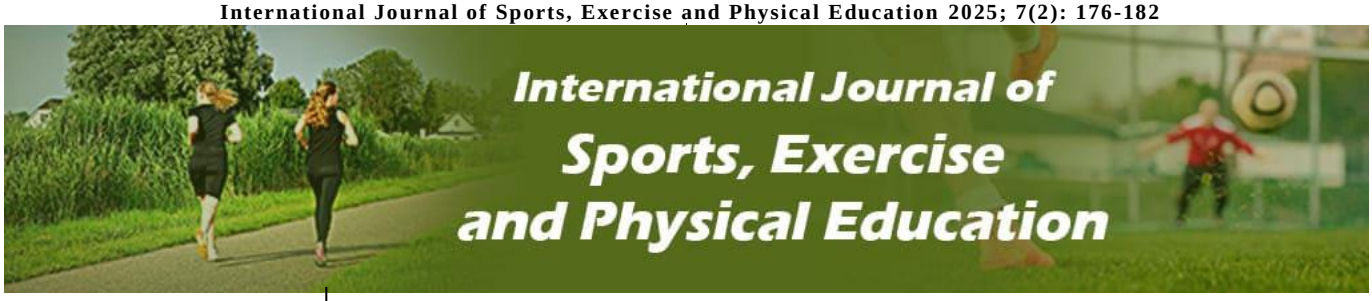

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The relationship between health conscious and sports culture among bodybuilding athletes in the physical fitness category

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Abstract
This study is to investigate the predictive capacity of health conscious on sports culture and the link between health conscious and sports culture among bodybuilders in the physical fitness category. Survey, correlational, and predictive methods were used in the descriptive technique. One hundred and twenty bodybuilders from Kirkuk Governorate bodybuilding clubs were chosen at random.

Standard scientific processes were used to establish the validity and reliability of two measuring scales that were created to evaluate sports culture and health conscious. Using SPSS software, data were gathered and examined using basic linear regression analysis and Pearson correlation coefficients.

The findings suggested that the sample had a high degree of health conscious and sports culture. A statistically substantial positive link was discovered between the two variables, with health conscious appearing as an important predictor of sports culture. The study suggests introducing health education programs in sports clubs and increasing the use of measuring methods on varied populations.

Keywords: Health conscious, sports culture, bodybuilding, physical fitness

Introduction

Athlete care is considered a critical component of both training and education. This is particularly noticeable in sports like bodybuilding and physical fitness, which need a careful balance of physical attractiveness, functional capacity, and general health. Achieving a high level of performance necessitates athletes having complete health conscious and an integrated sports culture two key components that work together to support their habits and practices both in training facilities and in everyday life.

Health conscious is a modern idea and a critical component in the development of effective training programs. It is based on the athlete's specific understanding of health-related topics and their ability to incorporate this information into their sports routines known as cognitive management of health. Thus, developing an athlete's health conscious requires more than just understanding of medical or nutritional language; it also requires the capacity to integrate this information to daily behavior and use it realistically throughout training, nutrition, and recuperation.

Furthermore, individual variations in learning and understanding have a substantial impact on athlete health-related idea formation. Some athletes prefer visual learning tools (e.g., photos, films, infographics), whilst others prefer spoken instructions or direct direction. Others, however, gain the most from a multimodal strategy that includes both. As a result, there is an urgent need to create a health-educational environment that values different learning materials and applies dual coding theory tactics to improve comprehension and assist long-term memory retention.

In contrast, sports culture is just as important as health conscious. It is a key behavioral and cognitive dimension in the athlete's profile that influences their interaction in the sporting environment. Sports culture refers to an athlete's conscious of sport's ideals and ethics, such as obedience to rules and regulations, discipline, mutual respect, and acceptance of others. Furthermore, it demonstrates their understanding of sports terminology, contemporary training methods, adequate nutrition, and recuperation strategies.

These components do not arise spontaneously, but rather as a result of ongoing supervision, frequent practice, and scientifically grounded feedback.

In today's fast changing informational and environmental milieu, sports culture has become an inseparable aspect of a person's overall culture and a powerful indication of their conscious and growth. According to research, sports culture has important health, educational, and social implications, and it may even be used to enhance national cohesiveness, notably through participation in local and international sporting events. It also plays an important role in developing a feeling of community and national identity.

According to Alawi [1], sports culture is more than just knowledge acquisition; it is an educational and social tool that forms behavioral conscious and helps to establish a strong, unified athletic community capable of handling problems and competing fairly. However, fulfilling this goal necessitates a skilled cadre of sports professionals with enough academic and administrative preparation a deficit that is especially noticeable in the Iraqi sports environment, notably in the domain of physical fitness.

