



Mental Fitness and Psychological Resilience and Their Relationship to Achievement Level in Fencing Students At Al-Qasim Green University

Ali Nazar Mohi¹, Israa Razzaq Chafat², Ahmed Hassan Ghdhaib³
University of Karbala, Faculty of Physical Education and Sports Sciences¹²³
ali.n@uokerbala.edu.iq¹, israa.r@uokerbala.edu.iq²,
ahmed.ghdhaib@uokerbala.edu.iq³

Abstrak

Fencing students face many difficulties that occur during lessons to varying degrees, and repeated exposure to it, can lead to a student losing motivation to win and being unable to withstand such challenges. One of the researchers is a fencing instructor encountered such difficulties, which became increasingly apparent during exams. The researchers attribute decline in performance to weaknesses in mental fitness and psychological resilience is a crucial factor in achieving optimal performance among combatants, because combatants face numerous situations, including flow state of fight physical and technical exertion required under greater pressure. This necessitates increased effort, greater endurance, and ability to confront challenges with maximum intensity. Consequently, researchers have focused on studying relationship between these two variables and students fencing performance. This study aimed to develop measures of mental fitness and psychological resilience, recognizing reality of mental fitness and psychological resilience and level of achievement among students in fencing, identify relationship between mental fitness, achievement level and psychological resilience. The most important conclusions were sample members have very good levels of both mental fitness and psychological toughness in fencing for third-year students in Colleges of Physical Education at Al-Qasim Green University, there is a significant correlation between mental fitness and level of achievement in fencing, and also between psychological toughness and level of achievement in fencing, there is a correlational relationship between mental fitness and psychological toughness with level of achievement in fencing for third-year students in faculties of physical education at Al-Qasim Green University.

Keywords: Mental Fitness, Psychological Resilience, Fencing Achievement.

INTRODUCTION

Psychology is one of the sciences that has made a substantial contribution to the advancement of sports performance. At international competitions such as World Championships and the Olympic Games, remarkable improvements in athletes' performances have been attributed not only to physical and technical preparation but also to psychological readiness (Weinberg & Gould, 2023). Psychological factors such as confidence, concentration, emotional regulation, and resilience have become essential determinants of success in elite sports. Fencing differs from many other sports because it requires continuous movement involving advancing, retreating, attacking, and recovering within fractions of a second. These rapid tactical exchanges demand high levels of physical fitness, technical proficiency, perceptual speed, and psychological preparedness.

Since each movement and decision must be executed under severe time pressure, fencers are particularly vulnerable to emotional fluctuations, anxiety, and inaccurate decision-making, all of which may negatively affect performance (Harmenberg, 1997; Williams & Hodges, 2005).

The role of psychological resilience is increasingly recognized because it enables athletes to withstand adversity, recover from setbacks, and adapt effectively to competitive demands. Psychological resilience represents an individual's capacity to maintain or regain psychological well-being despite stressful experiences and has been identified as an important predictor of athletic success (Fletcher & Sarkar, 2012). Similarly, mental toughness has been described as a psychological resource that enables athletes to consistently perform toward the upper range of their abilities regardless of competitive circumstances (Jones, Hanton, & Connaughton, 2002; Gucciardi, Gordon, & Dimmock, 2009). In fencing, where athletes constantly encounter unpredictable situations and intense psychological pressure, resilience contributes to greater emotional control, commitment, and persistence during competition.

Modern technological development and the rapid expansion of knowledge have also increased the importance of mental fitness. Mental fitness refers to an individual's capacity to maintain optimal cognitive functioning, effectively process information, solve problems, regulate emotions, and adapt positively to changing environments (Clough, Earle, & Sewell, 2002; Keyes, 2002). Individuals with high mental fitness are better equipped to cope with psychological stress, think flexibly, maintain positive attitudes, and interact effectively with others. These qualities are particularly valuable for university students, who must simultaneously manage academic responsibilities and athletic performance.

Teachers and coaches in physical education, particularly fencing, should continuously investigate factors that influence athletic performance in order to design effective educational and training programs. Understanding the interaction between mental fitness and psychological resilience may provide valuable insights into improving competitive performance. Previous studies have demonstrated that psychological characteristics significantly influence athletes' motivation, self-confidence, coping strategies, and overall sporting achievement (Gould & Maynard, 2009; Weinberg & Gould, 2023).

