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## **Relationship between socio-demographic characteristics and the employees' knowledge about occupational hazards in Al Nasiriya Heart Center, Iraq: 2021-2022**

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**Abstract**---Background: Occupational hazards are defined as workplace issues that have likely to raise the hazard of our health, which can be categorized as biological and non-biological. Health care providers are challenged with a variety these hazards including physical, chemical, and psychological ones. Material and method: a cross-sectional study was conducted among participants in Al Nasiriya Heart center done by face-to-face interviews to find out the relation between socio-demographic characteristics and occupational hazards. A total sample 300 employee were included in the study. Result: The study found a significant relationship between age group, Radiological and psychological risks of occupational hazards (p.value of 0.004 and 0.030). In regards to the relationship between educational level and risk factors of occupational hazard. The study also found a significant relationship between the level of education and biological risk of occupational hazards (P.value 0.0010) with non-significant relation between occupational hazard and gender. Conclusions: Occupational hazards have emerged as a major concern among health-care providers in Al Nasiriya Heart Center, as they are exposed to a wide range of risks, including biological, chemical, physical, and psychosocial risks.

**Keywords**---Occupational hazards, Al Nasiriya Heart center, socio-demographic.

## Introduction

Occupational hazards are defined as workplace issues that have likely to raise the hazard of our health, and they can be categorized as biological and non-biological. Health professionals are at risk for physical, chemical, and psychological hazards. For example, moving the immobilized patients exposes workers to back pain and injury including infections due to sharp injuries, harmful exposures to radiation and dangerous drugs, injuries, physical violence, and mental stress. Moreover, in the cases where health care providers suffers from shortage of resources (including human and the necessary equipment), with an increasing number of patients, an additional psychological hazards are added especially those accompanied with stress and depression [1].

Health care facilities worldwide employ over 59 million workers, as stated by the World Health Organization (WHO) [2]. The WHO classified health professionals into a wide range of categories, primarily as medical practitioners (general and specialty), dentists, nursing and midwifery professionals, pharmacists, and other allied health professionals [2]. Nevertheless, it is usually expected for the health care providers to neglect their occupational hazards as their primary obligation is to provide the service to those in need even in difficult situations. Therefore, it is also expected that the priority of these health care institutes is to provide the service with a patient satisfaction rather than safety of the provider. The work environment, occupational health, and safety of the healthcare professionals, who provide service to patients, are mostly overlooked [3, 4]

As such, reducing the exposure to occupational hazards at the work environment can be achieved by a variety of educational and training programs targeting the different professions in health care institutes. In addition to other programs that include pre-placement examinations, safety awareness, health maintenance, investigation of accidents' stress management, health promotion, employee assistance, and rehabilitation programs [5] Nasiriyah heart center / Iraq which is the largest tertiary referring center for heart diseases and catheterization in Thi-Qar province. It was established in 10<sup>th</sup> June, 2007 with 1280 employees specialized in Cardiology, Congenital Heart Diseases, Arrhythmias and other cardiac sub-specialties.

**Study aim & objective:** The objective of this study is to analyze the relationship between socio-demographic characteristics and occupational hazards in Al Nasiriya Heart Center

## Material and Method

The study is a cross-sectional that was performed between 1<sup>st</sup> October 2021 to 20<sup>th</sup> May 2022 in Al Nassoriya Heart Centre (NCH) / Thi-Qar Health Directorate. A total of 300 employees were included from Nasiriyah heart center / Iraq which through face-to-face interviews from different professions (physician, pharmacists, medical laboratory workers, nursing staff, administrators, and service workers). A questionnaire was constructed to describe the occupational risk exposure to the employees, which included the following sections:

- Sociodemographic characteristic such as (age, gender, marital status, and education level) it was not included as all employees are within the same working environment.
- General occupational background information such as (work specialty, years of experience, unit of working, and working shift)
- Employee's knowledge about occupational hazards which include physical, chemical, biological, radiological, and psychological hazards.

Data were collected during the period from 1<sup>st</sup> November, 2021 to 1<sup>st</sup> May, 2022.

## Results and Discussion

Table one includes the socio demographic characteristics the present of the study. The mean $\pm$ SD of employee's age was found to be **30  $\pm$  7.456**. This result may be due their direct job enrollment compared to the previous years in Iraq and their enrollment in the directly job more than before because of the covid 19 pandemic and the increasing demand of these specialties. Such result is close to a study done by Ashokkumar, *et al* in Sudia Arabia in which the mean Age (mean  $\pm$  SD) was found to be 38.2  $\pm$  8.8. [6]

In regards to employee's gender of Al Nasiriya Heart Center, 53% of the employees were found to be female with 55% of them as married. (44.3%) of them were found to be holding a bachelor's degree and only (7.3%) of them having a postgraduate degree such as (M. Sc, PHD) as shown in Table one.

