

Impact Of Anxiety On Performance Of Taekwondo Athlete Through Progressive Muscle Relaxation Training

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Abstract: Anxiety is a reaction of body in certain situation that includes fatigue, restlessness, irritability, tense muscles, panic attack & irrational fears. Anxiety has overwhelming impact on athlete's performance and it is very important to overcome anxiety without any adjournment. In this Perspective Muscle Relaxation techniques contribute vehemently to control anxiety and helps to enliven the potentials of the athlete. Progressive muscle relaxation is known as a beneficial technique which is employed to relax the muscles. The purpose of this study is to calculate the impact of anxiety on performance. As anxiety has inverted-U impact on athlete's performance, however the impact of anxiety has been measured. The second purpose of this study has been to analyze the impact of anxiety through progressive muscle relation on athlete's performance that how an athlete can overcome his/her anxiety during competition. To proceed this study, 20-taekwondo athletes participated in it, who were divided into two experimental group and control group. Anxiety questionnaire was used to measure the anxiety level of athletes. After that 6-week progressive muscle relaxation training was conducted for experimental group. Pre and Post anxiety level were measured. A competition was conducted between experimental and control group to measure the performance. Performance was measured by scoring points of both groups. The results of this study show that experimental group has a high level of performance rather than control group. Hence, it proved that progressive muscle relaxation has positive impact athlete's performance.

Keywords: Taekwondo, Anxiety, Perspective Muscle Relaxation, Performance, Competition.

INTRODUCTION

Anxiety is basically a negative state of mind that is characterized by high activation of nervous system, stress, worry and hypertension. High level of anxiety in an athlete leads to an inability

to manage the stress that effect on athlete performance and help to de-crease the self-esteem as well (Vanrenterghem, Nedergaard, Robinson, & Drust, 2017). Competitive anxiety has an important place in the world of sports. Anxiety influences performance and it has the power to change the scenario of competition. Anxiety varies person to person and situation to situation. It is a mental state in which situation of our negative hormones secret in our body that become cause of high heartbeat, panic at-tacks, and high blood pressure. So, it is very important to control anxiety before and during competition by athlete (Martin, Ressler, Binder, & Nemeroff, 2009).

The present study is mainly concerned with the taekwondo player and their progressive muscles relaxation. Now a days, taekwondo is becoming a professional sport rather than the competitive sport. People are taking interest in taekwondo sport to become fit and taking it as a self-defense. Anxiety and performance of athlete have a deep relation to each other. Anxiety has not always negative impact on performance. Somehow it boosts up the athlete to give his/her best in competition. Anxiety is an automatic arousal that can affect performance both negatively or positively. But in majority of the cases anxiety gives negative impact on performance. While preparing an athlete for the competition it must be part of training that how to deal with anxiety before competition.

It is important for athlete to control anxiety to reach on peak performance. Many re-searchers indicate the relationship between anxiety and athlete's performance as well progressive muscle relaxation impact on athlete's performance. Anxiety and athlete performance have deep relation during competition. The ability to deal with anxiety is an integral part of competition. The anxiety level is higher in athlete in individual sport rather than team sport events.

The PMR involves the whole body or a specific group of muscles to relax. In PMR process firstly relax your mind and body by taking deep breath. After that start PMR from your small group of muscles including forehead, jaw, chin, neck and arm muscles etc. to proceed the PMR tense (tight) your muscles tightly with inhaling the breath hold your breath for 5 seconds. While holding the breath focus on your tense muscle and feel the anxiety or fatigue in muscles. After that exhale your breath with losing your muscles re-lax slowly. Remember, give a 5 second pause when you are moving towards your next body part. In second phase of PMR, it includes the large group of muscles such as Thigh muscles, calf muscles, abdominal muscles and chest muscles etc.

Anxiety is a common thing in all athletes and it has a major impact on performance. This study investigates that anxiety has impact on athlete's performance and the impact of progressive muscles relaxation technique on athlete's performance. It has concern with athlete's pre-competitive anxiety and what if athlete practices the progressive muscle relaxation technique before competition to overcome the anxiety level. Sports and anxiety are interrelated to each other. This study has been conducted to know the effects of anxiety on sports performance. This study shows psychological, behavioral and physiological aspects. This study was conducted in Gomel university Pakistan. The re-searcher has used questionnaire to collect data.

120 players were the part of this study. The research concluded that anxiety has negative impact on athlete's performance and recommended that psychotherapy helps to reduce the anxiety. The findings of this study show that there is significant relation between anxiety and physiological changes. Anxiety effects the overall athlete performance (Muhammad Khushdil Khan, 2017).

