ORIGINAL ARTICLE

# The scientific knowledge among participants in swimming lifeguard courses


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## ABSTRACT

The purpose was to measure the scientific knowledge outcome of the participants in the swimming lifeguard courses, as well as to identify the differences in the knowledge outcome between the lifeguards according to the variables (age, gender, scientific qualification). The study sample consisted of the participants in swimming lifeguard courses, which numbered (30) lifeguard. Method: The researcher used the descriptive approach used cognitive tests for lifeguards to measure the cognitive outcome of them, the cognitive test consisted of (25) questions included the following dimensions :(tasks and duties of the lifeguard, causes and manifestations of drowning, organization, and management of the rescue process, first aid. Results: the cognitive outcome of lifeguard's courses is at a weak level and for all areas of study, the results also indicated that there are statistically significant differences for the cognitive outcome among the lifeguards, in favour of females, also, it was found that there were no statistically significant differences of the knowledge outcome among the lifeguards. Conclusion: The researcher recommends focusing on the theoretical aspect in the lifeguard courses held by the Youth Leadership Development Centre.



**Keywords**: Physical education, Swimming, Lifeguards, Rescue, Knowledge outcome.

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## INTRODUCTION

Practicing of various sports is one of the areas that must be known to its practitioners with a sufficient amount of diverse knowledge related to their field of sports for excellence and creativity, as the players have this knowledge through the experiences they are exposed to and friction with various sources of knowledge, which is thus reflected on their performance and personality and gain confidence in themselves and distinguish them from others in the same field.

Hatamleh (2002) stated that mathematical knowledge may help the individual to quickly learn various motor skills as well as increase the ability to face situations that the player is exposed to during the practice of a particular activity, and it also increases his ability to answer the various questions that stand in his way during work so that he can through the stock of information available to him to face the problems he faces in a positive way.

The profession of water rescue is one of the important and basic jobs in the field of swimming, as the spread of swimming pools in clubs, schools and youth centres has led to an increase in the need for qualifying lifeguards to maintain the safety and lives of practitioners of swimming in the water flats (Abaza et al., 2020).

The rescue courses held by the Youth Leadership Development Centre are specialized and distinctive courses whose members who successfully pass the skill and knowledge tests are granted a rescue license that qualifies them to work as lifeguards in swimming pools and water flats to preserve the lives of swimming practitioners.

Orabi et al. (2008) believe that water rescue is the interaction between the situation in which the distress of water begins to be seen or heard to respond in speeding up dealing with this situation in a proper manner that results in ridding the distressed or drowned person of danger that may lead to the loss of his life. The Youth Leadership Development Centre (2002) defined a lifeguard as a licensed person charged with maintaining the safety of people in swimming places or campuses that fall under its responsibility.

Al-Nammouri (2007) mentioned the need to raise the level of workers in the field of water rescue skilfully and physically to maintain the safety and lives of the pioneers of water flats through specialized courses to improve the cognitive, physical and skill qualities and all the necessary requirements for the water rescue profession to prepare a generation of lifeguards with an appropriate knowledge to carry out the tasks and responsibilities entrusted to them.

This is confirmed by Schwebel, et al, (2007), where he pointed out that the training of lifeguards and the advancement of their level of knowledge is the basic guarantee to maintain the safety and lives of water flats goers, so it must include training in various cognitive areas, whether physical, psychological, skill or other.

The profession of water rescue is one of the very important job in societies in general, especially those in which there are many swimming pools and water flats and many individuals frequent these places to practice swimming activity within the conditions of public safety that preserve their lives during swimming, so it was necessary for people who work in the water rescue profession to enjoy a great deal of physical and skill capabilities to do their duty to the fullest.

Abaza et al. (2020) have reported that there is a clear weakness in the cognitive field of water rescue workers in areas related to rescue careers.

 

The researcher believes that the water rescuer can reach advanced levels and high achievement if he learns, trains, discovers, practices, and master's everything necessary during the performance of work, whether in the physical, skilful, legal, and cognitive aspect, so that he has a large amount of information and knowledge related to swimming activity in water flats.