For the distribution of the study population according to profession, 42.3 % of the employees were found nurses with only 3% as biomedical engineers. This result agrees with a study done by Gosasye Teklehaymanot Zewde in Ethiopia, in which they found that 60% of study respondents were nurses [7] it also agrees with the finding of a study of Hailemariam Geziel et al in Ethiopia, who found that nursing staff are the largest group (52.4%) of the employees. [8]. This might be interpreted by the fact that needs of nursing staff in tertiary centers in addition to the increasing number of private and government colleges that graduate large number of nurses.

Table 1: Socio-demographic characteristics of the study group

|                        | Mean $\pm$ SD                      | Median (Min.- Max.) |
|------------------------|------------------------------------|---------------------|
| <b>Age</b>             | <b>30.04<math>\pm</math> 7.456</b> | <b>27 (21 – 63)</b> |
|                        | <b>Frequency</b>                   | <b>Percent</b>      |
| <b>Gender</b>          |                                    |                     |
| Male                   | 158                                | 52.7                |
| Female                 | 142                                | 47.3                |
| <b>Marital status</b>  |                                    |                     |
| Single                 | 127                                | 42.3                |
| Married                | 165                                | 55.0                |
| Divorce                | 8                                  | 2.7                 |
| <b>Education level</b> |                                    |                     |
| Preparator             | 22                                 | 7.3                 |

|                          |     |      |
|--------------------------|-----|------|
| Diploma                  | 123 | 41.0 |
| B.Sc.                    | 133 | 44.3 |
| Post graduated           | 22  | 7.3  |
| <b>Profession</b>        |     |      |
| Physician and pharmacist | 39  | 13.0 |
| Nurse                    | 127 | 42.3 |
| medical Technology       | 72  | 24.0 |
| College of science       | 21  | 7.0  |
| Biomedical Engineers     | 9   | 3.0  |
| Administrative and other | 32  | 10.7 |

Table (2) shows the relationship between the employees' knowledge about risks of occupational hazards and age group. The study found a significant relationship between age group with the employees' knowledge about Radiological and psychological risks of occupational with a p.value of (0.004,0.030) while non-significant relation was found between physical, chemical and biological risks of occupational hazard p.value (0.324, 0.844, 0.905). This result is consistent with study done by Dhahir, D. M., & Al Mayahi, N. Y. in kute -Iraq was revealed that there was no significant relationship between age group and And the employees' knowledge on occupational hazard P.value of 0.246 [9]. This result is also similar to another study that was carried out by Ahmed (2019) who found a non-significant association among age with general knowledge on professional health and safety about occupational health hazard [10]. The explanation of this significant relation between the knowledge about psychological hazard and age groups may be due to the difference in years of experience and the knowledge about the nature of work from the specialists.

Table 2 The relationship between age group and the employee's knowledge about occupational risk factors

| N | Employees' knowledge about the occupational hazards |      | Age group |        |        |        |
|---|-----------------------------------------------------|------|-----------|--------|--------|--------|
|   |                                                     |      | 20-29     | 30-39  | 40->49 | Total  |
| 1 | Physical risk factor                                | Mean | 3.4498    | 3.5373 | 3.4225 | 3.4681 |
|   |                                                     | SD   | .48968    | .44564 | .47189 | .47662 |
|   |                                                     | Sig  | .324      |        |        |        |
| 2 | Chemical risk factors                               | Mean | 3.2054    | 3.2404 | 3.2516 | 3.2209 |
|   |                                                     | SD   | .59593    | .53458 | .56663 | .57528 |
|   |                                                     | Sig  | .844      |        |        |        |
| 3 | Biological risk factors                             | Mean | 2.7569    | 2.7471 | 2.7940 | 2.7597 |
|   |                                                     | SD   | .54590    | .58441 | .61449 | .56420 |
|   |                                                     | Sig  | .905      |        |        |        |
| 4 | Radiological risk factors                           | Mean | 2.7871    | 2.8619 | 3.1163 | 2.8532 |
|   |                                                     | SD   | .59220    | .57697 | .56261 | .59305 |
|   |                                                     | Sig  | .004      |        |        |        |
| 5 | Psychological risk factors                          | Mean | 3.6269    | 3.5253 | 3.3309 | 3.5588 |
|   |                                                     | SD   | .64987    | .69035 | .68895 | .67158 |
|   |                                                     | Sig  | .030      |        |        |        |

Regarding the relationships between gender and the employees' knowledge on the occupational hazards, the current study found that there was a significant relation between psychological risk of occupational hazard and gender a p value of 0.002. While a non-significant relation was found with the other occupational hazards (Physical, Chemical, Biological, radiological) with a P.value of (0.149, 0.598, 0.676, 0.072) as shows in (Table 3).