Anxiety is basically a negative state of mind that is characterized by high activation of nervous system, stress, worry and hypertension. High level of anxiety in an athlete leads to an inability to manage the stress that effect on athlete performance and help to de-crease the self-esteem as well (Vanreenterghem, Nedergaard, Robinson, & Drust, 2017).

The activation of physical and psychological response on the demand of external environment that exceed the athlete ability to cope up with changing in behavior. High level of stress situation leads the results of hormonal secretion in the body, high blood pressure, cardiac problem, high blood sugar and sweating (Marcel Lopes Dos Santos¹, 2020).

This study basically examines the relationship between competitive anxiety and parental involvement in athlete support. The researcher discovered the statistical differences between girls and boys stress level. The girls have high level of somatic anxiety rather than boys. Thirty-seven young swimmers from session 2012-2013 were participated in this study. Data was collected by using questionnaire. This study found that no single significant relation to parental influence was found (Ponseti, Sese, & Garcia -Mas, 2016). Anxiety depends on multilateral internal chemical processes. It includes that nervousness, panic attack, body shivering, sweating, tension and fast heartbeat. In this study total population were 468 taekwondo athletes including 231 female and 237 males. The survey study technique was used by researcher. The data was collected by researcher from athlete 1 day and 1 hour before competition and 1 hour after competition and 1-day after competition as well (Behrouz Ghorbanzadeh, 2013).

Emotions and mood arousals play an important part in athlete's performance. There is strong relationship between emotions and mood arousals. Emotions are the combination of negative and positive feeling that is reaction in certain important and meaningful situation. Athlete mood depend on good emotions. When positive emotions release in athlete body the mood will automatically change. Positive emotions and good mood motivate an athlete to give best performance. Emotions experience before or during competition that have impact on athlete performance (Andrew M. Lane, 2012).

For best performance coaching strategies play a vital role. So, it is important to adopt strategies during training sessions for satisfactory performance. In 2021 a study was conducted on coaching strategies. The results of this study indicated that by adopting the coaching strategies in training session have good impact on female athlete performance.

Burnout is common in sports in which athlete experience exhaustion by training, exercise and competition. To examine the physical exercise to combat academic burnout in students a cross-sectional one cohort and one interventional was conducted. Eight cross sectional studies were conducted and six of them show the inverse relationship between physical activity and exercise. Two studies show no significant results (Asif, Azam & Asad, 2021).

It is exceedingly required to control the anxiety level, because it leads to tens the muscles, increase breathing and defocus the athlete. To overcome the anxiety level the psycho-logical training skill that include the progressive muscle relaxation. PMR training method helps the athlete to reduce the anxiety level before competition. Practice of PMR may relax the athlete muscles and help to improve performance. To investigate the effect of progressive muscle relaxation training on anxiety the researcher involves the 24 male volleyball players in it (Navaneethan, 2010).

Anxiety has been found as major factor in sports arena. It may affect both beneficial and detrimental, depend on many other factors. It is very important for athlete to rate their self in anxiety scale and must control their anxiety level. It indicates that an athlete must know the anxiety management strategies including progressive muscle relaxation (Doug H. Han, 2006). Progressive muscle relaxation technique, with its effective results led the researcher to find out more effective relaxing techniques. As the PMR lead the good mood effects, de-crease the stress, increase self-esteem as well. In 2011 Hashim conducted a study including 16 players with having 12 PMR sessions that proved, PMR have positive impact to help athlete to release the somatic anxiety. Other factors of anxiety are changing in mood and body temperature (Hashim, 2011). Japanese adults with having 10 minutes PMR relaxation technique got positive effects and decrease the fatigue rate as well (Toshiyo Taniguchi, 2007).

PMR impacts physical health matter a lot as the study shows that, PMR exercises help an athlete to take better sleep. Sleeping disorder is common in athletes before competition. The author suggested that it could be beneficial for an athlete to exercise the PMR techniques before going to sleep. Good sleep as the couches suggest that it is an important part of performance. And sleeping disorder mostly present in elite athletes (Oguz et al., 2019).

Mansour in 2010 conducted a study, he concluded with 24 session of 30-minute PMR training that helped to decrease the epinephrine gland function that directed to secrete the emotional hormones such as anxiety, stress and anger as well. This level of change in hormones reduce the muscles fatigue and tightness. So, it proves that PMR training help to decrease the fatigue and tension in muscles.

