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Testing the Level of Knowledge of Physical Fitness among the Employees of Hashemite University

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Abstract Physical fitness is one of the most important indicators of adults' health and low mortality. The mastery of cognitive physical fitness and the methods of its application may help in improving performance. The need to engage this concept in sporting activities for both genders becomes vital for the value and benefits that reap through it. This study aimed at identifying the cognitive level test of physical fitness for female employees of the Hashemite University. Using a descriptive design, 135 female employees were surveyed by a questionnaire which consisted of (39) items testing the cognitive level of the university's faculty and staff. Data were analyzed using SPSS version 21 (SPSS, Inc., Chicago, IL, USA). Arithmetic means and standard deviations were also applied to measure the cognitive level in physical fitness. Three-way ANOVA was used to analyze the effect of the independent variables (scientific qualification, experience, job title) on the knowledge outcome of female employees. The results revealed that there was no statistically significant effect of the independent variables on the cognitive results of female employees, because their true significance levels were (0.324, 0.76, 0.379) respectively. Hence, all of them were greater than the real significance level ($\alpha \leq 0.05$), which indicates a lack of significant differences in these variables. Accordingly**,** the researchers recommend establishing special ladies' facilities to increase sport activities, and conducting more special courses to develop the elements of fitness, including wider segment of female employees.

Keywords Knowledge, Physical Fitness, The Hashemite University

1. Introduction

Rapid and comprehensive change has become a feature of the contemporary civilization, in which, a driving force in its movement and dynamism at the same time is among these features. A man hardly adapts himself to one of the discoveries of science until he finds himself facing a cultural shock that needs another adaptation [1].

Because of this development, physical knowledge has become a bright and rich cultural and sophisticated face, that the contemporary man who is in dire need for health, fitness, and physical culture worthy of being familiar with [2]. It is also considered an engine and influencing the natural growth process of the human being and it is directly affecting the increase of productive capacities [3].

In the recent decades, the development of the concept of fitness and the need to engage in sporting activities for both genders and ages, necessitate its value and the benefits it reaps [3]. The cognitive outcome is one of the most important aspects of the mathematical field. The greater the mastery of this cognitive outcome and the methods of its application, the greater the ability to improve performance [4].

Physical activity is required to stay alive, including

physical fitness, which is one of the significant indicators of adult health and low mortality [5-6-7]. According to (Granacher, U. et al, 2011 & Antonio, G.et al, 2018), the combined exercises for balance and strength in the lower extremities of the body improve normal walking speed performance after 8 weeks in middle-aged workers. Higher levels of upper and lower body muscle strength are associated with the lower risk of death in the adult population, regardless of age and period of follow-up [8-9].

A research conducted to study the associations between measures of cardiorespiratory fitness (CRF) and cardiovascular interaction with stressors in adults revealed that, individuals with higher levels of cardiorespiratory fitness (CRF) rated lower values of a heart rate reaction as a physiological measure of acute stress [10]. After 24-week resistance training on cognitive performance in sedentary older adults, it was found that a significant improvement in maximum strength on short- and long-term memory and attention have occurred. [11].

Problem Statement

In late decades, there has been a great development in the concept of sports and the need to perform it for both genders, owing to its numerous benefits to health, nevertheless, the scientific and knowledge revolution in the field of health. Technological developments have led to the lack of movement and laziness in practicing physical activity, which in turn led to the spread of many diseases of the time. Despite the advanced sports facilities at the campus, the researchers have noticed that the female employees of the university have less drive and desire for practicing sports activities compared to their numbers and the facilities availability. Notwithstanding, the continuous encouragement from the university administration, the presence of the faculty of physical education and sports sciences on the university campus. From this standpoint, the problem of this study appeared in an attempt to identify the reasons for the lack of momentum in practicing sports activities by measuring the knowledge outcome of a sample of female employees at the university.

