

# Occupational Hazards among Nurses at Primary Health Care Centers in Al-Amara City/ Iraq

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## ABSTRACT

**Background:** Occupational health hazard is any fabric, forms, exercises or circumstances that can result in mischances or maladies at the work environment. Wellbeing issues among medical caretakers in essential wellbeing care centers can emerge due to contact with physical, natural, ergonomic, mental, chemicals and body liquids, mischances and nonattendance of individual defensive hardware.

**Objectives:** To assess the occupational hazards among nurses at primary health care centers, and to identify the association between nurses' socio-demographic data and occupational hazard.

**Material and methods:** descriptive design, which is using the assessment approach. The study period was from 27th June to 20th September 2021. The investigators were conducted in five centers of primary health care centers. A non-probability sample selection of (80 nurses). The research use developed questionnaire in data collection, by implies of organized meet procedure within nurses that they work in the primary health care centers. The data collection process has been performed from 26th July 2021 to the 3th August, 2021. The final study instrument consisting of two parts (1) sociodemographic data, (2) consists of five axes: ergonomic, physical, chemical, biological, and psychological hazard. The researcher use (SPSS program version 24.0) to data analysis, Descriptive Data Analysis: Mean of score (MS), Frequencies (F), Percentages (%); Inferential Data Analysis, the correlation of the association tables were by ANOVA test.

**Results:** The current study conducted in all domains related to occupational hazards among nurses were low level mean of score, except (ergonomics hazards) was illustrated moderate level of evaluation; and there is a highly significant between nurses' socio-demographics data and occupational hazard.

**Conclusions:** The present study concluded that the overall assessment of occupational hazard among nurses was within the low level.

**Recommendations:** The study recommended that necessary to do contentious health educational courses to increase health awareness among nurses who work in primary health care centers to prevent occupational health hazard especially new nurses.

**Keywords:** Occupational hazards, Nurses, Primary health care centers

## INTRODUCTION

Occupational hazards are characterized as working environment issues that have likely to raise the danger of our health, which can be categorized as non-biological and biological<sup>1</sup>. It's any situation of a work can deliver a negative impact on health workers, either over time or immediately. Many sero-conversions illness taking after needle stick injuries happen between nurses. The issue is anticipated to be more destroying in developing nations<sup>2</sup>.

Injuries by needles or sharp objects considered the most important work risks. It is a dangerous phenomenon where statistics estimate that there are three million health care workers exposed to blood carrying an infection source every year. About (62% - 88%) of injuries are preventable<sup>3</sup>.

Nursing may be an extraordinarily unsafe occupation, nurses and health care giver are on the cutting edge of various word related hazard and are most helpless to occupational health hazard within the work place. In the nursing field, the type of risks experienced are varied. A few have existed since the birth of the nursing industry, but due acknowledgment has as it were been accorded them as of recently. Other risks are new, mostly as a result of the fast progression within the health care field in recent times<sup>4</sup>. Nurses given patient health care in workplace that are considered to be one of the most risky settings<sup>5,6</sup>.

Injection, cleaning, caring, bed making, wounds dressing, drug administration, and performing operations, are major areas in which nurses perform risky tasks. During performing these procedures, nurses

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are exposed to many types of risks<sup>1</sup>. Nurses are potentially faced to many suspected reproductive risks, which include gases of anesthesia, (chemotherapy drugs), antiviral, sterilizing substance (disinfectants), and radiation<sup>7</sup>.

Primary health care centers (PHC) are institutions that given health care services, which include clinical, counseling, surgical, and/or psychiatric consultations and medication services for the healthy, unhealthy and the injured patients. The health care centers above 59 million health care provider offer different services to patients and clients<sup>8</sup>.

Most studies focus on occupational hazards in the hospitals, mainly in teaching hospitals, while in PHC is still few, not covering the nurses in this institute, who need prevention against this risks<sup>9</sup>. Despite the many hazards in their risky work environment, healthcare workplace continue to be neglected by governments, management and regulators<sup>10</sup>.

In spite of potential for faced to occupational risks, many health care personnel lack awareness about protection against health hazard. Also the system is not conducive, policies of prevention and protection not appear, inaccessible, or there is attitude problem. Health care managers need to ensure that caring is geared towards describe of risks suffered by nurses, there reasons, and do anything's possible for protection and prevention<sup>11</sup>.