Fencing students frequently encounter psychological and physical challenges during both training sessions and competitive examinations. Repeated exposure to failure, performance pressure, and competitive stress may reduce motivation, confidence, and persistence, ultimately leading to poorer athletic achievement. Based on the researchers' practical experience as fencing instructors, these challenges become particularly evident during performance evaluations and examinations. It is assumed that inadequate mental fitness and low psychological resilience contribute substantially to these performance deficits. Combat sports, including fencing, require athletes to cope with constant physical, tactical, and psychological demands, making resilience and mental preparedness essential determinants of successful performance (Fletcher & Sarkar, 2012; Gucciardi et al., 2009).

Accordingly, this study aimed to develop valid measures of mental fitness and psychological resilience among students participating in fencing courses. Furthermore, the study sought to determine the levels of mental fitness, psychological resilience, and fencing achievement among students, and to examine the relationships among these variables. Specifically, the objectives were to identify the relationship between mental fitness and achievement level, the relationship between psychological resilience and achievement level, and the combined contribution of mental fitness and psychological resilience to fencing performance.

The study hypothesized that significant differences would exist in mental fitness and psychological resilience according to students' levels of fencing achievement. In addition, it was hypothesized that mental fitness and psychological resilience would be positively correlated with achievement levels among students participating in fencing.

RESEARCH METHODOLOGY

The researchers followed descriptive approach using both survey and correlational methods, as these were suitable for research requirements. Research community included third-year fencing students at College of Physical Education and Sports Sciences Al-Qasim Green University for academic year 2023-2024. Their number is 45 students.

Field Research Procedures

To achieve objectives of current research, the researchers needed to develop measures of mental fitness and psychological resilience, following procedures were

carried out: Preparing standards Mental fitness and psychological resilience: Defining purpose of measures: aim of developing scales is to measure mental fitness and psychological resilience among third -year students. Faculty of Physical Education and Sports Sciences, University of Babylon by dueling.

Selecting Research Measures :

Mental fitness scale: Researchers by review on many from sources references scientific and studies research for purpose find gauge fitness mentality depend scale prepared from before (Wajdan) intransigence (Owner, 2016) and consists of this scale from (97) paragraphs so researchers presentation paragraphs scale on group experts and specialists (15) expert in area tests and measurement and knowledge self and fencing and between agreement experts on bezel power paragraphs scale fitness mentality third-year fencing students so it reached rate deal experts 100%. and to calculate degree that gets on it answerer from during answer on paragraphs scale the researchers relied revision scale on two degrees (1) and (zero) where (1) is given if was answer positive it is given (zero) if was answer negative and with this method calculated degree college per respondent on test from during collection grades answer from paragraphs all of them, where was minimum degree test is worth (zero) points, and higher degree he has (97) degrees on average hypothetical score is (48.5) degrees.

Psychological resilience scale: To found a lot from measurements used to measure psychological resilience in a way general, and all of them it was completed developing it in a light theory cuba, and chose researchers psychological hardness scale used by mohammed Zuhair (2012) quoted from abada and abdel wahab most of items on scale are designed to measure psychological resilience of athletes. it consists of scale, in its initial form, consists of (47) items distributed across three dimensions: commitment: it includes 16 paragraphs. control: it includes 15 paragraphs. challenge: it includes 16 paragraphs. Answered this scale uses a three-point scale (always, sometimes, never) and a likert scale for the items. (likert) in measurement in two directions (positive and negative) according to the type of item and its wording, and there are (33, 32, 31, 28, 24, 16, 15) negative items opposite direction of dimension, while total score of scale ranges between (47 - 141) degrees as shown in table (1).

Table 1. Direction of items on psychological hardiness scale and weights of their alternatives

Direction of items		Always	Sometimes	Never
Positive	Weight	3	2	1
Negative		1	2	3

Pilot study Regarding mental fitness and psychological resilience scales

The researchers conducted a pilot study of the two scales on a sample of (10) students at 10:30 am on 2/11/2023 at College of Physical Education and Sports Sciences Al-Qasim Green University, where mental fitness scale was distributed. They were gathered in one of classrooms, and instructions for scale and how to answer it were explained according to presented sequence. After completing answers to scale items, forms were collected, and then a break of (5) minutes was given. Then psychological hardiness scale was distributed to same sample, and instructions for scale and how to answer it were explained again to students. After that, the researchers collected forms, as purpose of conducting pilot study was: Achieving desired goals and creating a clear picture for job seekers about nature of work and how to apply it. Determining suitability of two scales for sample level through their ability to answer the items, as well as the clarity of its items. Determining suitability of location for implementing two measures. Knowing time taken to answer items in two scales, which ranges between (12 - 16) minutes. Finding scientific coefficients for scales.

Scientific basis of the two scales

Validity: The researchers used face validity after presenting it to experts in fields of psychology, testing and measurement, motor learning and fencing, and their agreement on validity of items of two scales at a rate of 100%.

