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Assessment of prevention health care related to work hazards among employees at cement factories in AL-Najaf province

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Abstract---Introduction: Occupational health is an important strategy not only to ensure the health of workers, but the study aims to identify the types of risks that are (physical - chemical - biological - psychological - mechanical - electrical) and other occupational risks among the study sample and evaluate strategies to prevent occupational hazards related to the health status. It shows how workers use these means and strategies to prevent those risks and how to implement them to reduce hazards. Methods: The descriptive design cross-sectional study was conducted in three government places where cement is manufactured in the governorate of Najaf Al-Ashraf. It is the example of the honorable Najaf cement factory - the Koufa cement factory - the section of stone crushers (crushers), which included about 200 workers from various collaborators and age groups who were selected from 1,000 workers working in those factories. The data was collected through the use of the questionnaire and data analysis by SPSS version 22. Results: The study showed that workers are exposed to great hazards (physical - chemical - biological - electrical - mechanical) during the performed of their tasks inside the factory about 55.5% considered High Hazard, so it became perfect that workers who use occupational prevention strategies are less exposed to the risk of occupational risks that occur with the worker during the work environment. While the study found an important statistical relationship with workers regarding psychological risks during work and the study concluded that there is a very important relationship between physical risks and their impact on workers in the working environment. Conclusions: This study concluded that The study found that the majority of cement workers who participated in the study are in the 35-year age group and are in the male category. The study found a variable relationship between the variable occupational health care services of workers and the risks to which

they are exposed within the working environment and the study concluded that there is a very important relationship between physical risks and their impact on workers in the working environment

Keywords---Prevention, Health Care, Occupational Health Hazards.

Introduction

Occupational health and well-being or social comfort are two essential parts for increasing the productive capacity, which in turn has a clear impact on increasing economic development, which is considered sustainable development, as the constitutes about 45% of the world's population and 58% of the population aged over ten years are from The labor force, which is a source of continued economic and material strength for these societies (Eyayo, F ,2014).The work environment is considered dangerous. Because occupational health and safety there are two common risks in many economic industrial sectors, which in turn affect the lives of large numbers of workers, about 30 to 50% of workers, for physical, chemical and biological risks, as well as psychological risks to which they are exposed in addition to the overload of physical work Hard and in a large amount exposed to it. (Lieberman, H. R., 2019).during work and in an unreasonable, acceptable or comfortable way, and the factors that are, by the nature of dealing with them, are dangerous to the health of workers and their ability to work is approximately equal dangerous. About 120 million work accidents with approximately 2,000,000 deaths annually resulting from exposure to these health hazard (Verbeek, J., 2019).These are occupational dangers that result in various energy types with diverse impacts. Workplace lighting, temperatures, vibrations, and radiation are examples of these influences (Thornbury, S. , 2017).This constitutes the above scheme, in which it is clarified that the worker is exposed to a set of physical hazards , which in turn lead to physical harm that may reach the level of disability, and as shown in some forms, how to adhere to health protective equipment to prevent or reduce exposure to those occupational hazards (Rahman, S. , 2019).In the United States alone, almost three hundred bilion pounds of chemical ingredients are made every year, with nearly two million compounds produced; yet, only around 0.1 percent of these chemicals have been adequately investigated in terms of their impacts on humans (Goldman, L. R., & Koduru, S. , 2015).Chemicals have been discovered in the bodily tissues of members of the general public. These tissue burdens might be caused in part by unintentional chemical releases into the environment, such as what happened in the direct canal when chemicals leached out of buried industrial wastes (Al Salhen, K. S., 2014). Several chemical causes in various labor environments might been at minor stages of hazardous exposure, yet they nevertheless have an impact on employees' health. Some of these compounds, on the other hand, may be mixed and interact, resulting in additional health impacts. Workplace reproductive risks have emerged as significant legal and scientific concerns (Mascitti, V. et al., 2013). Chemical hazards included being exposed to various dangers as a result of manipulating or managing hazardous chemical compounds. The evaluated of on-the-job chemical hazards includes the evaluation of the risks associated with these variables, as well as the protection and safety measures taken, as well as the negative consequences of contact to