## MATERIAL AND METHODS

A descriptive quantitative design, which is using the assessment tool. The period of the study was from 27th June 2021 to 20th September 2021. The research was conducted in five PHC (1) Dijla, (2) Al-aroba, (3) Al-Quds (4) Shaheed AL-Watan, and (5) Al-hadi, primary health care centers. A random sample selection of (80) nurses in the primary health care centers. The research use developed questionnaire in data collection, by implies of organized meet procedure within nurses that they work in the primary health care centers. The data collection process has been performed from 26th July, 2021 to the 3th August, 2021. The final study instrument consisting of two parts (1) sociodemographic data, (2) consists of five axes: ergonomic, physical, chemical, biological, and psychological hazards. The researcher use (SPSS program version 24.0) to data analysis, Descriptive Data Analysis: Mean of score (MS), Frequencies (F), Percentages (%); Inferential Data Analysis, the correlation of the association tables were by ANOVA test.

## RESULTS

(Table 1) confirm the approximately third of study sample concerning groups of age were within (30-39 years) it presented 26 (32.5%), also more half of study sample 49 (61.3%) were male. Addition, residence showed that majority of the nurses were live in an urban as their percentage reached 76 (95 %). With regard to marital status, it appears that majority of the sample were married 74 (92.5%). Relative

**Table 1:** Nurses' socio-demographic data

No.	Variable	Categories (n=80 nurses)	F	%
1.	Age (year)	21-29	12	15.0
		30-39	26	32.5
		40-49	22	27.5
		50-59	20	25.0
2.	Gender	Male	49	61.3
		Female	31	38.7
3.	Residence	Urban	76	95.0
		Rural	4	5.0
4.	Marital Status	Single	6	7.5
		Married	74	92.5
5.	Level of Education	Nursing School Graduate	4	5.0
		Secondary Nursing Graduate	16	20.0
		Institute Graduate	60	75.0
		2-5 years	7	8.8
6.	Years of Experience	6-10 years	12	15.0
		11-15 years	11	13.8
		16-20 years	11	13.8
		21-25 years	14	17.5
		26-30 years	10	12.5
		31-35 years	15	18.8
		Rehydration Oral	3	3.8
7.	Work Place	X-Rays	4	5.0
		Immunization	23	28.8
		Child & Maternal Care	7	8.8
		Health Control	6	7.5
		School Health	6	7.5
		Dressing	16	20.0
		Early Detection	4	5.0
		Protection	4	5.0
		Health Promotion	7	8.8

n= Sample size; % = Percentages, F= Frequencies

**Table 2:** Nurses' socio-demographic data

Items	Always		Sometimes		Never		M.S.	S.D.	Eva.
	F	%	F	%	F	%			
<b>A. Ergonomics Hazards</b>									
1. Slipping or falling during working	2	2.5	25	31.3	53	66.3	<b>1.36</b>	0.534	L
2. Legs varicose veins as a result of prolonged standing	7	8.8	32	40.0	41	51.3	<b>1.57</b>	0.652	L
3. Back pain	17	21.3	47	58.8	16	20.0	<b>2.01</b>	0.646	M
4. Pones, joints pain	12	15.0	45	56.3	23	28.8	<b>1.86</b>	0.651	M
5. Allergy in the hands caused by wearing gloves	12	15.0	29	36.3	39	48.8	<b>1.66</b>	0.728	L
<b>B. Physical Hazards</b>									
1. Radiation for example, X-ray	3	3.8	16	20.0	61	76.3	<b>1.28</b>	0.527	L
2. Noises or high voice affect my health during work	10	12.5	24	30.0	46	57.5	<b>1.55</b>	0.710	L
3. Electric shock caused by unqualified tools	1	1.3	7	8.8	72	90.0	<b>1.11</b>	0.356	L
<b>C. Chemical Hazards</b>									
1. Poisoning as a result of dealing with chemical solutions and sterilizers	4	5.0	13	16.3	63	78.8	<b>1.26</b>	0.545	L
2. Skin diseases as a result of the use chemicals solutions and sterilizers	4	5.0	17	21.3	59	73.8	<b>1.31</b>	0.565	L
3. Irritation in the eyes, nose, and pharynx as a result of exposure to cleaning solutions and disinfectants	2	2.5	39	48.8	39	48.8	<b>1.54</b>	0.550	L
4. Burns resulting from contact with sterilization equipment and acids during work	2	2.5	16	20.0	62	77.5	<b>1.25</b>	0.490	L
<b>D. Biological Hazards</b>									
1. Infected with communicable diseases or infections through direct contact with patients	10	12.5	44	55.0	26	32.5	<b>1.80</b>	0.644	M
2. Food poisoning	1	1.3	9	11.3	70	87.5	<b>1.14</b>	0.381	L
3. Infected resulting from use of tools such as needle stick injury and blade injury	4	5.0	35	43.8	41	51.3	<b>1.54</b>	0.594	L
<b>E. Psychological Hazards</b>									
1. Psychological reactions as a result of stress and work pressures	6	7.5	41	51.3	33	41.3	<b>1.66</b>	0.615	L
2. Personal problems with the health staff members	-	--	33	41.3	47	58.8	<b>1.41</b>	0.495	L
3. Personal problems with the patients or their relatives	2	2.5	44	55.0	34	42.5	<b>1.60</b>	0.542	L