Reliability: The researchers relied on data from pilot study sample, and reliability coefficient for mental fitness scale and psychological hardiness scale was calculated using Cronbach's alpha method, reliability coefficient for mental fitness scale was (0.895) and reliability coefficient for psychological hardiness scale was (0.872). This indicates that the two scales have a high degree of reliability.

Objectivity: The researchers verified objectivity of mental fitness and psychological toughness scales through clarity of items, special instructions, method of measurement

and scoring, and agreement of experts on this. There are no items in them that require an explanation of essay type, answer to them is within multiple alternatives, thus objectivity of the two scales was verified.

Achievement test in fencing

Purpose of test to rank students according to their score. Equipment used: Fencing weapon, fencing arena. Method of performance: student's sequence is adopted as follows: subject teacher conducted a practical exam, through which students' ranking and corresponding points were determined. This exam was based on opinions of experts and specialists in determining student achievement students' ranking was adopted based on corresponding points: Applying standards and performance test in fencing: After completing statistical analysis of scales and test, it was applied to application sample of (40) students at ten o'clock in morning at Al-Qasim Green University on 5/1/2024 with help of assistant work team.

Statistical methods

To extract results, the researchers used Statistical Package for the Social Sciences SPSS. The statistical methods are: Spearman's coefficient Brown. Mean. Standard deviation. Simple correlation coefficient (Pearson). Law of (t) for independent samples. Coefficient (f). Chi² test.

RESULTS AND DISCUSSING

Presenting, analyzing, and discussing results of mental fitness, psychological resilience, and fencing achievement tests

Table 2. Results of means and standard deviations for sample

No.	Scale	Mean	Standard deviation
1	Mental fitness	76.25	5.17
2	Psychological resilience	115.75	14.046
3	Achievement in fencing	8.41	2.55

Table 2. shows means and standard deviations of mental fitness, psychological toughness and fencing achievement scales for sample, results showed that mean of mental fitness

scale is (76.25) and a standard deviation of (5.17), results of same table showed that mean of psychological toughness scale is (115.75) and a standard deviation of (14.046). As for results of skill self scale, mean of fencing achievement test is (8.41) and a standard deviation of (2.55).

Presenting, analyzing, and discussing results of correlation among variables

In order to achieve the third objective of research, the researchers extracted Pearson correlation coefficient values between mental fitness and psychological toughness, between mental fitness and achievement in fencing, and between psychological toughness and achievement in fencing among members of sample, as shown in Table (3).

Table 3. Values of Pearson's correlation coefficient and partial correlation coefficient among variables

Variables	Pearson correlation coefficient value	Sig. level	Sig. type
Mental fitness x Psychological resilience	0.92	0.000	Sig.
Mental fitness x Fencing achievement	0.85	0.000	Sig.
Mental toughness x Fencing achievement	0.89	0.000	Sig.
values of partial correlation coefficient	0.79	0.000	Sig.

Pearson correlation coefficient between mental fitness and psychological toughness (0.92) at a significance level of (0.000), which is less than significance level of (0.05), indicating a statistically significant correlation between these two variables, also shows Pearson correlation coefficient between mental fitness and fencing achievement (0.85) at a significance level of (0.000), which is less than the significance level of (0.05), indicating a statistically significant correlation between these two variables, same table showed a Pearson correlation coefficient of (0.89) between psychological resilience and fencing achievement, with a significance level of (0.000), which is less than significance level of (0.05). This indicates a statistically significant correlation between these two variables, same table also showed a partial correlation coefficient of (0.79) between variables among participants, with a significance level of

(0.000), which is less than significance level of (0.05). This indicates a statistically significant correlation between variables.

Discussion of results of Pearson correlation among variables

From Table (3), it is evident that mental fitness of fencing players is significantly related to a positive trend in students' achievement level in fencing. Mental fitness is a cognitive mental capacity that occurs within human brain, and it is directly inferred from a student's problem-solving behavior, flexibility of thought, and adaptability to life. Mental fitness is a dynamic and vital process filled with stimuli that include continuous testing of hypotheses and discussion of opinions and ideas. It does not develop in a vacuum, but rather requires student to have a goal and a driving force propelling them toward achieving that goal. Mental fitness constitutes driving force that directs behavior toward achieving goal, which is accomplishment. Mental fitness gives individual a clear characteristic of their behavioral pattern, and individual uses their previous experiences and benefits from them to achieve desired goal (accomplishment). Mental fitness helps individual to rely on certain patterns of behavior, so that individual employs mental processes and skills when faced with a new experience or situation to achieve the best and most effective responses. In addition, mental fitness helps maintain ability to perform daily activities that a person needs every day.

