



Original Article

Attitude of Nurses Working in Kirkuk City Hospitals: Occupational Health and Safety Factors Hazards

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Abstract

Background: Occupational safety is an important topic for health staff, especially nursing, as they are the most category and because of their work in many departments in the hospital and also because they are in direct contact with the patient leads to their exposure to multiple occupational hazards, which affects the health of the nursing staff and thus negatively affects the quality of care provided to the patient.

Objective: To assess the level of knowledge of nurses and their attitudes about occupational health hazards working in Kirkuk hospitals.

Methods: A cross-sectional study descriptive conducted during the period from 1 January, 2025, to 30 March , 2025.350 samples were collected randomly from nurses working in hospitals in the city of Kirkuk. The samples were collected through the interview using New administered questionnaire.

Results: The results showed that the most participants in the study were females (56.6%) and the most respondents were within the age group 20-30 (82.9%), as for academic achievement, the results showed that a high percentage of participants have a bachelor's degree (59.7%) and most of them work in the respiratory care unit (29.4%) .The tables also showed that the most nurses participated in occupational health and safety courses (67.1%) .Nurses' knowledge and attitudes towards occupational health and safety were among the high levels (67.16%),(71.89%), respectively.

Conclusion : The results showed that there is no statistically significant relationship between nurses' knowledge and socio-demographic variables, as well as no statistically significant relationship between nurses' attitudes and socio-demographic variables, except for age groups less than 30 years old, which showed a significant relationship at $P < 0.05$.

Keywords: Occupational health Hazards, Attitudes of Nurses.

Introduction:

Protecting people from potential hazards that may occur while working, like accidents, illnesses, and even death, has been a concern since ancient times. These barriers have persisted over the ages and across civilizations, leading to laws that aim to situate labor within a framework of standards that permit employees to carry out their duties in a safe manner (1). Using promotion, prevention, and surveillance as a point of reference, occupational health is defined as a field of interdisciplinary practices and strategic knowledge focused on analyzing and intervening in work relationships that cause illnesses and injuries (2). One of the most important concerns in healthcare settings is occupational health and safety (OHS). Because it influences the quality of health services by ensuring a safe and healthy environment and preventing hazards, it should be considered in every workplace (3). Approximately 140 million of the 3.5 billion people who work worldwide are employed in the health and social sector, which includes doctors, nurses, and other health professionals from a variety of fields (4). The importance of nurses in the healthcare system is well known. In the majority of healthcare settings, they are primarily in charge of a sizable amount of patient care and are an essential component of clinical services (5). Because they work in a high-risk environment, nurses are exposed to a variety of occupational health risks that negatively impact their physical and mental well-being as well as their productivity and effectiveness at work. In addition, nurses may be exposed to radiation, toxic substances, infectious diseases, and back injuries. Additionally, they face risks like stress, working shifts, and workplace violence. Generally speaking, these are classified as chemical, biological, physical, social, and psychosocial hazards (6). According to a study, nurses and other healthcare professionals most frequently experience mechanical hazards, such as back pain or injuries from manually lifting heavy patients. Because nurses routinely lift, turn, move, and adjust patients' beds by hand, this is a major risk for them (7). It has been demonstrated that a high

workload combined with poor body mechanics among ICU nurses results in a high incidence of spinal injuries, which cause discomfort and pain. In order to provide care, the nurses at these critical care units bend over more often, which causes them to suffer from severe back pain (8). Other potentially dangerous sources for nurses are chemical materials. Other workplace risks for nurses include exposure to latex, dangerous medications like those used in chemotherapy, and disinfectants and sterility products like ethylene oxide and glutaraldehyde (9). To lessen exposure to occupational hazards, a number of protective safety precautions must be implemented. Providing safer needle-stick devices and needle disposal containers, as well as designing spaces with high-efficiency ventilation, are examples of engineering control strategies that aim to alter or remove the exposure source. In addition, safety precautions include vaccinations, hand washing, proper hygiene, using lifting aids, workplace surveillance, and wearing gloves, masks, gowns, and eye protection (10).