PMR technique is best way to cope up with anxiety. It has a breathing component with having tensing the voluntarily relaxing the large group of muscles. There are a lot of PMR benefits such as no side effects, no equipment's needed and no cost. A study was con-ducted in 2014 conducted on effectiveness of the abbreviated progressive intervention on problems of motor coordination in soccer players. This study shows that twice a week 20 minutes PMR practice has significant improvement in the coordination between up-per and lower body when soccer juggling performance and agility (Srilekha Saha, 2014).

The main purpose of this study to conduct was to examine the effectiveness of progressive muscle relaxation of football players on pressure pain and training. In this study 32 football players voluntarily participated in 8 sessions of PMR therapy. In this regard cooper test was carried out the level of endurance. The results of this study showed that PMR therapy decrease

the level of threshold pain and increase the endurance level by using cooper testing. PMR helped the players to cover more distance in cooper testing (Lilianna, 2015).

The purpose of this study to decrease the stress & fatigue level of college athlete. Three surveys of different clubs of division were visited with demographic questionnaire, college athlete life stress scale & exercises experiences scale. Progressive muscle relaxation session was based on 20 minutes. Subjective exercise scale used as pre- and post-testing. The outcome of this study was that progressive muscle relaxation help athletes to de-crease stress and fatigue level and assist athletes to increase their well-being level (Vento, 2017).

Athletes with having their competition stress is a natural thing. No one can deny the pre-competition stress that all athletes face. The main purpose of this study to investigate the effect of stress and emotions on athlete performance and evaluate the behavioral reaction in competitive environment. In this study twelve players were interviewed to share their experiences in competition. In this study it was stated that negative emotions and stress break their concentration for next performance (Neil, 2011).

Kissari Ali investigate that how to decrease the competitive anxiety among the elite players of football by using progressive muscle relaxation technique. The researcher chooses the experimental way to investigate it. The results of this study shoes that there is significant difference between control group and experimental group. The effective-ness of progressive muscle relaxation with positive effect help to athlete to focus on his/her target. It helps to reduce the mental disorder that most of the players face during competition (Ali, 2015).

Progressive muscle relaxation technique helps to reduce the anxiety level between athletes. The aim of this study to evaluate the more effective technique that help to reduce the stress. In this regard researcher conduct this study in Gdansk University of Physical Education & Sport, Gdansk Poland. Researcher used a pilot study method to investigate the more effective progressive muscle relaxation technique. Researcher use two PMR techniques. i) Myofascial relaxation and post isometric relaxation technique ii) Jacob-son's progressive muscle relaxation technique. The results of this study shoes that Jacobson's relaxation technique is less effective rather than myofascial relaxation and post isometric relaxation techniques (Wilczyńska, et al., 2019).

The athletes that have low anxiety level lead excellent performance rather than those athletes that have high level of anxiety. It a very complex relationship between anxiety and athlete performance. Because anxiety is natural arousals that have impact on athlete performance (Martens, Vealey, & Burton, 1995). Some latest studies in the field of physical educations have been reported in (Aamina et al., 2020; Aqsa et al., 2020; Aqsa et al., 2021; Farwa et al., 2021; Javeria et al., 2021; Hira et al., 2021; Iqbal et al., 2019; Rabia et al., 2021; Saadia et al., 2021a; Saadia et al., 2021b; Saima et al., 2021; Salma et al., 2020; Sana et al., 2021; Threem et al., 2020)

MATERIAL AND METHODS

Experimental study design was used, 20 taekwondo athletes were participated in this study.

Athletes were divided into two groups control group & experimental group. Pre-& post anxiety was measured by (smith et al., 2006) questionnaire. Every question was explained to athletes. Six-week PMR training was given to experimental group. Thrice a week PMR session was held in the academy. Duration of the session was 15mints. Proper PMR protocols were followed by experimental group. Audio listening of PMR played with the help of tape. To collect the data a competition was conducted between experimental group and control group. Athlete's weight was measured. In competition four weight categories were the part of the competition. The competition was conducted between same weight category. To measure the performance of athletes scores of athletes was noted. Anxiety questionnaire, Progressive muscle relaxation sessions, pre-recorded PMR instructions & mats were used. SPSS was used to analyses the data of the study. To check the consistency of questionnaire reliability test was found which is 0.796. The relationship between anxiety and performance was measured by correlation test. T-test used to analyse the performance of control group and experimental group. Regression test was used to find out the impact of depend variable & independent variable.