these causes (Glehr, M., et al ., 2019). Actual perils have been the point of convergence for research on work related wellbeing and security for a really long time. Be that as it may, as of late accentuation has been put on mental risks. To start, a mental peril is any risk that influences the psychological prosperity or emotional wellness of the laborer by overpowering individual methods for dealing with especially difficult times and affecting the specialist's capacity to work in a sound and safe way. Mental risks in the work environment incorporate brutality/tormenting, weakness, innovative change, substance misuse, and age related factors (Chirico, F. et al ., 2019)

Methods

The present study was conducted in three governmental places where cement is made in Najaf governorate, namely the Najaf cement factory and the Kufa cement factory, as well as the crushers department, which in turn relates to stone production for both factories). The study included cement factories only with the study causes they contain wholly the risks required in the research study concerning hazards and prevention strategies for those hazards that workers are exposed to within the work environment. Najaf Cement Factory. Factory name Najaf Cement Factory: It is one of the factories affiliated to the Iraqi Ministry of Industry and is classified within the Southern Cement Industry Company Location Najaf Governorate / Kufa District / Al-Barakia Production Type Ordinary Portland cement Number of production lines Design capacity (156000) tons per year Establishment date 1975 Production start 1975 Executing company Indian ACC Manufacturing method humid. Al-Kufa Cement Factory, which is one of the factories affiliated with the Southern Cement Company, which in turn is affiliated with the Iraqi Ministry of Industry, which is located in the Najaf Governorate \ Kufa District \ Al Barakiah. Which produces the quality of ordinary Portland cement, which consists of 4 production lines, which produce about (2,000,000) tons annually, which was established in 1977 and production began in 1984. The executing company was F.L.S. Danish the descriptive design / cross sectional study wear conducted with an analytical utility in order to achieve the stated objectives in terms of assessing the risks to which workers are exposed at work and how to implement prevention strategies. During the period from 2021-2022. The survey was applied as a mean of information assortment that was contained three principle parts, the initial segment included socio-segment normal for members while the subsequent part was sub-partitioned into four segments (wounds at work, clinical history, evaluation of workplace and utilizing of individual defensive measures . assessment of Strategies of prevention of occupational health hazard (places are available within the facility, The facility shall meet the following health requirements, working conditions inside the facility are suitable for work , exposed, while performing your work, Availability of the peace factor in the machines, tools and tools used in the work, The emergency fund and its supervision inside the facility , The role of management in promoting and applying the concept of industrial security) .The Part One Socio-Demographic Data: This part consists of (11) items that show the worker socio-segment information (Age, orientation, Male Female, . Conjugal status, Married Single, Divorced, widow, Number of years in assistance, Monthly Income, Enough, Fairly Enough, Not Enough, Resident, Urban Rural,. Job Title: Worker, Chief Workers , Observer Technician , Chief Observers Technician ,Assistant Engineer ,

Engineer , Chief Engineer , Educational level , doesn't read and write , read and write , Elementary , secondary preparatory Institute , graduate Bachelor , Higher Education , Department , Working Hours , work shift).the part two consist of there is domain consists from (3) evaluation Health hazards to workers in the work environment at work included (Physical, chemical and biological) .The data was collected through the use of the questionnaire and data analysis by SPSS version 26.