2. Literature Review

The study of (Obeidat & Alzebat, 2014) aimed at identifying the cognitive level test in physical fitness for employees of Irbid University. A questionnaire was designed and distributed to the study sample which consisted of (103) participants. The sample was chosen randomly from the study population. The results showed that, an average level of physical fitness among the employees of Irbid University occurred, and the existence of statistically significant differences at the level of significance ($0.05 \leq a$) on the variable (academic qualification) in the favor of the category (Bachelor). Also, there were no statistically significant differences at the significance level ($0.05 \leq a$) on the level of physical fitness according to other personality variables (number of years of experience, job title) [3].

Both (Baker & Ahmed, 2020) studied the knowledge outcome in the field of physical fitness among students of the college of sport-sciences at the University of Mu'tah, using the descriptive method for a study sample consisting of (189) of both genders randomly selected. The results of the study revealed that there were no differences between both sexes. But there were statistically significant differences for both the academic year and grade variables. It recommended that the physical fitness course shall be given the sufficient importance by the college administration, and fitness courses are to be a prerequisite and compulsory for all practical subjects [12].

The study of (Al-Sharif, 2019) identified the differences in the degree to which trainers working in fitness centers possess cognitive competence of health-related fitness in Jeddah, according to the variables (academic qualification, number of years of experience). The researcher used the descriptive method, and the cognitive test as a study tool. However, the size of the sample was (142) trainers randomly selected. The results presented that coaches have a cognitive competence above the middle in the field of sports training, in the field of physical fitness tests and in the field of nutrition. Plus, coaches have weak cognitive competence in the field of training physiology [13].

(Katharina, et al., 2019) studied the effect of cardiovascular and motor fitness on cognitive performance in subjects interested to prevention and early detection of Alzheimer's disease (AD). The test was applied to a sample of (338) participants. Their ages ranged between 50-85 years old. Participants were grouped into three groups (no cognitive impairment (NCI), mild cognitive impairment of the amnestic type (MCIa), and mild AD (mAD) through neuropsychological evaluation and third-party history, which is clinical, laboratory, or imaging investigations. Subjective memory impairment (SMI) and cognitive syncope (Cognitive blackouts) were recorded. Cardiorespiratory fitness (CRF) was assessed by a two-minute step test and motor fitness (MF) by a pregnancy test Chair for 30 seconds. Those suffering from low (Cardiorespiratory fitness CRF) and MF (motor fitness) performed poor in different cognitive domains, and had a higher score in cases of cognitive loss of consciousness, often SMI. The study concluded that decreased CRF and MF they are associated with impaired cognition [14].

The study of (Ho T-W et al., 2020) aimed at finding out the level of self-awareness among Taiwanese adults in physical fitness and exercise prescription. Collecting demographical data, anonymous cross-sectional survey was performed using research electronic data capture. The tests were; physical fitness cognitive investigation and

exercise prescription, the physical fitness cognitive test and exercise prescription, and the physical examination prompt fitness assessment. The questionnaire was answered by 200 respondents. The results showed a severe absence of awareness of health-related fitness, exercise prescription, and exercise progress planning. 98% of people do not know the latest recommended guidelines for physical activity, although most agree that fitness and exercise are good for health [15].

(Olaf Prieske et al., 2019) conducted a study that aimed at examining physical fitness and psychological cognitive functioning associated to youth and middle-aged workers in light of physical and mental work activities. The sample consisted of (73 men and 75 women). They were grouped into groups that involved mental (MD) or physical (PD) at work. Workers in MD showed better measures of fitness (balance, extensor muscle endurance of the trunk), performance perception, and lower levels of perceived stress compared with workers in PD [16].

Research questions

What is the cognitive level of physical fitness among female employees of the Hashemite University?

Does the knowledge level differ in the physical fitness of the Hashemite University employees?

Research Objectives: The study aimed at identifying the cognitive level test in physical fitness among female employees of the Hashemite University.

Limitations of the Research

- **The human field:** The Hashemite University.
- **The temporal domain**: 6/8/2020 - 1/9/2020.
- **Spatial domain:** The research sample is limited to female employees at the Hashemite University.