Due to the importance of sports knowledge for all workers in the field of water rescue in order to reach a high level of mastery and safety for swimming practitioners so that they feel that they are practicing their favourite sport free of danger and injuries that occur during the competition, and through the work of the researcher as a trainer in water rescue courses, the idea of this research came through which the researcher hopes to measure the knowledge of the participants in the water rescue courses and to identify the extent of weakness and shortcomings in any aspect to be addressed to reach the rescuers to prestigious levels of scientific knowledge in the field of rescue and reduce as much as possible the errors that occur during the practice of swimming activity in swimming pools.

***Objectives of the study***

- to identify the knowledge outcomes of the participants in the water rescue courses according to the following dimensions: (tasks and duties of the lifeguard, causes and manifestations of drowning, organization and management of the rescue operation, first aid).
- to Identify the differences between the lifeguards according to the following variables (age, gender, educational qualification).

***The study questions***

- What is the knowledge of the participants in the rescue courses according to the study dimensions.
- What is the difference in the knowledge outcomes between the lifeguards.

Abaza and others (2020) conducted a study aimed at developing scientific foundations for lifeguard preparation and training programs. The researchers used the descriptive survey approach on a sample of (25) water rescuers, the results indicated the need to develop lifeguard preparation programs to raise their physical and skill level.

Khairat (2019) conducted a study aimed at using the generative model on the cognitive outcome in some skills related to water rescue in swimming. The sample consisted of (20) students of the swimming course at the Faculty of Physical Education for Girls at Zagazig University, the results indicated that the experimental group has a large scientific knowledge in the field of water rescue compared to the control group.

Abdul Ghani (2014) also conducted a study aimed at designing a profile that includes aspects (skill, physical and morphological) for workers in the field of water rescue. The researcher used the descriptive approach in the survey method on the study sample consisting of (220) lifeguards, the results indicated the need to raise the skill and physical level of the rescuers.

Hatamleh and Mahyar (2006) conducted a study aimed at measuring the cognitive outcome of the Jordanian team swimmers for various categories. The study sampled (40) swimmers. The researchers used the questionnaire as a study tool to collect data, the results of the study indicated that swimmers have more knowledge of general laws than precise laws.

## METHODS

The researcher used the descriptive approach in the style of survey studies for its suitability to the nature of the study.

### *Study group*

(30) lifeguards from the water rescue courses of the Youth Leadership Development Centre in Jordan.

Table 1. Distribution of the study.

| Variable | Level | Number | Ratio |
|---|---|---|---|
| Qualification | Bachelor | 21 | 70% |
| | Diploma | 6 | 20 % |
| | High school and below | 3 | 3 % |
| Age | 18-23 | 2 | 6.7 % |
| | 24-29 | 23 | 76 % |
| | 30 over | 5 | 16.7 % |
| Gender | Male | 21 | 70 % |
| | female | 9 | 30 % |
| **Total** | | **30** | **100 %** |

Independent variables: (educational qualification, age, gender). Dependent variable: (level of cognitive outcome of lifeguards).

### *Data collection tools*

The researcher adopted the cognitive test for rescuers prepared by (Orabi et al., 2008), which consisted of two sections: the first section included the information and personal data of the rescuers in terms of: (academic qualification, age, gender). The second section included (25) questions measuring the scientific knowledge of lifeguards. The sincerity of (6) experts in the field of swimming and rescue arbitrators approved the cognitive test of the lifeguards.

The researcher relied on the interpretation of the results obtained on the percentages to estimate the opinions and responses of the study sample according to the opinion of the arbitrators in addition to the method adopted in some studies such as the Alwazeer (2000), which are as follows:

- From 80% and above to be high.
- From 70% to 79% is good.
- From 60% to 69% are above average.
- From 50% to 59% is average.
- From 49% and below you are weak.