No. = number of item , F=frequencies , % = Percentages, M.S.= mean of score. Eva.= Evaluation; Evaluation levels : (1.00-1.66) = Low; (1.67-2.33) = Moderate; (2.34-3.00) = High.

**Table 3:** Nurses' socio-demographic data

Main Domains Related to Health Status	No.	Never		Sometimes		Always		M.S.	Std. Dev.	Eva.
		F	%	F	%	F	%			
Ergonomics Hazards	400	172	43.0	178	44.5	50	12.5	<b>1.70</b>	0.681	M
Physical Hazards	240	179	74.6	47	19.6	14	5.8	<b>1.31</b>	0.577	L
Chemical Hazards	230	159	69.1	61	26.5	10	4.3	<b>1.35</b>	0.563	L
Biological Hazards	240	137	57.1	88	36.7	15	6.3	<b>1.49</b>	0.614	L
Psychological Hazards	240	114	47.5	118	49.2	8	3.3	<b>1.56</b>	0.561	L

No. = number of variable , F=frequencies , % = Percentages, M.S.= mean of score, Std. Dev.= standard deviation, Eva.= Evaluation; Evaluation levels : (1.00-1.66) = Low; (1.67-2.33) = Moderate; (2.34-3.00) = High.

to educational level, the findings show the majority of the participants were institute graduate 60 (75.0 %). In addition, years of experience of study sample more them have experience above 15 years, they were most class 15 (18.8%) within (31-35) years old. The results of this table regarding work place of nurse's show that the more of participants were doing in immunization it presented 23 (28.8%).

(Table 2) reveals that low level of evaluation for (MS) in all items of the occupational hazards among nurses at the study sample, except items (3. Back pain and 4. Pones, joints pain) related to ergonomics hazards, and item (1. Infected with communicable diseases or infections through direct contact with patients) related to biological hazards showed that moderate level of evaluation.

Results of the (Table 3) reveals that low level of mean score in all domains related to occupational hazards among nurses, except domain (ergonomics hazards) was illustrated moderate level of evaluation.

**Table 4:** Overall evaluation of nurses' levels for occupational hazards

Levels of Evaluation	Frequency	Percent
Low (1.00 - 1.66)	61	76.3%
Moderate (1.67 - 2.33)	19	23.7%
High (2.34 - 3.00)	0	0.0%
Total	80	100.0%
$\bar{x} \pm \text{Std.Dev}$	1.50 ± 0.231	
Arithmetic Mean ( $\bar{x}$ ) and Std. Dev.= Standard. Deviation		

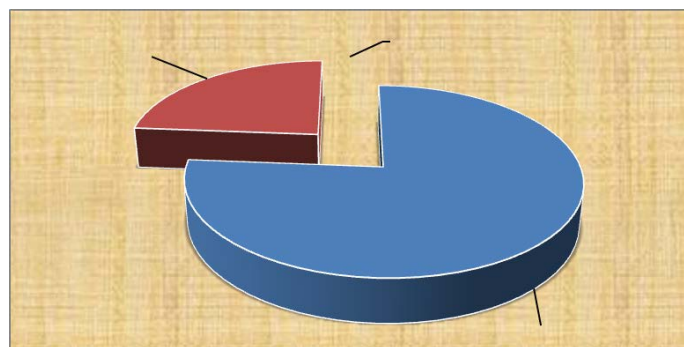
(Table 4) confirm that about two third of study sample within low level of evaluation regarding the occupational hazards among nurses at the study sample n=80; 61 (76.3%), with mean and standard deviation (1.50 ± 0.231).

**Table 5:** Association between nurses' occupational hazards with their socio-demographic characteristics

Variables	X <sup>2</sup> <sub>obs.</sub>	df	P- value	Sig.
Age	63.029	6	0.000	HS
Gender	13.802	2	0.001	HS
Residence	6.126	2	0.047	S
Marital Status	6.403	2	0.041	S
Level of Education	17.712	4	0.001	HS
Years of Experience	61.749	12	0.000	HS
Work Place	37.835	18	0.004	HS

$\chi^2_{crit}$  = chi-square critical,  $\chi^2_{obs.}$  = chi-square observed, df= degree of freedom, p = probability value, P < 0.05= significant, P < 0.01=High significant.