3. Research Methodology and Procedures

The used method: due to its suitability for the nature of this research, descriptive comprehensive survey approach was used.

Research population: The study population consists of 450 employees of the Hashemite University.

Research sample: The original research sample consisted of (130) female employees of the Hashemite University, chosen randomly from the research population. Table (1) shows the distribution of the sample members according to personal variables:

Table 1. Distribution of the sample members according to personal variables

Variables	Category	Repetition	percentage
Qualification	Secondary then less	8	**6.1**
	diploma	33	**25.3**
	Bachelor	36	**27.6**
	Postgraduate	53	**40.7**
	Total	**130**	**100.0**
Years of Experience	5 years or less	24	**18.4**
	6-10 years	45	**34.6**
	10 years and older	61	**46.9**
	Total	**130**	**100.0**
Job title	Administrative	78	**60.0**
	education institution	52	**40.0**
	Total	**130**	**100.0**

The validity of the research evidence: The court questionnaire was used by the study of (Farhat, 2001) as it was appropriate to the nature of the Jordanian environment [4].

Stability of the research tool: Using the method of testing and re-testing, the consistency of performing the test was found on an exploratory sample consisting of (30) female employees from the Hashemite University, and was re-applied to the same sample after an interval of two weeks. (Pearson Correlation) and (Cronbach Alpha) measurements were used and showed a high and acceptable values for the purposes of the study.

Research implementation procedures: In order to achieve the objectives of the research, the following procedures and steps were followed:

- A questionnaire which is commensurate with the characteristics and environment of the Jordanian society and the research the nature [3].
- The research population was determined, and then a representative sample of the research community was chosen randomly.
- For the purposes of data collection, the research tool was distributed to the sample members.
- The statistical analysis using SPSS version 22 of the social sciences package was used to analyse the data collected from the questionnaires, along with the following:
- Arithmetic mean and standard deviation.
- 3-Way ANOVA.
- Cronbach's alpha: is coefficient of internal consistency. It is usually used as an estimate of the reliability of a researcher’s test for a sample of study.
- Frequencies and percentages were extracted.

Research variables:

First: the independent variables

- **Academic qualification**: consisted of 4 categories (secondary or less, diploma, bachelors, and postgraduate).
- **The number of years of experience**: divided into 3 categories (5 years or less, 10 years, 10 years and more).

Job title: consisted of 2 categories (administrative and education institution).

Second: the dependent variable:

- The knowledge level in physical fitness of the Hashemite University employees.

4. Presentation and Discussion of Results

First: Results related to answering the first question:

The first question: What is the knowledge level in physical fitness of the Hashemite University employees?

To answer this question, arithmetic averages and standard deviations were calculated for the cognitive level items in physical fitness of the Hashemite University employees. Table (2) explains:

Table 2. Arithmetic means and standard deviations to measure the cognitive level in physical fitness of the Hashemite University employees

