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Leadership Personality Correlates with Speed Flexibility and Endurance Among Female Students

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Abstract

General Background: Leadership attributes and physical capacities are relevant components of professional preparation in physical education and sports sciences. **Specific Background:** Female students preparing for teaching careers are expected to develop personal characteristics and physical abilities appropriate to their future educational responsibilities. **Knowledge Gap:** The associations between sports leadership personality and individual physical fitness components among fourth year female students remain insufficiently examined. **Aims:** This study investigates the relationships between leadership personality and selected physical fitness measures using a descriptive correlational design. Twenty-five female students were randomly selected, and data were collected using a 15 trait sports leadership personality inventory and six physical fitness tests. **Results:** Statistically significant correlations were reported for the 30 meter sprint (r = 0.420), trunk flexion (r = 0.366), and 600 meter run (r = 0.355). No statistically significant correlations were observed for medicine ball throwing (r = 0.168), standing long jumping (r = 0.027), or zigzag running (r = 0.191). **Novelty:** The study distinguishes specific fitness components associated with leadership characteristics rather than treating physical fitness exclusively as a single construct. **Implications:** The findings support considering personality characteristics alongside relevant physical assessments in physical education training and student evaluation, while remaining limited to the observed correlational relationships.

Highlights:

- Sprint performance showed the strongest reported association (r = 0.420).
- Trunk mobility and distance running demonstrated statistically significant relationships.
- Explosive muscular power and directional agility showed no significant associations.

Keywords: Leadership, Personality, Fitness, Sports Sciences.

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Introduction

In the management sphere, there are many scholarly sources that have addressed administrative leadership, which is an integral part of the management process. This lead to sports leadership being added to sports psychology literature, as there was a clear connection between the two.This spurred further interest in sports leadership, as there was a clear connection with the effectiveness and cohesiveness of sports organizations. The sports domain arises from other domains through both ways of interaction and practice as a domain which attempts to change human behavior towards desired directions and gradually, fosters good citizenship under the premise of creating a proper setting and developing positive attitude of individuals on society in which they live within it. [1] Sports leaders, specifically coaches, responsible for the planning, organizing, and evaluating of all sports activity have received very great attention as researchers have sought to draw lessons, learn, and incorporate ideas from the administrative leadership field. In fact, this scope has grown to incorporate sports leaders in various roles, such as coaches, administrators, educators and directors. [2]

An educator's leadership personality is a reliable means of influencing and transforming student behaviors and attitudes towards education in colleges of physical education, and in this way it will affect their future professional development as leaders of education. [3] The technical standards for physical education teachers should be complemented by a capacity to play a leading role in their profession, requiring influence both in their own teaching and leadership roles and in their ability to embody physical fitness so they can be the most effective role model and reach the core learning objectives of physical education in all educational institutions. [4] The importance of the research would be to create a relationship between the leadership personality of the female Physical Education and Sports Students of the Department of Physical education and Sports Sciences with the level of physical fitness of the female students when they are entering their last years of their Master's training, in the direction of physical education teachers. This includes theoretical as well as practical tests; and an attempt to correlate the two, leadership personality and physical fitness.

Research Problem

The study problem is that the relationship between the leadership personality traits and physical fitness level of 4th year female students of the Department of Physical Education and Sports Sciences is yet to be studied sufficiently. Such knowledge is especially significant because these students are preparing to become teachers and educators – in other words to be leaders in the field of education. Each is expected to be an influential leadership personality with some level of physical fitness that will enable her to serve as a role model for her own future students – educationally, psychologically and physically.

To this end, the researcher tries to overcome this problem by using a sports leader personality trait test to characterize students' leadership personality and a series of physical tests to measure physical fitness. The results will then be compared to answer the question: Is there a relationship between leadership personality and physical fitness.

Research Objectives

1. To establish the rating of fourth year girl students of Physical Education & Sports Sciences with regard to the leadership personality.
2. To find out the level of physical fitness in department of fourth year female students.
3. To determine the correlation of leadership personality with the level of physical fitness of the students in general and their specific components (speed, explosive power, flexibility, agility and endurance.

Research Hypotheses

1. There is a statistically significant relationship between level of physical fitness and grade 4 female PESS students in the sartorial field.
2. There is statistically significant relationship between physical fitness and grade 4 female students Department of Physical Education and Sports Sciences (PESS) in sartorial field.

Research Scope

- **The human scope is composed of 20 students;** 4th year female students from the Department of Physical Education and Sports Sciences.
- **Temporal Scope:** The period from May 3, 2017, to March 15, 2018.
- **Origin Area:** Courts, fields – Department of Physical Education and Sports Sciences.

Methodology

Research methodology used depends upon the type of the problem which is under study and, the research has to employ a proper methodology to solve the research problem, in keeping to the nature of the problem. So the descriptive correlational method was used because it is the most appropriate method in realizing the objective of this study.

Research Sample

The research population consisted of the fourth year female student of Physical Education and Sports Sciences Department of College of Education for Women. Samples chosen using random sampling method are 25 students. The performance variance of the tested group was taken with consideration and any significant disparities among the students was dealt with by assessing homogeneity of samples that makes the test results valid as described in Table (1).