Methodology:

A quantitative descriptive cross-sectional study conducted from 1 January, 2025, to 30 March, 2025. The study was conducted in the hospitals of the city of Kirkuk (Azadi Teaching Hospital, Kirkuk Teaching Hospital, Maternity and Children's Hospital). The study sample consists of 350 randomly selected nurses. The data was collected during the face-to-face interview with nurses working in different departments using New administered questionnaire. The consent of the nurses to participate in the study was obtained by the researcher and it was explained to the participants that the participation is voluntary where he can withdraw and not participate. The questionnaire was presented to a (11) experts to make it more valid, where they were asked to review the questionnaire to see if they agree or disagree with the contents of the tool and identify the problems that may face the study "Knowledge and Attitudes of Nurses Towards Occupational Health in Kirkuk City Hospitals", the results showed that the experts approved all the items of the questionnaire

with some modifications. The time required for each interview ranges from 10-20 minutes. The study tool consists of a questionnaire consisting of three sections, part one (Socio-demographic characteristics) The purpose of this part is to measure the socio-demographic characteristics of nurses. It includes (gender, age, educational level, hospital name, working Department, number of households, house Owner, have you participated in occupational health and safety training). Part two (Knowledge of Nurses Toward Occupational health), It includes a set of items to assess the level of nurses knowledge about occupational health, Part Three (Attitude regarding Occupational health) includes questions about nursing attitudes regarding occupational health and consists of twenty questions .

Result:

Table (1) shows that Whole of the studied nurse's SDCv. has a restricted distribution, since highly significant differences are accounted between observed frequencies, and an expected frequencies outcomes under random distribution assumption in at least at $P < 0.05$, and according to that, it could be says that regarding of this study, distribution of the studied nurse's SDCv. are restricted towards their increasing numbers of females, and accounted 198(56.6%), most of them were at the ages falling within the first age groups, with mean and standard deviation 26.35 yrs., and 4.57 yrs. respectively, and accounted 290(82.9%), as well as age of childbearing is estimating at the

average 30.08 yrs. with standard deviation 5.79 yrs., and of them having high numbers at the bachelor graduation level, since they are accounted 209(59.7%), and the majority of them were working at "Respiratory Care Unit", and they are accounted 103(29.4%), and of them (19.7%) were working at the "Surgery" department, 59(16.9%) of them were worked at "Emergency" department, 40(11.4%) of them were worked at the "Cardiac Care" department, 39(11.1%) of them were worked at the "Neonatal Care" department, 30(8.6%) of them were worked at the "Internal Affairs" department, and finally 10(2.9%) of them were worked at the "Maternity" department. Table (2) shows that About two third of the studied sample had at a moderate level, and they are accounted 210(60.0%), of them 98(28.0%) had a high level assessed, while 42(12.0%) of them had assigned at the low level. In addition to that, a highly significant different was accounted at $P < 0.01$ among the observed frequencies distribution compared with their an expected outcomes under the assumption of random distribution.

Table (3) shows that "Attitudes regarding occupational health Items are assigned at a high level, where the responses ratio reached to more than half of studied items 16(80.0%), while 4(20.0%) of studied items were at a moderate assessed level

Table (1): Distribution of studied sample according to (SDCv.) Observed Frequencies, Percents and comparison's significant (N=350)

SDCv.	Classes	No.	%
Gender	Male	152	43.4
	Female	198	56.6
	Total	350	100
Age Groups Yrs.	20 -	290	82.9
	30 -	52	14.9
	40 -50	8	2.3
	Total	350	100
	Nursing preparatory school	119	34

Educational levels	Diploma Degree	19	5.4
	Bachelor Degree	209	59.7
	Postgraduate certificate	3	0.9
	Total	350	100
Departments	Emergency	59	16.9
	Maternity	10	2.9
	Neonatal Care	39	11.1
	Surgery	69	19.7
	Respiratory Care Unit	103	29.4
	Cardiac care	40	11.4
	Internal Affairs	30	8.6
	Total	350	100

Table (2): Distribution of the studied sample according to (SES) with comparisons significant