When evaluating bodybuilding athletes in Iraq, particularly those in the physical fitness category, it is obvious that many do not get institutional academic supervision in both health and sport culture. Several reasons contribute to this shortage, including a paucity of specialized training programs, a small number of trained coaches, and a lack of continuous instructional activities. Such inadequacies may lead to decreases in performance, an increased risk of injury, and poor repercussions on overall athletic behavior.

Research Problem

Based on the researcher's ongoing observation of the state of bodybuilding within the Physical Fitness category, as well as his direct interaction with athletes in sports clubs drawing on his practical experience as both a coach and a former member of the Iraqi national team it has become clear that a significant number of athletes lack health conscious and sports culture. This initial observation was validated by a review of relevant literature and theoretical frameworks, which revealed that these aspects are frequently overlooked within training programs, despite their critical role in improving physical performance and maintaining overall health. Furthermore, the study discovered that many athletes in this category prioritize outward body aesthetics (such as muscle symmetry and size) over general health practices, including preventative behaviors and good nutrition. This is a clear gap in both knowledge and conduct, requiring a thorough scientific examination. As a result, the researcher intends to accurately identify this problem by investigating the link between health conscious and sports culture, as well as assessing the prevalence of each characteristic among bodybuilders in the Physical Fitness category. The goal is to understand the nature of this link and suggest evidence-based solutions based on scientific investigation [2].

Research Objectives

The importance of this study is underscored by the following objectives:

1. To look into the influence of creating a Health Conscious Scale on measuring the level of conscious among bodybuilding athletes in the Physical Fitness category on health-related factors such training, diet, and injury prevention.
2. To investigate the impact of developing a Sport Culture Scale on assessing the level of athletes' knowledge, values, and behavioral patterns associated to sports, as well as how this reflects in their dedication to structured physical training.
3. To measure the health knowledge and sport culture of bodybuilding athletes in the Physical Fitness category, as well as their reaction to proper health behaviors in the sports environment.
4. The purpose of this study is to examine the link between health conscious and sport culture among Physical Fitness athletes in order to discover broad trends and directions for health and sport education programs in fitness centers and sports clubs.
5. To investigate the predictive power of sport culture in anticipating the degree of health conscious among bodybuilding athletes in the Physical Fitness category, as well as to determine the function of sport culture in reinforcing health-related practices and behaviors.

Hypothesis

1. Bodybuilding athletes in the Physical Fitness category exhibit a substantial association between health and sports conscious.
2. The amount of sports knowledge among bodybuilding athletes in the Physical Fitness category may be predicted using their level of health conscious**.**

Scope of the Study

1. **Human Domain:** Bodybuilding athletes are classified as Physical Fitness in Iraq.
2. **Temporal Domain:** The time running from December 13, 2024 to May 1, 2025.
3. **Spatial Domain:** Bodybuilding and fitness centres across Iraq.

Research Methodology and Field Procedures

Research Methodology: The researcher used a descriptive approach, including survey and correlational methodologies, which were appropriate for the study's aims and nature.

Research Population and Sample: This study focuses on bodybuilding athletes in the Physical Fitness category of the Iraqi National Championship for the 2024-2025 season. The entire population included 130 athletes from four Iraqi governorates: Baghdad, Diyala, Al-Najaf Al-Ashraf, and Kirkuk. These players are the key research population, chosen to investigate the link between health conscious and sports culture in a real-world competitive sports environment.

The primary study sample was chosen using a stratified random selection procedure, with 120 athletes representing 92.31% of the overall population. This sample was subsequently separated into three subgroups, according to the study goals, as follows:

1. The pilot study sample included 10 randomly selected athletes from Baghdad using the lottery technique. This subset was used to guarantee the intelligibility of the questionnaire items, assess the suitability of the field methods, and validate the tool's phrasing.
2. The scale development and construction sample comprised 120 athletes from the initial population. This group was used to create the Health Conscious Scale and the Sports Culture Scale, as well as to test their psychometric qualities, such as validity, reliability, and discriminatory item analysis.

3. The main study sample included 110 athletes who completed the final versions of both measures. The findings from this sample were utilized in statistical analyses to assess the study hypotheses.

Table 1: Shows the classification of participants by governorate and expertise.