This study agrees with what Dhahir and Al Mayahi found in their study that was done in Al Kute -Iraq and revealed a non-significant relationship between gender and knowledge occupational hazard with a P.value of: 0.001 [11]

Table 3 The relationship between gender and employees' knowledge on the occupational hazards

| N | Type of Occupational Risk  | Gender     |        |              |        | sig   |
|---|----------------------------|------------|--------|--------------|--------|-------|
|   |                            | Male (158) |        | Female (142) |        |       |
|   |                            | Mean       | SD     | Mean         | SD     |       |
| 1 | Physical risk factor       | 3.4304     | .45145 | 3.5100       | .50142 | 0.149 |
| 2 | chemical risk factors      | 3.2043     | .54252 | 3.2394       | .61108 | 0.598 |
| 3 | biological risk factors    | 2.7468     | .60159 | 2.7741       | .52120 | 0.676 |
| 4 | radiological risk factors  | 2.9117     | .58792 | 2.7882       | .59402 | 0.072 |
| 5 | psychological risk factors | 3.4460     | .69156 | 3.6843       | .62752 | 0.002 |

For the relationship between marital status and risks of occupational hazard, the study revealed that there is a statistical significance between marital status with the employees' knowledge on all of the risk of occupational hazard including physical, chemical, biological, radiological, and psychological risk with a P.value of (0.52, 0.88 ,0.206 ,0.145, 0.171) as shows in Table (4). This result is inconsistent with the findings of another study carried by Afshar MK in which they found no statistical significance relationship between marital status & the employees' knowledge on occupational hazards. [12] In addition, the current study findings also congruent with study that conducted by Sabita and others (2018) who reported that no association among marital status with level of knowledge on occupational health hazards at p-value 0.45 [13]

Table 4 The relationship between marital status and employees' knowledge on the occupational hazards

| N | Type of Occupational Risk  | Marital status |        |         |        |         |        | sig   |
|---|----------------------------|----------------|--------|---------|--------|---------|--------|-------|
|   |                            | Single         |        | Married |        | Divorce |        |       |
|   |                            | Mean           | SD     | Mean    | SD     | Mean    | SD     |       |
| 1 | Physical risk factor       | 3.4573         | .49411 | 3.4672  | .45826 | 3.6563  | .58831 | 0.52  |
| 2 | Chemical risk factors      | 3.2377         | .61059 | 3.2061  | .55870 | 3.2614  | .31655 | 0.88  |
| 3 | Biological risk factors    | 2.7582         | .54577 | 2.7441  | .58098 | 3.1071  | .42857 | 0.206 |
| 4 | Radiological risk factors  | 2.7753         | .61390 | 2.9080  | .56925 | 2.9615  | .67312 | 0.145 |
| 5 | Psychological risk factors | 3.6439         | .65507 | 3.4956  | .67632 | 3.5588  | .67158 | 0.171 |

Furthermore, in regards to the relationship between educational level and the employees' knowledge on the risk factors of occupational hazards, the study found a statistical significance between level of education and their knowledge on the biological risks of occupational hazard (P.value 0.00109). While it was found to be non-significant with other risks including physical (P.value 0.705), chemical (P.value 0.851), radiological (P.value 0.314), and psychological risk (P.value 0.065) as shows in Table 5. Similar to these results was found by Obono in Najera in 2016 to assess the knowledge, perception and attitude of occupational hazard among healthcare workers in National Orthopedic Hospital [14]

Table 5: The relationship between educational level and employees' knowledge on the occupational hazards

| N | Type Of Occupational Risk  | Educational level |        |         |        |           |        |                |        | Sig   |
|---|----------------------------|-------------------|--------|---------|--------|-----------|--------|----------------|--------|-------|
|   |                            | Preparator        |        | Diploma |        | Bachelors |        | Post graduated |        |       |
|   |                            | Mean              | SD     | Mean    | SD     | Mean      | SD     | Mean           | SD     |       |
| 1 | Physical risk factor       | 3.3598            | .42986 | 3.4831  | .45506 | 3.4655    | .52365 | 3.5076         | .32824 | 0.705 |
| 2 | Chemical risk factors      | 3.2397            | .61629 | 3.2535  | .60842 | 3.1921    | .56890 | 3.2209         | .57528 | 0.851 |
| 3 | Biological risk factors    | 2.3766            | .55730 | 2.8664  | .53145 | 2.7127    | .58059 | 2.8312         | .47151 | 0.001 |
| 4 | Radiological risk factors  | 2.9301            | .34557 | 2.9178  | .56307 | 2.7877    | .63891 | 2.8112         | .64870 | 0.314 |
| 5 | Psychological risk factors | 3.4161            | .69074 | 3.5916  | .63685 | 3.6062    | .69928 | 3.2308         | .60008 | 0.065 |

## Conclusions

Health care providers in AL Nasiriya Heart Center are faced with a variety of occupational risks including biological, chemical, physical, and psychosocial risks. To reduce the risks, interventions should be instated. Training and increasing employees' knowledge on the possible risks of health hazards and safety precautions are recommended for mitigating these risks.

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