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Table 1. Sample homogeneity regarding age, height, and weight variables

Variables	Unit of measurement	Mean	Median	SD	Skewness
Age	Month	272.8	270	6.24	1.35
Height	cm	162.6	161	3.43	1.41
Weight	kg	54.68	52	4.36	1.84

Table (1) indicates that the skewness coefficient is within the range of ±3 revealing the normality and homogeneity of the sample distribution.

Research Tools, Methods, and Equipment

Research tools and methods: Arabic source, reference materials; observation and experimentation; test and measurements; test forms; 10 markers and measuring tape; Whistles 2.

Equipment: 3 stopwatches and an electronic calculator (HP model).

Physical Tests

1. The researcher used six physical tests for physical fitness of the female - 4th Year students. The tests chosen are those that are widely used worldwide, other than their ease of administration, and are endorsed as valid tests by experts for measuring specific components of physical fitness. The tests are: [5]
2. 30 meters run (flying start) 1.
3. Throwing the medicine ball overhead with two hands (medicine ball 2kg).
4. Standing long jump.
5. Standing prone panting stretch.
6. Disjointed sprinting and jogging around the field.
7. Lots of bouncing and jumping around the field.
8. 600-meter run (high start).

Pilot Study

A pilot study is similar to an experiment but on a smaller scale. The researcher did this pilot study at 10:00 AM on Monday October 02, 2017, where the pilot study took into consideration a pilot sample of 6 female students that came from the population of students studied. The pilot study was a real-life study which helped the researcher discover the strengths and weaknesses. The aims of the pilot study were to:

- Check the appropriateness and condition of sports field and equipment.
- Evaluate assisting team performance.
- Determine the time required to administer the tests. 3-6 Main Experiment (Testing Procedures)

The tests were administered in the laboratory of physical education and sports sciences that took place from October 3-4, 2017. Climatic conditions and timing of tests were taken into consideration, with tests being taken concurrently between 8:30 am and 11:30 am. Care was taken to make the instructions for the test very clear and obvious to the female students before it was administered; then adequate warm-up periods for each group and adequate rest periods between tests.

Assessing the Personality Traits of a Sports Leader [6]

A sports leader can take the "Sports Leader Personality Traits Inventory" to evaluate his or her sport's leadership personality traits. The inventory consists of 15 traits; the leader circles the numbers on the 7-point scale depending on how much the specific trait is true for him or her; A sports leader will be scored for this inventory according to the specified scoring keys; the higher the score, the more positive the sportsperson's personality, and the lower the score, the more negative the personality of the sportsperson.

Physical Test Specifications

Participants in the test battery were the female ones who underwent 6 consecutive tests:

Test 1: 30m Run (Flying Start) [7]

- Objective: To measure speed.
- Equipment needed: Track/field surface, two stopwatches, whistle, markers, measuring tape, recording sheet.
- Periodically: They take turns standing behind the first marker. When the whistle is blown, she has to sprint towards the second marker (20m from the first) and then sprint towards the third marker (30m from the second): The distance should be 50m.
- Recording: The time is recorded for each participant from the 2nd marker, up to when she crosses the finish line (the 30m distance). Players will get one shot per person.

Test 2: Two-Handed Overhead Medicine Ball Throw (2 kg) [8]

- Objective: To measure the strength of power of the upper limb muscles.
- Equipment: level dirt surface, marked with two lines perpendicular to throwing line with 5m apart, two medicine balls, measuring tape, and lime markings in throwing zone (20cm from each other) to measure each participant's result.

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- Test Description: The participant stands feet apart at the far edge of the throwing arc, with a medicine ball held over his/her head in both hands. On the command, she pivots around her back and throws the ball forward (not over the line). She has to have both feet on the ground at all times, and NOT throw with one hand – if she doesn't, then the throw is scoreless.
- Scoring: 3 tries with the best or successful try to be recorded.

Test 3: Standing Long Jump [9]

- The goal of the experiment is to determine how explosive the muscles in the lower legs are.
- Materials: dirt level surface about 1.5 m wide and 3.5 m long - not slippery - with no obstructions, lines perpendicular to the jump line, measuring tape, colored chalk. The rest of the distance from the first meter is indicated in 20 cm increments, so that it can be measured accurately.
- Position: Standing (behind the starting line), feet just apart, arms raised, feet at the outer edge of the starting line. She then swings her arms down and forward, as she half squats and does a slight forward lean in the torso. Next, she reaches out with a mighty swing and springs off onto the ground two feet with her legs extended as far as they can go toward launching her forward as far as she can reach. Must take-off and land feet first, otherwise it will not be valid.
- Successful Attempts: Recording done by measuring the distance from the inside edge of the starting line to the heels on landing, using a measuring tape.

Test 4: Standing Trunk Flexion (Forward-Downward) – 30 cm [10]

- Objective: Flexibility of the spine and the posterior leg muscles.
- Equipment: Two flexibility scales, graduated, and a flat wooden bench (1 m in length, 60 cm in width, 50 cm in height).
- Position of Scale: Each scale is positioned vertically at edge of bench from the zero point. There are 50cm between them and 25cm from each side of the bench. Both scales are 60 cm in length with there being 1 cm tics and the slider that should be pushed by the fingers is numbered downwards from 0 to 30. The procedure is repeated with two students conducting the test at the same time.