N.	City	Total number	Survey experiment sample	Construction and preparation sample		Main experiment sample	
				Number	Percentage	Number	Percentage
1	Baghdad	48	10	38	79.16%	110	82.66%
2	Diyala	37	-	37	100%		
3	Najaf	20	-	20	100%		
4	Kirkuk	25	-	25	100%		
Total		130	10	120	92.30%		

Table1: Depicts the distribution of the study population and sample.

Tools, Instruments, and Devices Employed in the Research

The researcher used a variety of equipment, techniques, and gadgets that were suitable for the study's nature in order to carry out the research processes precisely and accomplish the desired results as described below [3]:

1. Scientific Tools:

- Personal Interviews: Selected bodybuilding coaches and athletes participated in informal interviews to learn more about their sports culture and degree of health consciousness.
- Arabic and international references were used to help build the study's theoretical framework, assist the creation of the measuring tools, and facilitate the interpretation of the findings.
- Scientific Observation: The researcher observed the participants' behavior in the training setting and documented in-depth observations while the questionnaires were being administered**.**
- Tests and Measurements: Standardized instruments were used, such as the Sports Culture Scale and the Health Conscious Scale. Strict validation and reliability testing protocols were followed in the development and use of these equipment.

2. Technological Tools and Devices:

- Two tripod camera stands are used to steady cameras when field data is being collected and the training environment is being documented. Using the SPSS program.
- HP laptop with an Intel Core i5 processor is used for data entry and statistical analysis.
- One unit of the CASIO Electronic Handheld Calculator is used for manual computations.
- When documenting an athlete's physical attributes, a digital medical weighing scale (1 unit) is used to precisely measure their body weight.
- Two 24-frame-per-second Sony video cameras are used to record interviews and field observations for training.
- One data show projector is used to show research assistants and the expert committee study metrics and measurement instruments.
- Ten Princo CD Discs were used as backup storage to keep research data, pictures, and papers safe.

3. Field Methods for the Research:

Two assessment scales have to be created in order to meet the goals of the current study: one for sports culture and one for health conscious. Consequently, the researcher took the actions listed below [4]:

1. **Pilot research:** On February 25, 2025, ten professional bodybuilders in the physical fitness category were chosen at random to participate in a pilot research.

The following were the main goals of this pilot study:

- Examine the items' readability and clarity on the sports culture and health conscious scales.
- Assess the participants' correctness and preparedness in answering the questions.
- Calculate the typical amount of time needed to finish each scale.
- Determine and record any language or interpretative problems that might impair comprehension or the accuracy of your response.
- The results showed that both scales' items and instructions were largely understandable. The health conscious scale took an average of 10 minutes to complete, while the sports culture scale took an average of 15 minutes.
- Furthermore, a few minor findings were noted, which the researcher addressed and changed prior to the study's formal adoption.

Formal Administration of Research Scales: The two study measures were formally administered to a sample of 120 players between March 6, 2025, and March 13, 2025. The data gathering method was carried out collaboratively throughout sports clubs in Kirkuk Governorate, under the direct supervision of the researcher.

- The Health Conscious Scale questionnaires were handed out first, followed by the Sports Culture Scale surveys.
- Prior to distribution, both oral and written instructions for completing the scales were clearly communicated.
- After the respondents finished the questionnaires, they were collected immediately.

Health Conscious Scale the Health Conscious Scale was developed based on a modified version of It initially comprised 24 items, distributed across three domains [5]:

- Nutrition and Dietary Habits (8 items)
- Health Care (10 items)
- Safety (6 items)

A five-point Likert scale was used to measure responses: Strongly Agree – Agree – Neutral – Disagree Strongly Disagree, with corresponding scores ranging from 5 to 1.

The scale was reviewed by 13 subject matter experts to validate its linguistic clarity and content relevance. Following statistical analysis, 3 items (Items 3, 4, and 13)

were excluded due to weak psychometric properties. Thus, the final version of the scale consisted of 21 items.

Second: Sports Culture Scale

The scale was created after conducting a thorough evaluation of relevant literature. The first version included 42 items spanning the following domains:

- Sports knowledge
- Attitudes towards Sports Participation
  Sports values.
- A five-point Likert scale was used (Always - Often - Sometimes - Rarely - Never), with weights ranging from 5 to 1.
- A panel of 13 professional judges assessed the products.
- 13 non-discriminatory items were removed based on item discrimination analysis, including skewness coefficients and performance of two extreme groups. The scale has a final count of 29 items.