Table 2. The test stability coefficient calculated by internal consistency method using the Cronbach alpha equation for each axis, and the overall test stability.

| No | Variable | Paragraph nº | Cronbach alpha equation |
|---|---|---|---|
| 1 | Tasks and duties of the lifeguards | 5 | 0.689 |
| 2 | Organization and management of the rescue operation | 6 | 0.747 |
| 3 | First aid | 6 | 0.809 |
| 4 | Causes and manifestations of drowning | 8 | 0.730 |
| **Knowledge outcome as a whole** | | **25** | **0.862** |

As indicated in the previous table, the overall test stability coefficient was (0.862). which is acceptable value indicating the stability of the study tool.

 

## RESULTS

The results related to the first question: *"What is the knowledge of the participants in the rescue courses according to the study "?*

Table 3. Arithmetic averages, standard deviations, and percentages of study dimensions in descending order.

| No | Dimension candidates | Dimension order | Arithmetic mean | Standard deviation | Percentage of successful | Evaluation level |
|---|---|---|---|---|---|---|
| 1 | Tasks and duties of the lifeguard | 1 | 0.433 | 0.33 | 43.3 % | Weak |
| 3 | Organization and management of the rescue operation | 2 | 0.422 | 0.31 | 42.2 % | Weak |
| 4 | First aid | 3 | 0.379 | 0.32 | 37.9 % | Weak |
| 2 | Causes and manifestations of drowning | 4 | 0.367 | 0.27 | 36.7 % | Weak |
| **Total** | | | **0.397** | **0.22** | **39.7 %** | **Weak** |

It is clear from Table 3 that the total average of the cognitive outcome of the participants in the rescue courses was (0.397) with a standard deviation (0.22) and a weak level, and the percentage of successful in the questions on the test was (39.7%). The tasks and duties of the lifeguard, it ranked first, and in second place organizing and managing the rescue operation, then first aid, and finally came the causes and manifestations of drowning. and a weak level for all.

### *Regarding individual dimensions*

To present the results in detail, as in Tables (4-7):

*The first dimension: tasks and duties of the lifeguard*

Table 4. Arithmetic averages, standard deviations, and percentage of correct answers to the dimension (tasks and duties of the lifeguard).

| Rank | Question Number | Question | Arithmetic Mean | Standard Deviation | Percentage of Successful Candidates | Assessment Level |
|---|---|---|---|---|---|---|
| 1 | 1 | Check the percentage of chemicals daily in the pool | 0.467 | 0.51 | 46.7 % | Weak |
| 2 | 4 | If the drowned person dies, the law prosecutes the lifeguard more severely if | 0.467 | 0.51 | 46.7 % | Weak |
| 3 | 5 | Before starting the first aid procedure the lifeguard must | 0.467 | 0.51 | 46.7 % | Weak |
| 4 | 3 | The lifeguard must decide after | 0.400 | 0.50 | 0.40 % | Weak |
| 5 | 2 | One of the duties of a lifeguard | 0.367 | 0.49 | 36.7 % | Weak |
| **Total** | | | **0.433** | **0.33** | **43.3 %** | **Weak** |

It is clear from Table 4 that the total arithmetic mean of the dimension of the tasks and duties of the lifeguard is (0.433) with a standard deviation (0.33), and that the number of correct answers amounted to (43.3%) of the total number with weak level.

*The second dimension: causes and manifestations of drowning*

It is clear from Table 5 that the total arithmetic mean of the dimension of the causes and manifestations of drowning is (0.367) with a standard deviation (0.27), and that the number of correct answers amounted to (36.7%) of the total number.

