sons limited. P, 7-10.

Cumming, J., Nordin, S. M., Horton, R., & Reynolds, S. (2004). Examining the direction of imager and self-talk on dart-throwing performance and self-efficacy. *Sport Psychologist*, *20*(3), 257-274.Grouious, G. (1992). Mental practice: A review. *Journal of Sport Behaviour, 15,* 42-59.

Li-Wei, Z., Qi-Wei, M., Orlick, T., & Zitzelsberger, L. (1992). The effect of mental imagery training on performance enhancement with 7-10-year-old children. *Sport Psychologist*, *6*(3), 230-241.

Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors precompetitive anxiety, self-confidence, and tennis performance. *Journal of Applied Sport Psychology*, 16, 118-137.

Martin, K., Moritz, S., & Hall, C. (1999). Imagery use in sport: A literature review and applied model. *The Sport Psychologist, 13,* 245-268.

Morris, T., Spittle, M. and Watt, A.P., (2005). Technical Aids to Imagery. In *Imagery in Sport* (pp. 237-266). Champaign, IL: Human Kinetics.

Taborsky, F. (2007). Playing performance in team handball (summary descriptive analysis). *Research Yearbook*, 13(1), 156-159

Wagner, H., Finkenzeller T., Wurth, S., & von Duvillard, S. P. (2014). Individual and team performance in team hand ball: a review. *Journal of Sports Science and Medicine,* 13(4), 808-816. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4234950/

Wagner, H., Kainrath, S. and Müller, E. (2008) Coordinative and tactical parameters of team-handball jump throw. The correlation of level of performance, throwing quality and selected technique tactical parameters. Leistungs sport 38, 35-41. (In German).