STATISTICAL ANALYSIS AND RESULTS

The Table 1 shows the pre-&-post anxiety of taekwondo athletes in experimental group and control group. Pre-anxiety mean value and standard deviation is 2.5524 ± 0.39345 & posttest anxiety is 1.5333 ± 0.17213 after PMR that is less than pre-anxiety, which shows that anxiety level decrease among experimental group athletes. This result shows that PMR help to decrease the anxiety level. On the other hand, there is no significant difference between control group.

Table 1 Descriptive of pre and post Anxiety (n=10)

Anxiety experimental group	Descriptive		
	Mean	Std. Deviation	Std. Error Mean
Pre-test	2.5524	0.39345	0.12442
Post-test	1.5333	0.17213	0.05443
Anxiety control group	Descriptive		
	Mean	Std. Deviation	Std. Error Mean
Pre-test	2.4987	0.23547	0.09875
Post-test	2.5632	0.45647	0.08961

The Table 2 shows the pre-and-post performance of taekwondo athletes in experimental group and control group. Pretest performance mean value and standard deviation is 9.8 ± 4.2374 & posttest performance is 11.4 ± 2.91357 after PMR that is greater than Pretest performance, which shows that performance increase among experimental group athletes. This result shows that PMR help to increase the performance level. On the other hand, there is no significant difference in performance between control group.

Table 2 Descriptive of pre and post performance (n=10)

Anxiety experimental group	Descriptive		
	Mean	Std. Deviation	Std. Error Mean
Pre-test	9.8	4.2374	1.33998
Post-test	11.4	2.91357	0.92135
Anxiety control group	Descriptive		
	Mean	Std. Deviation	Std. Error Mean
Pre-test	10.972	4.57893	1.54786
Post-test	11.856	4.64785	1.57896

The Table 3 shows the relationship between anxiety and performance of taekwondo athletes in experimental group and control group. Correlation between anxiety and performance for control group is high and negative which indicates that high anxiety damages the performance. On the other hand, there is positive correlation between anxiety and performance of taekwondo athletes in experimental group with statistically significant which is positive and low.

Table 3 Pearson Correlation of current study

	Performance
Anxiety Control Group	-0.712
Sig. (2-tailed)	0.021
Anxiety Experimental Group	0.2458
Sig. (2-tailed)	0.0145

Table 4 Model summary of current study

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Experimental	0.712 ^a	0.507	0.445	3.15663	1.547
Control	0.388 ^a	0.151	0.045	2.84790	1.980

In Table 4 the column labelled R are the values of the correlation coefficients between the predictors and the outcome which is 0.712. The next column gives us a value of R², which is a measure of how much of the variability in the outcome is accounted for by the predictors. For the model its value is 0.507, which means that anxiety for 50.7% of the variation in performance. The adjusted R² gives us some idea of how well our model generalizes and ideally, we would like its value to be the same, or very close to, the value of R². This shrinkage means that if the model were derived from the population rather than a sample it would account for approximately 3.15% less variance in the outcome. Finally, the Durbin–Watson statistic it will be found in the last column of the table. This statistic informs us about whether the assumption of independent errors is acceptable. As a conservative rule,

suggested that values less than 1.5 or greater than 2.5 should definitely raise alarm bells. The data value is 1.547, which is in the range of 1.5-2.5 that the assumption has almost certainly been met. Respectively the results of control group are also provided in similar pattern.

The next part of the output, which contains an ANOVA that tests whether the model is significantly better at predicting the outcome than using the mean as a 'best guess'. Specifically, the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model.

Table 5 ANOVA of current study

Model		Sum of Squares	df	Mean Square	F	Sig.
Experimental	Regression	81.886	1	81.886	8.218	.021 ^b
	Residual	79.714	8	9.964		
Control	Regression	11.516	1	11.516	1.420	.268 ^b
	Residual	64.884	8	8.111		

The model has two coefficients (one is predictors and one for the constant, and has 9 degrees of freedom. The average sum of squares is then calculated for each term by dividing the square sum by the df and F-ratio is 8.218, we can interpret these results as meaning that the model predicts the outcome variable. Also, the results of control group are also provided in similar pattern.

Table 6 Coefficients of current study

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	(Constant)	29.078	6.798		
Experimental	-7.483	2.610	-.712	-2.867	.021
(Constant)	21.476	8.504		2.525	.036
Control	-6.571	5.515	-.388	-1.192	.268

We can define the model as follows:

Performance for Experimental group = $(b_0 + b_1 \text{anxiety})$

Performance for Experimental group = $(29.078 - 7.483 \text{anxiety})$

The b-values tell us about the relationship between performance and anxiety. If the value is positive, we can tell that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient represents a negative relationship. For these data predictors have negative b-values indicating negative relationships.