Table 5. Arithmetic averages, standard deviations, and the percentage of correct answers to the dimension (causes and manifestations of drowning).

| Rank | Question Number | Question | Arithmetic Mean | Standard Deviation | Percentage of Successful Candidates | Assessment Level |
|---|---|---|---|---|---|---|
| 1 | 2 | The movement of the arms of a stressed swimmer | 0.500 | 0.51 | 50.0 % | Acceptable |
| 2 | 6 | When the drowned person begins to swallow water, he | 0.400 | 0.50 | 40.0 % | Weak |
| 3 | 4 | One of the reasons that lead to the drowning of swimmers | 0.367 | 0.49 | 36.7 % | Weak |
| 4 | 5 | When you have muscle cramps while swimming | 0.367 | 0.49 | 36.7 % | Weak |
| 5 | 3 | The position of the body of the irritated drowned person | 0.300 | 0.47 | 30.0 % | Weak |
| 6 | 1 | From the behaviours of the irritable drowned | 0.267 | 0.45 | 26.7 % | Weak |
| **Total** | | | **0.367** | **0.27** | **36.7 %** | **Weak** |

Regarding paragraph (2), the researcher believes that any abnormal movement carried out by the swimmer with the arms should not be overlooked by the lifeguard, as it may be a distress signal or a request for help, so the lifeguard must follow it to ensure that it is a natural movement and for this reason the lifeguard's responses to this paragraph were relatively correct.

*The third dimension: organizing and managing the rescue operation*

Table 6. Arithmetic averages, standard deviations, and percentage of correct answers for the dimension (organizing and managing the rescue operation).

| Rank | Question Number | Question | Arithmetic Mean | Standard Deviation | Percentage of Successful Candidates | Assessment Level |
|---|---|---|---|---|---|---|
| 1 | 3 | Means of preventing drowning | 0.533 | 0.51 | 53.3 % | Acceptable |
| 2 | 4 | You can help the drowned from outside the pool by | 0.467 | 0.51 | 46.7 % | Weak |
| 3 | 5 | The importance of rescue lies in | 0.467 | 0.51 | 46.7 % | Weak |
| 4 | 1 | The right place to throw the rope or lifeline for the drowned. | 0.400 | 0.50 | 40.0 % | Weak |
| 5 | 6 | Which of the following statements is true? | 0.367 | 0.49 | 36.7 % | Weak |
| 6 | 2 | One of the security and safety factors that must be considered in the swimming pool | 0.300 | 0.47 | 30.0 % | Weak |
| **Total** | | | **0.422** | **0.31** | **42.2 %** | **Weak** |

It is clear from Table 6 that the total arithmetic means of the dimension of organizing and managing the rescue operation is (0.422) with a standard deviation (0.31), and that the number of correct answers amounted to (42.2%) of the total number.

 

*Fourth dimension: first aid*

Table 7. Arithmetic averages, standard deviations, and correct answer ratio for the dimension (first aid).

| Rank | Question Number | Question | Arithmetic Mean | Standard Deviation | Percentage of Successful Candidates | Assessment Level |
|---|---|---|---|---|---|---|
| 1 | 1 | When calling an ambulance, you must give information related to. | 0.500 | 0.51 | 50 % | Acceptable |
| 2 | 8 | If yellow water comes out with blood from the ear of the drowned, this means | 0.500 | 0.51 | 50 % | Acceptable |
| 3 | 2 | The first work on the lifeguard to do after taking out the drowned | 0.400 | 0.50 | 40 % | Acceptable |
| 4 | 6 | The method of cardiopulmonary resuscitation of a drowned person while lying down is called a | 0.400 | 0.50 | 40 % | Acceptable |
| 5 | 4 | Procedures to remove obstructions from the airway if the drowned person is conscious | 0.367 | 0.49 | 36.7 % | Weak |
| 6 | 5 | The nose is closed during artificial respiration to | 0.367 | 0.49 | 36.7 % | Weak |
| 7 | 3 | the first stage for the injured swimmer from | 0.267 | 0.45 | 26.7 % | Weak |
| 8 | 7 | What is meant by the term (C.P.R) | 0.233 | 0.43 | 23.3 % | Weak |
| **Total** | | | **0.379** | **0.32** | **37.9 %** | **Weak** |

It is clear from Table 7 that the total arithmetic mean of the first aid dimension is (0.379) with a standard deviation of (0.32), and that the number of correct answers amounted to (37.9%) of the total number.