1. Psychometric Refinement and Analysis of the Health Conscious and Sports Culture Scale After collecting the surveys, the rectification procedure was carried out using prepared estimations for the five-point Likert scale. The scale's items were subjected to statistical analysis using the methodologies listed below:
2. Based on the skewness coefficient and two-group discrimination analysis, thirteen (13) items were removed, leaving a final version of twenty-nine (29) items.
3. The T-test was used to analyze the items' discriminating power between the higher and lower score groups in the construction sample.
4. Pearson correlation coefficients were computed for each item and the scale's total score, each item and its domain, and each domain and the overall score. All relationships were statistically significant at a 0.05 level.
5. Each scale's overall scores were calculated as follows:
6. Health Conscious: Hypothetical mean = 63, maximum score = 105, minimum score = 21.
7. Sports Culture: Hypothetical mean = 87, maximum score = 145, minimum score = 29.

The Sports Culture Scale's Psychometric Features

The Health Conscious and Sports Culture scores' psychometric qualities were confirmed by a series of statistical and instructional processes, including reliability, internal consistency, construct validity, and content validity. The purpose of these processes was to guarantee the scales' impartiality and validity in precisely assessing the target constructs.

A. Legitimacy

One of the most important aspects of psychometrics is validity, which indicates how well a scale captures the things it is supposed to capture. Depending on the instrument's intended use, the validity type can be evaluated by speaking with experts about the items' suitability. Two validity categories were used in this investigation [6]:

8. Content validity is evaluated by a team of experts who analyze the questionnaire items to see if they are acceptable [7]:
9. Construct validity is confirmed by statistical techniques such as item discrimination analysis and item and domain internal consistency.

B. Dependability

The degree of consistency or stability in the measurement results when applied to a particular group is referred to as reliability. This encompasses inter-rater reliability, internal consistency of items, equivalency between alternative forms, and test-retest reliability [8].

C. Health Conscious Scale

Split-Half Reliability: By splitting the items into even and odd groups, stability was confirmed. The variance between the two halves was compared using the F-test. There were no discernible differences ($F = 0.061 < 1.35$), suggesting that the items were homogeneous. The two parts have a Pearson correlation value of 0.83. The full-scale dependability was estimated using the Spearman-Brown method, which produced a high reliability coefficient of 0.90 (Sami, 2001, p. 146).

Using SPSS software, Cronbach's Alpha was applied to the construction sample. A high degree of internal consistency was shown by the alpha coefficient of 0.89 [9].

D. Split-Half Reliability of the Sports Culture Scale: Items were divided into two groups (even and odd). Each group's variance was computed independently, and the F-test was used for analysis. When the calculated value (0.154) and the critical value (1.35) were compared at df = 109–109, $\alpha = 0.05$, non-significant differences and hence item homogeneity were found. The two halves had a Pearson correlation value of 0.86. Strong dependability was shown by the reliability coefficient of 0.89 obtained by applying the Spearman-Brown method.

For the construction sample, Cronbach's Alpha was computed using SPSS. The scale's internal consistency and reliability were quite good, as evidenced by the alpha coefficient of 0.90. 2. Evaluation of Both Scales Statistically The following analyses were carried out using SPSS version 26:

10. Included in the preliminary item analysis are the skewness coefficient, mean, and standard deviation.
11. T-test for the extreme two groups (upper and lower 27%) in discriminatory power analysis.
12. Assessing internal consistency by using the Pearson correlation between:
13. The overall scale score as well as each item.
14. Every item and the associated domain score.
15. The total scale score as well as the scores for each domain.

Results Presentation, Statistical Analysis, and Discussion

Results, Analysis, and Discussion of the Health Conscious Scale:

Table 1: The table presents the arithmetic mean, standard deviation, hypothetical mean, and the calculated t-value for the Health Conscious Scale.

Variables	Number of sample	Arithmetic mean	Standard deviation	Hypothetical medium	Calculated t value	Significance level
Health conscious	110	85.13	8.10	63	110.17	0.00