Results

Table (1)
Distribution of the Workers by their Socio-Demographic Characteristics through Frequency and Percentage

No.	Variables	Groups	(n = 200)	
			F.	%
.1	Age	- (Less than 18) years	2	1.0
		- (18-35) years	70	35.0
		- (More than 35) years	128	64.0
		Total	200	100
.2	Residency Area	- Urban	173	86.5
		- Rural	27	13.5
		Total	200	100.0
.3	Level of Education	Illiterate	3	1.5
		Literate (read & write)	12	6.0
		Graduate of Primary School	28	14.0
		Graduate of Intermediate/Secondary School	52	26.0
		Graduate of Institute/ College	15	7.5
		Graduate of Institute/ High Education	90	45.0
		Total	200	100.0
.4	Monthly Income	- Sufficient	76	38.0
		- Barely sufficient	39	19.5
		- Insufficient	85	42.5
		Total	200	100.0
.5	Gender	Male	188	94.0
		Female	12	6.0
		Total	200	100.0
.6	Marital Status	- Single	149	74.5
		- Married	7	3.5
		- Divorced	12	6.0
		- Widow	32	16.0
		Total	200	100.0

Table (2)
Statistical Distribution of the Health Hazards domain (Physical Hazards) at
Cement Government Factory

Ratings of Physical Hazards	(n= 200)			
	F.	%	M.S.	Assessment
No	55	27.5	1.6900	High Hazard
Yes	145	72.5		
Total	200	100%		

M.s. (mean of scores)), Hazard rate of (equal and less than 1) = (No Hazard). Hazard rate (less than 1.5) = (Low Hazard). Hazard rate (1.5) = (Moderate Hazard). Hazard rate (More than 1.5) = (High Hazard), cut off point (1.5).

Table (3)
Statistical Distribution of the Health Hazards (Chemical Hazard Domain) at
Cement Government Factory

Ratings of Chemical Hazards	(n= 200)			
	F.	%	M.S.	Assessment
No	68	34.0	1.6413	High Hazard
Yes	132	66.0		
Total	200	100%		

M.s. (mean of scores)), Hazard rate of (equal and less than 1) = (No Hazard). Hazard rate (less than 1.5) = (Low Hazard). Hazard rate (1.5) = (Moderate Hazard). Hazard rate (More than 1.5) = (High Hazard), cut off point (1.5).

Table (4)
Statistical Distribution of the Health Hazards (Biological Hazards Domain) at
Cement Government Factory

Ratings of Biological Hazards	(n= 200)			
	F.	%	M.S.	Assessment
No	157	78.5	1.3094	Low Hazard
Yes	43	21.5		
Total	200	100%		

M.s. (mean of scores)), Hazard rate of (equal and less than 1) = (No Hazard). Hazard rate (less than 1.5) = (Low Hazard). Hazard rate (1.5) = (Moderate Hazard). Hazard rate (More than 1.5) = (High Hazard), cut off point (1.5).

Discussion

The table (1) summarizes the occupational characteristics of the study participants, the higher proportion of the study participants of the Cement Workers percentage were (64%) and numbers (128) were (more than 35) years old whereas the minority of them (1 %) were (less than 18) years old and the residence area indicates that the majority of the Cement Workers percentage