N	Paragraph	M	SD	lowest value	highest value
1	Physical fitness means the competence of an individual in meeting the demands of life	3.97	.956	1	5
2	Fitness aims at developing the elements of physical fitness	4.17	.706	2	5
3	Physical fitness is the ability to perform the chores of daily life without getting tired	4.13	.893	1	5
4	Physical fitness is keeping the body healthy and free from diseases	4.32	.661	2	5
5	Physical fitness increases a person's ability to perform wide range of movements in all joints	4.32	.705	2	5
6	Fitness increases muscle strength	4.28	.800	1	5
7	Physical fitness strengthens neuromuscular compatibility	4.27	.814	1	5
8	Physical fitness works on coordination in motor performance	4.39	.731	1	5
9	Fitness helps improving performance of the heart muscle	4.32	.809	1	5
10	Physical fitness increases the number of heartbeats	3.48	1.259	1	5
11	Physical fitness increases blood pressure	3.85	1.096	1	5
12	The environment affects fitness	4.23	.742	2	5
13	Warming up is necessary before sporting activity	4.24	.870	1	5
14	Fitness builds strength and endurance	3.25	1.387	1	5
15	Physical fitness means being overloaded	3.52	1.228	1	5
16	The body takes a long time to gain fitness	3.93	1.036	1	5
17	A person's physique develops with a drive to develop this fitness	3.89	1.150	1	5
18	Cultural and health awareness of the role of fitness are conditions to physical fitness	3.82	1.126	1	5
19	Physical diversity helps the body grow faster	3.98	.952	1	5
20	Physical fitness exercises help to strengthen the physical and vital aspects to create the motor characteristics essential for great achievement	4.25	.798	1	5
21	Fun and interesting exercises help my persistence in performing fitness exercises	4.15	.960	1	5
22	A trainer helps in cognitive development about the importance of fitness	4.07	1.065	1	5
23	Technical talents and physical abilities help in developing my knowledge and in increasing my self-confident	3.92	1.039	1	5
24	Facilitate awareness and knowledge develops my abilities when practicing fitness	3.75	1.195	1	5
25	Sport-culture is a driver for the growth of an individual's natural process; mental and emotional	3.90	1.033	1	5
26	Sport-culture is a spiritual and material value that helps individual developing it better	3.85	1.138	1	5
27	Fitness strength factors are essential for good looks and skill performance	3.99	.952	1	5
28	Muscular endurance helps athlete to perform movement and overcome fatigue for a long period of time	3.85	1.028	1	5

Table 2 continued

29	Sport-culture helps individual's ability to rapidly react between the emergence of a specific stimulus and the initiation of a motor response	4.17	.799	1	5
30	Fitness exercises increase the strength and activity of the heart muscle	3.36	1.318	1	5
31	Fitness may build wrong and unhealthy habits	3.85	1.178	1	5
32	It takes a while for a physique to have an effect on the body	4.13	.927	1	5
33	Fitness corrects the wrong postures and gives the individual a healthy appearance	3.92	1.104	1	5
34	Physical fitness develops leadership qualities	4.09	.960	1	5
35	Fitness increases the individual's productive efficiency, that affects the submitted physical and mental work effort	4.18	.830	2	5
36	Fitness improves the individual's ability to relax, judge and reduce muscle tension	4.02	1.007	1	5
37	Fitness increases the individual's ability to resist diseases, whether infectious or chronic	4.18	.840	2	5
38	Physical fitness enables the ability to perform movements of a large range without tearing ligaments and muscles	4.24	.766	2	5
39	Physical fitness maintains the shape and stability of the body without negative effects	4.28	.747	2	5
Domain as a whole		4.0128	.38187	3.05	4.72

Table 3. Arithmetic means and standard deviations of the tool as a whole according to the independent variables (academic qualification, number of years of experience, job title).

Variables	Level	number	lowest value	highest value	M	SD
Qualification	Secondary then less	8	3.05	4.59	3.7404	.48562
	diploma	33	3.08	4.72	3.9643	.43106
	Bachelor	36	3.10	4.62	4.0192	.39273
	Postgraduate	53	3.36	4.56	4.0798	.30714
Years of Experience	5 years or less	24	3.05	4.72	4.0373	.44141
	6-10 years	45	3.08	4.59	3.9020	.39520
	10 years and older	61	3.10	4.62	4.0803	.34028
Job title	Administrative	78	3.05	4.72	3.9609	.42223
	education institution	52	3.36	4.56	4.0907	.29896

Table 4. Results of triple covariance analysis of the effect of independent variables on the questionnaire as a whole

Source	Sum of squares	Degree of freedom	Average of squares	Value (F)	SIG level	SIG
Qualification	.484	3	.161	1.171	.324	NO
Experience	.968	3	.323	2.344	.076	NO
Job title	.107	1	.107	.781	.379	NO
error	16.797	122	.138			
Total	2112.166	130				

Table (2) shows that the arithmetic averages ranged between (4.39-3.25), the highest paragraph (8), which states, “Physical fitness works on coordination in motor performance,” and in the last place is paragraph (14) which states, "Fitness builds strength and endurance". Where, the arithmetic average for the field as a whole is (4.0128), which indicates that the level of knowledge outcome among the employees of the Hashemite University came to a high level.