SES	Classes	No.	%
Socio-Economic Status	Low (Up to 59)	42	12.0
	Moderate (60 _ 79)	210	60.0
	High (80 _ 100)	98	28.0

Table (3) : Summary Statistics of Attitudes regarding of Occupational Health main domain's items (N=350)

Attitudes regarding Occupational Health	Resp.	No.	%	MS	SD	RS% Ass.
occupational hazard should taken seriously and given prompt attention in the hospital.	Disagree	6	1.7	0.91	0.28	91.4 H
	Neutral	24	6.9			
	Agree	320	91.4			
prevention of occupational hazard is a joint responsibility of the hospital management and the staff.	Disagree	13	3.7	0.80	0.40	80.3 H
	Neutral	56	16			
	Agree	281	80.3			
Paying extra attention to occupational hazard is unnecessary burden on me.	Disagree	105	30.0	0.363	0.48	36.3 M
	Neutral	118	33.7			
	Agree	127	36.3			
training of staff and provision of personal protective equipment is necessary to reduce the risk of exposure to occupational hazard.	Disagree	10	2.9	0.87	0.33	87.4 H
	Neutral	34	9.7			
	Agree	306	87.4			
Aprons and face masks should be worn in procedures where splash/ spill of blood is likely.	Disagree	19	5.4	0.77	0.42	77.1 H
	Neutral	61	17.4			
	Agree	270	77.1			
hand should be properly washed after each contact with patient.	Disagree	18	5.1	0.81	0.39	80.9 H
	Neutral	49	14			

	Agree	283	80.9			
used needles should never be recapped.	Disagree	111	31.7	0.51	0.50	50.9 M
	Neutral	61	17.4			
	Agree	178	50.9			
sharps should be disposed in sharps boxes.	Disagree	20	5.7	0.83	0.37	83.1 H
	Neutral	39	11.1			
	Agree	291	83.1			
safety boxes should be located at close distances to where required procedures are administered.	Disagree	22	6.3	0.81	0.39	80.9 H
	Neutral	45	12.9			
	Agree	283	80.9			
HBV, Measles, Mumps, Rubella and influenza vaccines should be received by all health workers.	Disagree	37	10.6	0.75	0.43	75.1 H
	Neutral	50	14.3			
	Agree	263	75.1			
prolonged standing by HCWs should be avoided.	Disagree	33	9.4	0.67	0.47	66.6 M
	Neutral	84	24			
	Agree	233	66.6			
All exposures to occupational hazards should be reported and documented by appropriate authorities.	Disagree	24	6.9	0.79	0.41	78.6 H
	Neutral	51	14.6			
	Agree	275	78.6			
Adequate staffing of HCFs will reduce occupational hazards.	Disagree	82	8	0.74	0.44	74.3 H
	Neutral	62	17.7			
	Agree	260	74.3			
Incentives should be provided for adhering to universal standard precaution.	Disagree	23	6.6	0.72	0.45	72.3 H
	Neutral	74	21.1			
	Agree	253	72.3			
Punitive actions should be taken against HCWs that violates standard safety precaution and practices	Disagree	30	8.6	0.69	0.46	69.4 H
	Neutral	77	22			
	Agree	243	69.4			
exposure and infection control policies(standard operating procedures)should be regularly reviewed and updated by the hospital management.	Disagree	19	5.4	0.78	0.42	77.7 H
	Neutral	59	16.9			
	Agree	272	77.7			
Gloves should always be worn when administering injection ,starting IVs and drawing blood.	Disagree	22	6.3	0.77	0.42	77.4 H
	Neutral	57	16.3			
	Agree	271	77.4			
Hand hygiene agents cause irritation and dryness.	Disagree	27	7.7	0.68	0.47	68.0 H
	Neutral	85	24.3			
	Agree	238	68			
If I perform hand hygiene, I am less likely to transmit infections to my patients.	Disagree	27	7.70	0.64	0.48	63.7 M
	Neutral	100	28.6			
	Agree	223	63.7			
I feel that infection control policies	Disagree	83	23.7			

and guidelines are enough in the hospital.	Neutral	105	30	0.46	0.50	46.3 M
	Agree	162	46.3			