The results related to the second question**:** *"Is there a statistically significant difference between the lifeguards according to the study variables?"*

Table 8. Arithmetic averages and standard deviations of cognitive outcome among lifeguards.

| Variable | Level | Number | Average | Deviation |
|---|---|---|---|---|
| Gender | Male | 21 | 0.32 | 0.17 |
| | Female | 9 | 0.59 | 0.24 |
| Qualification | Secondary | 3 | 0.12 | 0.04 |
| | Diploma | 6 | 0.27 | 0.16 |
| | Bachelor | 21 | 0.47 | 0.21 |
| Age | 18 - 23 | 2 | 0.14 | 0.03 |
| | 24 - 29 | 23 | 0.41 | 0.22 |
| | Over 30 | 5 | 0.46 | 0.25 |
| **Total** | | **30** | **0.40** | **0.22** |

It is noted from Table 8 that there are apparent differences between the arithmetic averages of the cognitive outcome among the lifeguards according to the study variables, and to verify the significance of the apparent differences, a triple variance analysis performed for their responses, as in Table 9.

Table 9. Results of three-way ANOVA analysis of cognitive outcome among lifeguards according to study variables.

| Source of variance | Sum of squares | Degrees of freedom | Mean of squares | Value of F | Level of significance |
|---|---|---|---|---|---|
| Gender | 0.336 | 1 | 0.34 | 12.0 | .002* |
| Qualification | 0.111 | 2 | 0.06 | 2.0 | .159 |
| Age | 0.003 | 2 | 0.00 | 0.05 | .953 |
| Error | 0.672 | 24 | 0.03 | | |
| Total | 1.456 | 29 | | | |

*Note. * Statistically significant at the level (α = .05).*

The results of Table 9 indicate that there are statistically significant differences at the level of (α = .05) in the arithmetic averages of the cognitive outcome among the rescuers as a whole according to gender, based on the calculated (F) value of (12.0), and at the level of significance (.002), and in favour of females, also there were no statistically significant differences at the level of (α = .05) in the arithmetic averages of the cognitive outcome between the lifeguards as a whole according to the two study variables based on the calculated (F) values of (2.0, 0.05) respectively, and with a significance level of (.159, .953) respectively.

To find out whether there were differences or not in the dimensions of the scale regarding the study variables, the arithmetic averages and standard deviations calculated according to those variables, as shown in Table 10.

Table 10. Arithmetic averages of cognitive outcome among lifeguards according to study variables.

| Variable | Level | Statistical | V 1 | V 2 | V 3 | V 4 |
|---|---|---|---|---|---|---|
| Gender | Male | No | 21 | 21 | 21 | 21 |
| | | Average | 0.33 | 0.29 | 0.29 | 0.34 |
| | | Stander deviation | 0.29 | 0.22 | 0.23 | 0.30 |
| | Female | No | 9 | 9 | 9 | 9 |
| | | Average | 0.67 | 0.45 | 0.72 | 0.47 |
| | | Stander deviation | 0.30 | 0.32 | 0.29 | 0.34 |
| Qualification | Secondary | No | 3 | 3 | 3 | 3 |
| | | Average | 0.07 | 0.22 | 0.22 | 0.00 |
| | | Stander deviation | 0.12 | 0.10 | 0.10 | 0.00 |
| | Diploma | No | 6 | 6 | 6 | 6 |
| | | Average | 0.27 | 0.19 | 0.36 | 0.27 |
| | | Stander deviation | 0.39 | 0.16 | 0.27 | 0.26 |
| | Bachelor | No | 21 | 21 | 21 | 21 |
| | | Average | 0.53 | 0.44 | 0.47 | 0.46 |
| | | Stander deviation | 0.28 | 0.29 | 0.34 | 0.31 |
| Age | 18-23 | No | 2 | 2 | 2 | 2 |
| | | Average | 0.10 | 0.25 | 0.25 | 0.00 |
| | | Stander deviation | 0.14 | 0.12 | 0.12 | 0.00 |
| | 24-29 | No | 23 | 23 | 23 | 23 |
| | | Average | 0.43 | 0.39 | 0.43 | 0.38 |
| | | Stander deviation | 0.32 | 0.30 | 0.32 | 0.30 |
| | Over 30 | No | 5 | 5 | 5 | 5 |
| | | Average | 0.56 | 0.30 | 0.43 | 0.53 |
| | | Stander deviation | 0.36 | 0.14 | 0.35 | 0.35 |
| Total | | No | 30 | 30 | 30 | 30 |
| | | Average | 0.43 | 0.37 | 0.42 | 0.38 |
| | | Stander deviation | 0.33 | 0.27 | 0.31 | 0.32 |