Results related to the answer to the second question: Does the cognitive level of physical fitness among female employees of the Hashemite University differ according to the independent variables (academic qualification, experience, administrative title)?

To answer this question, the arithmetic averages and standard deviations of the tool as a whole were calculated in light of the independent variables (academic qualification, number of years of experience, job title), and then the triple variance analysis (3-Way ANOVA) was applied to measure the effect of the independent variables on the questionnaire as a whole. tables (3, 4) illustrate.

From the above table 3, it is clear that there was a strong variation in the arithmetic means of the levels of

the independent variables, which indicates the existence of differences between these levels of the tool as a whole. To reveal whether these differences are statistically significant, triple analysis of variance was used. Table (4) illustrates that.

The table 4 shows that there were no statistically significant in the effect of the independent variables (scientific qualification, experience, job title) on the knowledge outcome of female employees, as their significance levels are (0.324, 0.76, 0.379) respectively, and all of them are greater than the significance level ($\alpha \leq 0.05$). This indicates that there were no significant differences among these variables.

Discussing the first question: What is the cognitive level of physical fitness among the female employees of the Hashemite University?

The results of the first question showed that the paragraph that states, "Physical fitness works on coordination in motor performance" has gained the highest arithmetic averages, while the paragraph that states " Fitness builds strength and endurance" has occupied the last rank. The researcher attributes this result to the fact that most people have a great belief that the exercise of sports has a great impact on the human body and motor performance, which avoids the occurrence of deformities in general. Where both (Zeyad, 2017), (Zeyad, 2014) study [17-18], (Leonard, 2010), (Hazzaa, 2000) [19-20], indicate that physical fitness is one of the basic components of an individual's health, as it enables individual to perform the daily life activities and functions to the max, owing to its direct consequence on health, personality and body. The study of (Al- Jafar, 2015), (Zeyad, 2014), (Murray et al., 2014), (Bret, et.2014) [21, 18, 22, 23], confirmed that improving physical fitness has a positive effect on maintaining a healthy human body free from disease and posture deformities, correcting part of wrong physical and movement behavioral habits, giving the individual a healthy and consistent figure, increasing the effectiveness of the immune system to resist diseases. These results contrast with the study of (Te-Wei Ho et al., 2020) [15], which revealed that there is a lack of awareness of health-related fitness, exercise prescription, and exercise planning progress, although most agree that physical, fitness and exercise are good for health.

Discussion of the second question: Does the customary level of physical fitness among the Hashemite University employees differ according to the independent variables (academic qualification, experience, administrative title)?

The results showed that the variables of the study (academic qualification, experience, administrative title) had no effect on the knowledge level of the Hashemite University employees. The reason for this finding is due to the presence of the faculty of physical education and sports sciences on the campus of the Hashemite University, which holds free courses for male and female employees. Which in turn was the reason for the high level of knowledge of the study sample. This study is in agreement with the study by (Ameera, 2017) [24], which indicates a high level of motivation to exercise physical fitness among women in fitness centers in the governorates of the northern West Bank. While both the study of (Lobne 2009), (Saaʿa and Diabat, 2014) [3, 26], indicate that there was no statistical significance in the variables (number of years of experience, job title), with an average level of knowledge achievement among the employees of Irbid National University. In contrast to the study of (Laet, 2014) [25], which revealed a weakness of cognitive competence in sporting modernity among the employees (teachers) of sports education in the city of Mosul.

5. Conclusions

1. The level of the knowledge outcome of the physical fitness among the female employees of the Hashemite University was significantly high.
2. The independent variables (academic qualification, experience, scientific qualification) did not show any effect on the level of knowledge outcome of the Hashemite University employees.

Recommendations

1. Conducting more special courses to develop physical fitness components to include the largest number of female employees.
2. Holding sports competitions between female employees to increase enthusiasm.
3. Establishing special facilities for women to increase the number of sports activity practices.

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