Discussion:

It appears in this table that the percentage of participating female nurses (56.6 %) is higher than the percentage of males (43.4%), and this is consistent with a study conducted in Ankara (11) , It has been noted in many studies that the percentage of females was more than males because nursing is a mostly female profession, but there is a study conducted in Saudi Arabia that was noted that the number of males was greater due to the recruitment system in Saudi Arabia and also another reason that the nursing profession is dominated by men (12) , While it was found that the highest age group participating is under 30 year and this is not consistent with a study conducted in the hospital of the city of Kayseri (13) .There is also a relationship between these results and the current goals of the Iraqi Ministry of Health and the Ministry of Education, which encourage the increase of female work in health institutions, and also work on the employment of all graduates from institutes and colleges. Maybe also because this age group is more active in trying to increase their information and experience. The highest percentage of participants were bachelor's graduates, This increase may be due to the encouragement of health institutions for their employees to complete their education and also the opening of a number of private colleges in the city of Kirkuk, which is consistent with a study conducted in Taiwan (14).The results of the distribution of study samples by hospital departments also showed that the most respondents are from the respiratory care unit, constituting their percentage (29.4%) and this is due to the presence of large numbers of nursing staff in this unit, and this is not consistent with a study conducted in China, where the highest percentage of participants was from the emergency department (15).Regarding the socioeconomic situation in Table (2) It was found that most of the participants are middle-income people, as studies showed that there is a link

between the health of workers and the economic situation, and this is consistent with a study conducted in Canada (16).The results on respondents' attitude towards occupational health and safety in Table (3) show strong agreement on an items that occupational hazards should be taken seriously and given immediate attention in the hospital (91.4%), Prevention of occupational hazards is a joint responsibility between hospital management and staff (80.3%), Staff training and provision of personal protective equipment is essential to reduce the risk of occupational hazards (87.4%), Wearing masers and face masks in procedures with the potential for blood splashing (77.1%), hand should be properly washed after each contact with patient (80.9%), sharps should be disposed in sharps boxes(83.1%), safety boxes should be located at close distances to where required procedures are administered (80.9%), HBV, Measles, Mumps, Rubella and influenza vaccines should be received by all health workers (75.1%) , All exposures to occupational hazards should be reported and documented by appropriate authorities (78.6%), Adequate staffing of HCFs will reduce occupational hazards (74.3%), Incentives should be provided for adhering to universal standard precaution (72.3%), exposure and infection control policies(standard operating procedures)should be regularly reviewed and updated by the hospital management (77.7%) , Gloves should always be worn when administering injection ,starting IVs and drawing blood (77.4%), Hand hygiene agents cause irritation and dryness (68.0%) , Punitive actions should be taken against HCWs that violates standard safety precaution and practices (69.4%).While some respondents showed moderate agreement with the items that if I wash my hands, I am unlikely to infect my patients (63.7%), I feel that infection control policies are adequate in the hospital (46.3%), Long standing of health workers should be avoided (66.6%) , Used needles should not be

recovered (50.9%) ,and Pay extra attention to occupational hazards Unnecessary burden on me (36.3%) .In general, the results showed nurses have good attitudes towards occupational health, as 80% of the study items were evaluated at high levels, and these results are consistent with a study conducted in the city of Karbala, where it showed that (92%) of the nursing staff have positive attitudes (17). According to a study conducted in Baghdad, the results showed that medical staff have good attitudes about occupational hazards (18-20).

Conclusion:

This study aims to evaluate the attitudes of nurses and their knowledge about occupational health risks in Kirkuk city hospitals. The majority of participants are females and belong to the age group less than 30 years old with a bachelor's degree .The largest category of nurses work in the respiratory care unit, as well as the study showed that most of the participants are middle-income . The results showed that most participants have positive attitudes towards occupational hazards.

Limitation and Recommendation:

The researcher faced some difficulties during data collection, such as the reluctance of participants to participate in the research, difficulties due to the difference in language and distance. In this research, we recommend conducting further research on occupational hazards due to the emergence of new risks in the work environment, as well as conducting training courses to increase the awareness of health staff about occupational hazard and how to protect themselves from these risks.