*Note. V 1 (Tasks and duties of the rescuer), V2: (Causes and manifestations of drowning), V3: (Organization and management of the rescue operation), V4: (First aid).*

 

The results of Table 10 indicate that there are apparent differences between the arithmetic averages of the dimensions of the cognitive outcome of the participants in the rescue courses according to the following dimensions (tasks and duties of the lifeguard, causes and manifestations of drowning, organization and management of the rescue operation, first aid) according to the study variables (gender, educational qualification and age), and to verify the significance of the apparent differences, a multiple variance analysis (MANOVA) was performed for their responses, as in Table 11.

Table 11. Results of Multiple Variance Analysis (MANOVA) for the cognitive outcome among lifeguards according to the study variables.

| Source of variance | Dimensions | Sum of squares | Degrees of freedom | Mean of squares | Value of F | Level of significance |
|---|---|---|---|---|---|---|
| Gender | V 1 | 0.47 | 1 | 0.47 | 6.10 | .02* |
| | V 2 | 0.24 | 1 | 0.24 | 3.88 | .06 |
| | V 3 | 1.17 | 1 | 1.17 | 18.55 | .00* |
| | V 4 | 0.04 | 1 | 0.04 | 0.48 | .50 |
| Qualification | V 1 | 0.22 | 2 | 0.11 | 1.45 | .26 |
| | V 2 | 0.14 | 2 | 0.07 | 1.11 | .35 |
| | V 3 | 0.04 | 2 | 0.02 | 0.34 | .71 |
| | V 4 | 0.23 | 2 | 0.11 | 1.27 | .30 |
| Age | V 1 | 0.02 | 2 | 0.01 | 0.12 | .89 |
| | V 2 | 0.07 | 2 | 0.04 | 0.57 | .57 |
| | V 3 | 0.03 | 2 | 0.02 | 0.27 | .77 |
| | V 4 | 0.05 | 2 | 0.03 | 0.29 | .75 |
| Error | V 1 | 1.83 | 24 | 0.08 | | |
| | V 2 | 1.50 | 24 | 0.06 | | |
| | V 3 | 1.51 | 24 | 0.06 | | |
| | V 4 | 2.13 | 24 | 0.09 | | |
| Total | V 1 | 3.13 | 29 | | | |
| | V 2 | 2.13 | 29 | | | |
| | V 3 | 2.87 | 29 | | | |
| | V 4 | 2.89 | 29 | | | |

*Note. V 1 (Tasks and duties of the rescuer), V2: (Causes and manifestations of drowning), V3: (Organization and management of the rescue operation), V4: (First aid). * Statistically significant at the level (α = .05).*

The results of Table 11 indicate the following:

- Regarding (gender variable), there were statistically significant differences in the two dimensions (tasks and duties of the lifeguard, organizing and management of the rescue operation), while there were no statistically significant differences in the two dimensions (causes and manifestations of drowning, first aid).
- Regarding the variable (academic qualification), there were no statistically significant differences in all dimensions (tasks and duties of the lifeguard, causes and manifestations of drowning, organizing and management of the rescue operation, first aid).
- Regarding the age variable, there were no statistically significant differences in all dimensions (tasks and duties of the lifeguard, causes and manifestations of drowning, organizing and management of the rescue operation, first aid).