Student's self-confidence and application of all experiences gained through fencing lesson helped develop mental fitness, because self-confidence is very important in revealing students' talents and thus contributes to achieving success. This was confirmed by (Iman Abbas 2013): Self-confidence represents one of important pillars in forming mental fitness of individual. Self-confidence is a supreme social and human value and a basic and important condition for mental fitness of individual, as it helps develop mental fitness of learners and facilitates many positive activities such as receiving information. Self-confidence is one of personal qualities that are related to mental fitness, as feeling of self-confidence gives individual a sense of security, which is basic element for success of relationships with others. It also becomes an energy that causes to reveal his talents and capabilities and gives a spirit of initiative and ability to make decisions. Self-confidence is an area of mental fitness that plays a significant role in helping individual to face challenges of life.

After reviewing Table (3), it becomes clear that psychological resilience among fencers is significantly related to a positive outlook on performance levels. This means that the higher level of psychological resilience, greater chance of achieving a high level of performance, thus contributing to better results. The researchers attribute this finding to importance of psychological resilience in strengthening students' enthusiasm, boosting self-confidence, controlling emotions and behaviors, and overcoming difficult situations, it fosters adherence to sportsmanship and values, preventing easy surrender, which motivates them to exert maximum effort to win and achieve self-realization through a spirit of fair competition focused on fulfilling their responsibilities. Al-Sherbini (2005) confirms this quoted on bernard and others that there relationship expulsive between hardness psychology and optimism and ability on achievement and status health good one. Kobaza also emphasizes that psychological resilience is a three-dimensional complex, and one component of resilience alone is not enough to provide us with courage and motivation to transform pressures into more positive things. It also confirms Brooks Brooks (2005) argues that an individual characterized by psychological resilience is able to deal effectively with psychological pressures and challenges, and ability to cope with frustration and mistakes, and shocks psychological.

Many researchers and experts also agree that an individual with good psychological resilience can motivate an athlete to exert maximum effort in order to achieve victory. The researchers attribute this finding in general psychological analysis to fact that no behavior is without motivation, and that all motivations for success reflect how a player deals efficiently and positively with emotions and controls them to achieve success, motives to avoid failure, which arouse anxiety in individual moment he takes on problems, are present in every individual and to varying degrees, they have worked together to promote achievement, also believes Alawi (2001) access player to higher levels sports it is based on what is released attic motivation achievement athlete, which means in it ready athlete to confront positions sports competition and an attempt superiority and privilege on road show amount big from activity and effectiveness and perseverance as an expression on desire in struggle and struggle from okay superiority in positions competition sports different ones.

Where Lang confirms Lang says that every individual shows some level of toughness, and whether that level is high or low depends on situation and time individual

is going through, toughness is a learned ability that can change according to situation individual is exposed to. That is, toughness is a personal source and not a personal trait.

Discussion of results of partial correlation among variables

In order to achieve ultimate goal of research by identifying correlations among variables, it was necessary to determine type of correlation between fencing achievement level and both mental fitness and psychological resilience among third-year students at College of Physical Education and Sports Sciences, Al-Qasim Green University. Since research includes two main variables mental fitness and psychological resilience, determining their relationship to other variable fencing achievement level necessitated use of partial correlation coefficient, partial correlation coefficient is used when problem being studied by researchers includes two independent variables and one dependent variable. It provides a single numerical coefficient that clarifies relationship between two independent variables and dependent variable.

It is particularly useful in psychological, educational, and social research, as correlation problems in these fields are essentially partial correlation problems, relying on partial correlation coefficient between two independent variables and dependent variable. To extract value of this coefficient, it was necessary to identify implicit relationships between research variables to reveal final value of coefficient partial correlation value, partial correlation value is value of coefficient. Pearson correlation was found between mental skills and academic adjustment, mental skills and self-skills, and academic adjustment and self-skills, with a partial correlation coefficient of (0.79), these values indicate a correlational relationship among variables.

CONCLUSIONS

Preparation of mental fitness and psychological toughness scales in fencing for third-year students in faculties of physical education at Al-Qasim Green University has been completed. Sample members have very good levels of both mental fitness and psychological toughness in fencing for third-year students in Colleges of Physical Education at Al-Qasim Green University. There is a significant correlation between mental fitness and level of achievement in fencing, and also between psychological toughness and level of

achievement in fencing for third-year students in faculties of physical education at Al-Qasim Green University. There is a correlation between mental fitness and psychological toughness with level of achievement in fencing for third-year students in faculties of physical education at Al-Qasim Green University.

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