Test 5: Zigzag Run [11]

- Objective: Measure agility.
- Equipment: Measuring tape, 10 markers (2 m apart), stopwatch and whistle.
- Whistle: The subject will sprint 20 m between the markers when the whistle is blown.
- The subject will only be recorded on his/her second attempt, and the time of the best performance will be saved.

Test 6: 600 m Run (High Start) [12]

- Objective: Measure Endurance.
- Performance Description: Set up the Test Area and draw two Dig Lines, Start Line and Finish Line on a track and field track. Equipment: Stopwatch, Whistle. The start line is marked in a 'high start' position, and when the whistle sounds, participants run to the finish.The start line is set in high start position behind the start line and when they hear the whistle, they run to the finish.
- Recording: Record the time taken to complete the distance (600 m) in minutes, seconds and tenths (several options will be allowed).

Statistical Methods

Mean, Median, e.g., SD, Skewness coefficient, correlation coefficient.

Results

The following statistical tables show the correlational relationship (and its statistical levels) between the leadership personality and each of the physical activities presented, which means each specific physical activity and the level of physical fitness of a 4th year female students in the Department of Physical Education and Sports Sciences.

1. **Relationship between leadership personality and physical activities (physical tests)**

Table 2. Relationship between leadership personality and physical activities (variables)

Variables	Calculated r-value	Tabulated r-value	Statistical significance
30m run	0.420	0.349	Significant
Medicine ball throw	0.168	0.349	Non-significant
Standing jump	0.027	0.349	Non-significant
Trunk flexion	0.366	0.349	Significant
Zigzag run	0.191	0.349	Non-significant
600m run	0.355	0.349	Significant

At the 0.05 level of significance and with 23 d.f. the tabular value is 0.349.

Table (2) shows the correlation between leadership personality and physical performance variables as follows:

- The calculated value of r was 0.420 for the relationship between leadership personality and the 30m sprint (speed); this value corresponds to tabular value of r, which is 0.349; this shows that the two values are very correlated at 0.05 level of significance with 23 degrees of freedom.

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- The calculated value of r = 0.168, indicates that there was no strong correlation between The relationship with the medicine ball throw (arm muscular strength) and the tabular value of r = 0.349 (n = 23, a sign of significance is at p = 0.05).
- The relation with standing jump is 0.349 (from table) and 0.027 (with actual calculation), which means that it is not significant at 0.05 level of significance with 23 degrees of freedom.
- The calculated value of r was 0.366 when compared to the tabular value of r from the data, the result was found to be significant, thereby indicating that there is a significant correlation between the relationship of trunk flexion (flexibility) and the amount.
- They compared the calculated value of r with the tabular value of r at the given significance level and under the given number of degrees of freedom, and found that there was a significant correlation when comparing the 600m run performance with the zigzag run.
- Compare calculated value of r with critical value for the given significance level (α) and degrees of freedom (n) to demonstrate a relationship, if any, of leadership personality with the overall physical fitness level is thus established.

Discussion of Results

The result presented in the table above suggests the discussion below:

1. 1, 30m Sprint Test (speed): A significant correlation was discovered between leadership personality and speed, a valuable positive indicator. [13] This is because on display of leadership skills, it has a way of enhancing a student's performance in sports activities that involve speediness and decisiveness. Another correlation was noted for the 600m Run Test (endurance) between worthiness of leadership personality and endurance. That is important to sport activities that are stamina-based as the researchers have agreed that effective-leading persons have great patient and stamina, and patience among great stamina. [14]
2. *On the other hand, the leadership personality was not correlated with any of the following:* Throw of medicine ball (measuring arm explosive power), standing long jump (measuring leg explosive power), zigzag run (measure of agility). [15] The researcher explains this negative finding as due to objective reasons (mainly female physiology) as well as the smaller amount of activities that are weight/lifting, or fast multi-directional movements. [16]
3. In general, the findings shows good correspondence with physical features and that the leadership personality corresponds with good physical fitness level. This is a proper indicator, and the study hypothesis put by the researcher is setup and confirmed. [17]

Conclusions

1. There is a correlation between joint leadership personality and the factors of speed, flexibility, and endurance.
2. There was no relationship found with explosive power (of arms and legs) or agility.
3. There is a relationship between the physical fitness in general with the leadership personality.
4. The personality of leadership has great influence with respect to the levels of physical fitness of athletes and their performance.

Declaration of Artificial Intelligence Use

The author declares that no artificial intelligence tools were used in the conduct of the research, including data collection and statistical analysis.

Recommendations

1. Emphasis on development of the curricula programmes in colleges and institutes of physical education.
2. Personality traits required in leadership type students should be taken into consideration for admission to college/institute of physical education.
3. The leadership personality trait should be measured in the Testing and selection process as athletes, especially those who involve in work activities that need speed, flexibility and endurance, must have a strong leadership personality.

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