Performance for control group = $(b_0 + b_1 \text{anxiety})$

Performance for control group = (21.476 – 6.571 anxiety)

Similarly, the results of control group are also provided in similar pattern

DISCUSSION

The present study is mainly concern with PMR technique. The researcher chooses the experimental study method to calculate the relationship between PMR and anxiety. In this study researcher investigates the use of PMR technique to overcome the anxiety level before competition. Anxiety was measured by questionnaire of smith et al., 2006. The reliability statistics consistency on anxiety questionnaire is 0.796 that shows a high positive reliability. T-test used to compare the mean value between two groups. the pre & post anxiety level of taekwondo athletes in experimental group. Pre anxiety mean value is 2.5524 & post anxiety mean value is 1.5333 that is less than pre anxiety.

Twenty taekwondo athletes from The Force International Taekwondo Academy participated in this research. These taekwondo athletes were selected to check the impact of progressive muscle relaxation to control the anxiety of the athletes. In literature review many researches investigate the negative impact of anxiety on athlete performance. And many other researches investigate the PMR role to boost up the athlete performance. This study investigated that what if PMR play mediator role between anxiety and performance of athletes. This research shows the positive impact of PMR to control the anxiety.

Sport psychology is a waste field that has many interesting aspects. Anxiety is very important aspect in sports psychology that is common in all athletes. In any competition, competitive anxiety is the part of competition. In sports psychology anxiety is the state of mind. Cognitive & somatic are two kinds of anxiety.

In sports psychology literature, competition anxiety plays vital role in athlete performance although it is proved that anxiety has a major effect on performance. An athlete performance is not all about physical quality but it is also a psychological process that make many chemical reactions in human body. Athlete face temporary fear and tension under a certain circumstance that leas the sympathetic nervous system in specific time zone (Behrouz Ghorbanzadeh, 2013). 2012 taekwondo championship was held in turkey. 468 taekwondo athletes participated in this study. The researcher used the survey technique to collect the data. The researcher concluded that the level of anxiety was increased among athletes before competition that has effect on their success.

Present study is based on experimental study. Proper PMR sessions was conducted for experimental group. The duration of session was based on 6- week program and thrice a week. So, compare the performance of experimental group with control group a competition was conducted and the scores was receded.

The relationship between two variables shows the impact of on independent variable dependent variable. The relationship become strong and positive when the findings of correlation is positively high and relationship of variables become negative when the findings of the study high in negatively.

CONCLUSION

Anxiety is a reaction of body in certain situation that includes fatigue, restlessness, irritability, tense muscles, panic attack & irrational fears. Anxiety has impact on athlete's performance so that it is very important to overcome the anxiety of an athlete. In this perspective muscle relaxation (PMR) techniques play a dynamic role to control anxiety and gives best of the athlete. Progressive muscle relaxation is one of the relaxation techniques that is used to relax the muscles. The purpose of this study was to calculate the impact of anxiety on performance. As anxiety has inverted-U impact on athlete's performance so in this study impact of anxiety has been measured. The second purpose of this study was to measure the impact of anxiety through progressive muscle relation on athlete performance that how an athlete can overcome his/her anxiety during competition. To proceed this study, 20-taekwondo athletes were participated with divided into two groups experimental group and control group. Anxiety questionnaire was used to measure the anxiety level of athletes. After that 6-week progressive muscle relaxation training was conducted for experimental group. Pre and Post anxiety level measured. A competition was conducted between experimental group and control group to measure the performance. Performance was measured by scoring points of both groups. The results of this study show that experimental group have a high level of performance rather than control group. Hence prove that progressive muscle relaxation has positive impact on athlete performance. This study can be helpful in all fields of sports and in daily routine. Sports anxiety is considered as an unpleasant response that deals with stress. Relaxation techniques reduce anxiety and brings out best of the athlete. Progressive muscle relaxation is one of the relaxation techniques that has been used to relax the muscles. This study has proved that PMR plays a significant role to decrease the anxiety of the athletes and helps to perform best in competition.

Limitations: This study is based on cross sectional and analytical research. The results of this study are grounded on limited population. In further research, the researcher can involve large number of athletes. This research only investigates the anxiety impact on athlete's performance. further researcher can investigate other factors that have impact to decrease the performance level of athletes. Present study only explores one martial art type and further researches can discover the impact of PMR in other games as well. In this research taekwondo athlete age is 10-16 years. The area of investigation has involved only academies while further studies can involve district, divisional and national level athletes.

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