## DISCUSSION

The researcher believes that workers in the field of water rescue must enjoy a large scientific knowledge outcome in various fields related to the variables of the study in order to perform their duties better, either the

results of the current study has violated the expectations of the researcher and their scientific knowledge was at a weak level, and the results of the current study agreed with the study of both (Abdul Ghani, 2014) and the study (Abaza and others, 2020) in terms of the need to develop lifeguard preparation programs and include various aspects of knowledge related to the water rescue profession. From the point of view of the researcher, this result indicates a clear weakness in the cognitive aspect of the participants in the lifeguards courses, and perhaps the reason is that the focus in these courses is on the practical side more than the theoretical thinking of those in charge of implementing these courses that the lifeguard needs practical skills during the duties entrusted to him more than knowledge of theoretical information.

The results of the current study agreed with the study of Abaza (2020) and the study of Abdul Ghani (2014), where both studies indicated the need to develop programs to prepare lifeguards to raise their level in the field of rescue.

The researcher believes that paragraph (1) Table 3 related to the examination of the proportion of chemicals on a daily basis in the pool is one of the axioms for the lifeguard as he must examine the proportion of chemicals on a daily basis in the pool to ensure their suitability for the proper specifications, which ensure that swimmers enjoy swimming without fear of exposure to the transmission of infection or germs to them during swimming, as well as paragraph (4) knowledge the lifeguard penalties imposed by law if it is proven that the cause of death was negligence of the hem is one of the things that concern the lifeguard and must Know.

As for paragraph (2) Table 4, it does not concern the lifeguard much, as obtaining the job as soon as possible to work as a lifeguard and obtaining a monthly income makes him sign the employment contract without reading the duties or tasks required of him carefully.

As for paragraph (2) Table 5, which is related to the behaviours of the irritated drowned, it may have obtained the lowest arithmetic average due to the lifeguard's inability to distinguish between drowning cases and its different stages, whether the stage of the exhausted or irritated drowning.

The researcher believes that paragraphs (3), (4), (1) Table 6 got the highest percentage of correct answers because he believes that these procedures are the basic and followed when a case of drowning in the pool is suspected and all lifeguards should do them in terms of the means carried out by the lifeguard to prevent drowning or in dealing with drowned from outside the water and ending with the lifeguard's knowledge of the importance of preserving the lives of swimmers.

The researcher believes that one of the most important proper procedures carried out by the lifeguard when a drowning case occurs is to contact the ambulance and give sufficient information about the situation to be dealt with very accurately when the paramedics arrive at the place, and this reflects the lifeguard's knowledge of the procedures followed in such a case and therefore the percentage of correct answers to this paragraph was acceptable.

The researcher believes that there are statistically significant differences in favour of females may be due to the fact that females have more free time than males spent in studying and acquiring new information and knowledge related to the rescue profession, while males, due to social conditions and their presence outside the home with friends, relatives or acquaintances in general, do not resort to study or reading and acquire new knowledge related to the rescue profession.

 

While the scientific qualification and age, there are no statistical differences between the lifeguards, perhaps according to the researcher's belief that the reason is that the curriculum of the rescue courses is directed to all participants in the course, regardless of the scientific qualification or age, the curriculum is the same for all, so the knowledge and information provided during the rescue courses are one and common to all lifeguards.

## CONCLUSIONS

The level of cognitive outcome of lifeguards in general was low.

- Regarding the gender variable:
  - There are statistically significant differences between lifeguards in the field of (tasks and duties of the lifeguards, organizing and management of the rescue process) and in favour of females.
  - There are no statistical differences between lifeguards in the fields of (causes and manifestations of drowning, first aid).
- Regarding the variable of academic qualifications, there are no statistically significant differences between lifeguards in the knowledge outcome**.**

The researcher recommends taking advantage of the results of the current study and adopting them in the Youth Leadership Preparation Centre so that the theoretical aspect is focused on the preparation and rehabilitation courses for lifeguards in the future, and conducting more studies and research related to the field of water rescue because of the importance of this field in maintaining the safety and souls of swimmers.

## AUTHOR CONTRIBUTIONS

All co-authors have contributed to the published work equally and agree to its publication in JHSE.

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