References:

1. Alcantara, L. d. S. (2013). "Saúde e segurança no trabalho no Brasil: aspectos institucionais, sistemas de informação e indicadores." *Ciência & Saúde Coletiva* 18: 3445-3446.
2. Gomez, C. M., et al. (2018). "Saúde do trabalhador: aspectos históricos, avanços e desafios no Sistema Único de Saúde." *Ciência & Saúde Coletiva* 23: 1963-1970.
3. Dhahir, D. M. and N. Y. Al Mayahi (2021). "Assessment of health workers knowledge toward occupational health and safety program in Alkut City's primary health care centers." *Medico-Legal Updat* 21(1): 1536-1541.
4. Monitor, I. (2020). "COVID-19 and the world of work." Updated estimates and analysis 27.
5. Li, J. and V. A. Lambert (2008). "Workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses." *Nursing in Critical Care* 13(1): 12-24.
6. Sabra, H. and S. Morsy (2016). "Occupational health hazards among nurses at Quena University Hospital." *Journal of Nursing and Health Science* 5(3): 28-34.
7. madhila J, Van der Vyver JM, Ashipala DO. Knowledge and practices among registered nurses on occupational hazards in Onandjokwe Health District: Oshikoto region, Namibia. *J. Hosp. Adm.*2017;6(4):46.
8. Manzoor, S., et al. (2022). "Knowledge, Attitudes and Perceptions of Nurses Regarding Occupational Health Hazards in Tertiary Care Hospitals of Pakistan." *Journal of Gandhara Nursing and Allied Health Sciences* 2(2): 29-34.
9. Alavi, N. M. (2014). "Occupational hazards in nursing." *Nursing and midwifery studies* 3(3): e2235
10. Ramadan, E. N., et al. (2018). "Safety Measures Program for Prevention of Occupational Hazards among New Graduate Bachelor Nurses." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* 7(4): 98-111.
11. Metin, Z. G. and A. N. Yildiz (2023). "Update on occupational health nursing through 21st century requirements: A three-round Delphi study." *Nurse education today* 120: 105657.
12. Kgakge, K., et al. (2025). *Ergonomics and Occupational Health: Knowledge,*

Attitudes and Practices of Nurses in a Tertiary Hospital in Botswana. Healthcare, MDPI.

13. Güden, E. (2025). "Perspective on occupational health and safety of sterilization unit employees and unit safety." *Journal of Occupational and Environmental Hygiene*: 1-10.
14. Chang, Y. P., et al. (2024). "Nurses' perceived health and occupational burnout: A focus on sleep quality, workplace violence, and organizational culture." *International nursing review* 71(4): 912-923.
15. Zhang, H., et al. (2025). "Relationship between workplace violence and occupational health in emergency nurses: The mediating role of dyssomnia." *Nursing in Critical Care* 30(2): e70008.
16. Barakat, C. and T. Konstantinidis (2023). "A review of the relationship between socioeconomic status change and health." *International Journal of Environmental Research and Public Health* 20(13): 6249.
17. Faris, S. H., et al. (2018). "Knowledge, attitude and practice of occupational hazard among nursing staff at teaching hospitals in Kerbala City, South-Central Iraq." *Indian Journal of Public Health Research & Development* 9(8): 1147-1152.
18. Hasan, S., et al. (2022). "Attitudes and practices regarding occupational hazards among a sample of medical and paramedical staff in Baghdad governorate." *Health Education and Health Promotion* 10(2): 385-393.
19. Shihab, E. M. Z., & Saied, N. H. (2024). Assessment of Public Knowledge and Attitude Toward Mental Illnesses in Mosul City-Iraq. *Ann Coll Med Mosul December*, 46(2), 151-158.
20. Najlaa S. S., & Waleed, G. A. (2024) Assessing Knowledge of Occupational Safety Measures among Laboratory Health Workers in Governmental Hospitals in Mosul. *Ann Coll Med Mosul December*, 46(2), 244-250.



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