(86.5%) and numbers (173) were (urban) whereas the minority of them (13.5%) were (rural). The monthly income variable reveals that the majority of the Cement Workers percentage (42.5%) and numbers (85) were (Insufficient) whereas the minority of them (19.5%) were (Barely Insufficient). The marital status shows that the majority of the Cement Workers percentage (74.5%) and numbers (149) were (single) whereas the minority of them (7%) were (married), and also the level of educational present that the majority of the Cement Workers percentage (45%) were (Graduate of Institute/ High Education) whereas the minority of them (1.5%) were (illiterate). In addition, the gender of workers reveals that the majority of the Cement Workers percentage (94%) were (male) whereas the minority of them (6%) were (female). However, the current study agree with the study of (Abdelhamid, T. S., & Everett, J. G. , 2019) , as the business rate, which ranged around 54%, was closely related to the demographic information regarding age. Hence, our vision is that the government cement factories in Najaf have the highest average age, ranging between about were (more than 35) years old, while the rest constituted the lowest percentage according to the above explanation. The workforce handled nearly half of the total population. (Ibrahim, A. M., 2014). In Iraq and regardless of the high unemployment rate compared to different countries, the business rate ranged from 46.8% to 49.2% with more than nine million people employed. (Uribe Guajardo et al., 2020). The power of men invested a large part of their energy in work environments, and factories and industrial establishments were considered as one of the important foundations in improving the economy of countries. (Wei, M., Patadia, S., & Kammen, D. M., 2018). The age-related discoveries are reliable have investigation of Amin and another researcher in the Republic of Egypt, which tracked down that laborers' ages range from (41-50) years (Amin, S. M. et al., 2020). The monthly income variable reveals that the majority of the Cement Workers percentage (42.5%) and numbers (85) were (Insufficient) whereas the minority of them (19.5%) were Insufficient). This study was agreement with the Takeda, J. and Ashi, H. A. analyzes the mental and monetary transformation of Iraqi workers, one of the growing numbers of relied upon and re-worked groups in this country during the 2000s. Information was obtained from 105 Iraqi male industrial workers. The results revealed that workers in the industrial sector do not have enough monthly income due to poor living conditions and a decrease in the monthly income of the worker. (Ashi, H. A., 2018) & (Takeda, J., 2016). The From here begins the researcher's opinion about the problem of lack of income, which means it is not enough, and whose reasons are realistic, that the industry in Iraq is low in production, and therefore the worker receives an insufficient monthly salary and does not enough his needs, so the largest percentage was insufficient as explained above. This table (2) indicates that the majority of Physical Hazards (72.5 %) was yes (have Physical Hazards) and minority of them (27.5%) were No (haven't Physical Hazards), so the assessment of this domain by Statistical Overall was High Hazard. Concerning that the study (KARAHAN, V., & AKOSMAN, C., 2018). Agrees with the study regarding the exposure of workers in cement factories to the highest levels of hazards. The study showed the importance of applying occupational safety strategies. The reason is due to the work environment in such industries in which the worker is exposed to great hazards. It is so dangerous that it causes disability or even loss of hearing etc ... from hazards, and it may be the most dangerous of them that may threaten the life of the worker. This table (3) indicates that the majority of Chemical Hazard Domain (66 %) was yes (have Chemical Hazards) and minority of them (34%) were

No (haven't Chemical Hazards), so the assessment of this domain by Statistical Overall was High Hazard. A study was (Al Salhen, K. S. , 2014). Workers about the chemical hazards to which the worker is exposed in the environment of the cement factories in relation to his exposure to toxic dust, chemicals and chemical solutions, which develop and lead to an impact on the worker's life, including suffocation, difficulty breathing and other effects on the skin. The reason that the worker suffers from chemical hazards is that the worker is not committed to the protection tools of the skin, eyes and respiratory system. Among the reasons that lead to an increase in exposure to dust or chemical dust is the lack of vegetation cover in the laboratory environment. This table (4) indicates that the majority of Biological Hazards Domain (78.5 %) was no (have Biological Hazards) and minority of them (21.5%) were yes (haven't Biological Hazards), so the assessment of this domain by Statistical Overall was Low Hazard. The study (Emmanuel, N. O., Ernest, A., & Douglas, K. 2021). identical, as the study was conducted on October 26, 2021 in Nigeria, in an attempt to include an assessment of all risks (physical - chemical - biological - mechanical and other risks) to which the worker is exposed in the work environment. With regard to the exposure to biological risks, the reason is due to the workers' lack of commitment to the strategies of protection and prevention from those risks.

Conclusions

This study concluded that the study found that the majority of cement workers who participated in the study are in the 35-year age group and are in the male category. The study found a variable relationship between the variable occupational health care services of workers and the risks to which they are exposed within the working environment and the study concluded that there is a very important relationship between physical risks and their impact on workers in the working environment.

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