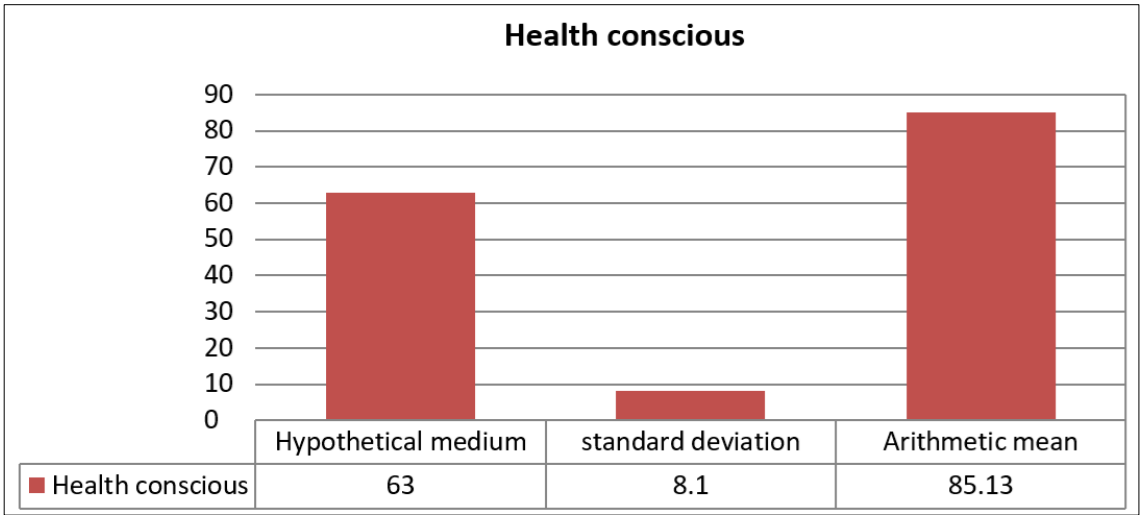

Fig 1: Illustrates the arithmetic mean, standard deviation, and hypothetical mean of the Health Conscious Scale.

Table (2) and Figure (1) show the overall score of the Health Conscious Scale, which consists of three domains and twenty-one questions, all with strong discriminative power, efficiency, and statistical significance. The arithmetic mean outperformed the hypothetical mean with a significance level of p=0.00, which is less than the 0.05 criterion. This suggests that there are statistically significant variations between the two means, pointing to the sample's arithmetic mean and demonstrating that the athletes had above-average health conscious the study sample, which consists of athletes, has a significant level of health consciousness, which the researcher credits to these findings. In addition to the athlete's sound comprehension and accurate cognition of others, the environment, and themselves during social interactions aimed at meeting their needs and managing their affairs, this conscious reflects their direct perception of themselves and their surroundings, which serves as the basis for all knowledge. Recognizing the connections among oneself, other people, and the environment in a variety of contexts is part of this conscious. Health conscious is defined as "the information perceived by the individual regarding performance and the attitudes held toward various health-related roles, as well as self-understanding in relation to the world of performance and our results are in line with that description [10].

Results of the Sports Culture Scale, their analysis and discussion:

Table 3: Presents the arithmetic mean, standard deviation, hypothetical mean, standard deviation, hypothetical mean, and calculated t-value for the Sports Culture Scale.

Variables	Number of sample	Arithmetic Mean	Standard Deviation	Hypothetical Medium	Calculated t value	Significance level
For culture Sports	110	119.51	87	13.38	93.67	0.00

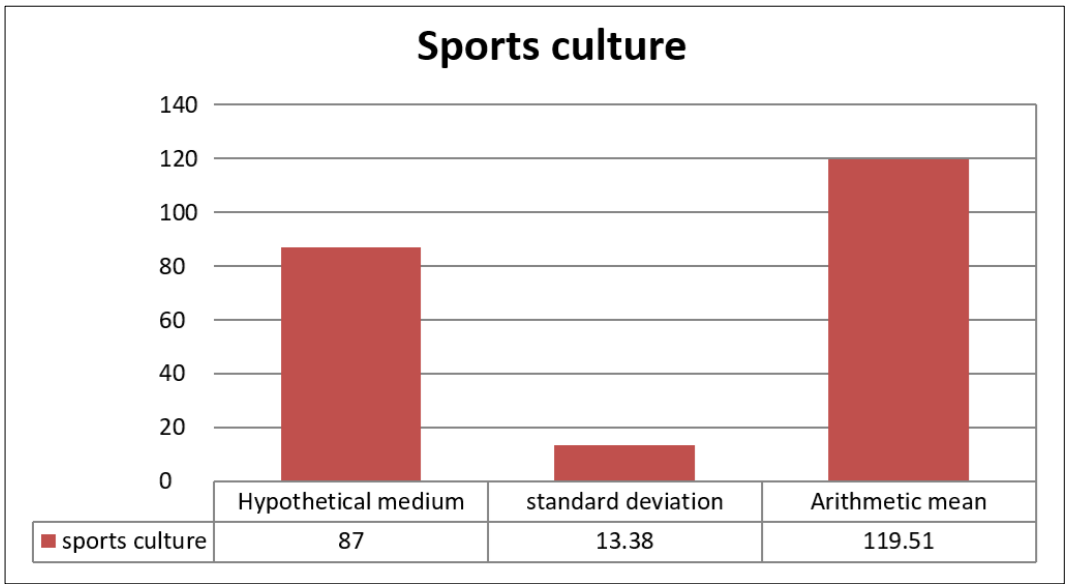

Fig 2: Depicts the arithmetic mean, standard deviation, and hypothetical mean of the Sports Culture Scale.