(Table 5) show that there is a high significant relationship between nurses' socio-demographic data and occupational hazards when (P < 0.01), while variables (residence and marital status), confirm that there is a significant association at (P < 0.05).



**Figure 1:** Pie chart illustrate levels of nurses' occupational hazards

This figure show that the three quarter of study participants a low level of evaluation regarding the occupational risks at study sample.

## DISCUSSION

The socio-demographic data of study sample shewed that the highest percentage of nurses between the age (30-39) years in ratio 26 (32.5%) and lower the proportion of nurses are between the age (21-29 years) in ratio 12 (15 %) this confirms that the nursing staff is youth (Table 1). Regarding to the gender shows that the percentage of male nurses more than female in ratio (49 (61.3%) male, 31 (38.7 %) female, which confirms the shortcomings in the preparation of female nurses staff in the primary health care centers. Relative to the residence the majority of participants were in urban 76 (95%), while 4 (5%) in rural. With regard to marital status, it appears that majority of the sample were married 74 (92.5%). As well as the level of education show Institute Graduate highest rate make up 60 (75 %). Also, the study findings shows that the highest percentage of those who are confined to their experience (31-35) years, (21-25) years that make up 15 (18.8%), 14 (17.5) respectively. While the less years of experience (2-5) years 7 (8.8 %). Finally, the results of this table regarding work place of nurse's show that the more of participants were doing in immunization it presented 23 (28.8%). These finding go along with study that conducted by<sup>12</sup>, who found that most of participant were male, married. While disagree with study that conducted by<sup>10</sup>, they found about more than three quarter of study participants were female [81%]. The current study comes along with<sup>2</sup>,

which conducted that more than half of participants (60.7%) were diploma. And agree with<sup>6</sup>, which about (93%) were married of study participants, while disagree (93.3%) were female nurses. In regard the age group and marital status the study results is comes along with<sup>8</sup>, that show (30-39 years), married and disagree in gender were female more than male and years of experience (1-5 years).

The study confirms in regarding to main domains related to occupational hazards that are low level of (MS) in physical, chemical, biological, and psychological, (1.31), (1.35), (1.49), (1.56), respectively related to occupational hazards among nurses, except (ergonomics hazards) was illustrated moderate level of evaluation at mean of score (1.70). This study agree with the<sup>4,6</sup>, that conducted it confirm that the majority study participants exposed to ergonomic risks, like back pain, joints pain, accidental falls at workplace, hearing problems and headache (Table 2,3).

Regarding to the overall evaluation of nurses' exposure for occupational hazards the current study confirm that about three quarter of study sample have a low level of evaluation regarding the occupational hazards among nurses at the study sample n=80; 61(76.3%), with mean and standard deviation (1.50 ± 0.231). Primary health care centers are less health hazard than public, educational or specialized hospitals because there is no emergency, operational department, intensive care units. Also centers for radiation or chemicals substance. The primary health care center provides clients with some simple medicines and some simple analyzes as well as minor surgeries. It also provides health care for the elderly and those who suffer from chronic diseases, and care for pregnant women, children and minor health problems (Table 4).

(Table 5) show there is a highly significant association between nurses' socio-demographic data and occupational hazards when (P < 0.01), while variables (residence and marital status), are a significant relationship at (P < 0.05). The variables of age, gender, educational level, years of experience and workplace have a significant and direct effect on exposure to occupational hazards, whenever the nurses' age, years of experience high, the exposure to occupational hazards was low and vice versa. Also, regarding to the workplace, for example, nurses who work in radiation department are more likely to occupational health hazard exposure, and nurses who work in immunization are more likely to be infected with a needle stick injuries, as well as the educational level, whenever higher level of education, the exposure to occupational health hazard was low. These findings go along with<sup>2</sup>, which conducted that found to have significant relationship with workplace.

## CONCLUSION

1. The present study concluded that the overall assessment of occupational hazard among nurses was within the low level.
2. The current study found that there is a highly significant between nurses' socio-demographics characteristics and occupational hazard.

## RECOMMENDATION

The study recommended that necessary to do contentious health educational courses to increase health awareness among nurses who work in primary health care centers to prevent occupational health hazard especially new nurses.

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**Competing Interest:** None

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