The overall score of the Health Conscious Scale, which consists of 21 questions across three domains and is distinguished by excellent discriminative power, statistical efficiency, and significance, is shown in Table (2) and

Figure (1). At a significance level of p=0.00, which is below the threshold value of 0.05, the mean score was higher than the hypothetical average. The athletes' above-average health conscious is confirmed by the statistically substantial discrepancies between the observed mean and the predicted mean, which favor the sample's actual mean.The sampled athletes have a high degree of health conscious, which the researcher relates to these findings. This is based on the athlete's sense of themselves and their conscious of their surroundings, both of which are critical aspects of cognitive functioning. This conscious serves as the foundation for all information and helps the athlete comprehend people, the environment, and themselves, particularly in social and competitive situations. This is consistent with the theoretical framework that states that "the knowledge an individual possesses regarding performance and the attitudes they hold toward various health-related roles, as well as the understanding of the self in relation to the world of performance constitutes health conscious [11].

Results of the correlation between research variables, their analysis and discussion:

Table 4: Shows the correlation relationships between the variables

Statistic	Correlation coefficient	Significance level
Health conscious x sports culture	0.53	0.00

The correlations between the research variables are shown in table (4).

To investigate the connection between sports culture and health consciousness, the researcher calculated the Pearson correlation coefficient. With a p-value of 0.00, below the significance threshold of 0.05, the correlation coefficient between the research variables is statistically significant, as seen in Table (4). This suggests that sports culture and health conscious have a statistically significant positive linear relationship. In light of this link, the researcher came to the conclusion that health conscious directly affects sports culture, meaning that a rise in health conscious is correlated with a corresponding rise in sports culture. The findings demonstrated a modest, positive, and statistically significant correlation between the two variables, with a Pearson's r-value of (0.53) at a significance level of (0.00), which is once more below the 0.05 cutoff [12].

Which are often derived from this very reality, and subsequently influence the individual's cognitive appraisal of that reality, thereby shaping their motor and behavioral responses toward it [13].

Analyze and discuss the results of the percentage contribution of health conscious to sports culture

Table 5: Presents the statistical significance of the correlation coefficient and the proportion of variance in sports culture explained by health conscious.

Variables	Nature of the correlation coefficient	Correlation coefficient value R	Adjusted contribution percentage R2	Degrees of freedom	Multiple standard error	Value F	Statistical significance
Health conscious and sports culture	Simple	0.36	0.13	108-1	12.48	16.05	0.00

Based on the squared correlation coefficient between the two variables, the researcher used basic regression analysis to calculate the contribution ratio of health conscious to the sports culture variable. Health conscious was shown to have a high contribution ratio to the sports culture index, as seen in Table (5). This is further corroborated by the calculated F-value of 16.05, which shows that the two variables' shared variance was significant at the 0.00 significance level [14].

Conclusions and Recommendations:

Conclusions

The researcher came to the following conclusions after presenting, evaluating, and debating the research finding **:**

1. For bodybuilders in the physical fitness category, the health conscious scale created by researcher "Saleh" is valid and dependable.
2. The study sample showed an acceptable level of health conscious and sports culture.
3. The findings showed a strong favorable relationship between sports culture and health consciousness.
4. Sports culture was significantly predicted by health conscious.

Recommendations

Considering the researcher's findings, the following suggestions are put forth:

1. Making use of the Health Conscious Scale, which was created by the researcher, as a scientific tool that has been verified and that future researchers can use in their study.
2. Using the researcher-prepared Sports Culture Scale as an objective tool that may be used in investigative and analytical work.
3. Stressing the value of giving players extra attention by putting them in rigorous training courses meant to raise their level of health consciousness, which has a beneficial effect on both their athletic performance and the growth of their sports culture.
4. For further validation and generalization, the scales used in this thesis should be applied to other samples of both sexes.
5. Making use of the prediction formula created to estimate the degree of sports culture among athletes in different sports.

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