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The relationship between factory workers' quality of life and occupational hazards

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Abstract:

Background: Occupational hazard poses a danger to individual in working environment in addition to the consequences such as fatal accidents, minor to serious injuries and immediate allergic and systemic effects". The purpose of this study was to identify the relationship between factory workers' quality of life and occupational hazards.

Materials and Method: The test used the descriptive method. The study was carried out in factory of Hamam AL-alili .The sample size was (185) workers selected by convenient sampling. Data collection was conducted in February 2020.The instrument development by researcher depended on (Ware et al.,2002) included three parts: (A) Part 1: personal data questionnaire, which includes (age, years of experience, educational level, department, residence and nature of work) (B) Part II: questions to assess occupational hazards among cement factory workers. (C) part III: measures the quality of Life.

Results: The study noted that more than double of staff didn't know about noise issues (61 percent), whereas more than half of them understood that accident exposure was one of the insufficient lighting problems. Most employees have found that the accidents or injuries and respiratory issues are respectively considered the issues that arise due to exposure to mechanical and chemical hazards. Of the staff, approximately (55.1 percent) had moderate rates of QOL.

Conclusion: These researchers found a highly important discrepancy between the QOL of staff and noise and ventilation as physical risks, electrical risks and chemical hazards.

Keywords: factory workers', quality of life , occupational hazards.

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Introduction

There is also a fear of injuries related to the job nowadays. According to estimates from the (1900)work-related deaths are comparatively higher than those caused by war and other natural disasters (1).Occupational hazard poses a danger to individual in working environment in addition to the consequences such as fatal accidents, minor to serious injuries and immediate allergic and systemic effects (2) . Occupational hazards are classified into (5) categories: first physical hazards, example: noise and radiation exposure, two environmental hazards related to gas exposure and environmental hazards, three biological hazards including exposure to viruses and bacteria, four ergonomic threats, contribute to job shifts and stress situations. Finally, five risks: related to work environment e.g accidents with electricity (3) .International , there are 2 million deaths related work according of health organization The ILO reports that well over 250 million non-fatal injuries result in job absences (4) .Cement factories are among the most key strategic essential elements in the economic growth of any nation, staff in this sector are an significant group efficient aggregate (5) . Cement manufacture has caused harm to the environment in the region at all stages. Which involve pollution in the form of dust. (6)(7). Therefore, Therefore, Impacts of cement industry Innumerable and have not even stopped human beings from degrading impacts and adversely affected workers' health (8)(9) . "Quality of life (QOL)" is the perceived joy that people experience while living their lives in a society (10) .Occupational health should be preserving the best degree among employees in danger professions, at preventing the departure of employees from health hazards caused by their working , at shielding workers in their jobs from threats arising from adverse health factors at supplying and retaining staff to sum up, adapting the job to the human being(11)(12) . From previous research the findings showed that among factory workers there were both positive and negative factors affecting the QOL. Examples of positive factors included full-time employment status, work situation happiness, job satisfaction and job pride, relationships with employees and superiors, and work climate (13)(14) . The study's goal is to identify the connection between quality of life (QOL) and occupational hazards among Mosul City cement factory workers.

Methodology:

The test used the descriptive method. The study was carried out in factory of Hamam AL-alili. This factory was located in the south of Mosul City and provides services for Mosul governorate. It includes two departments: technical and administrative, the technical department includes many units such as quarry, mechanical maintenance, electrical maintenance, production, quality control and stores. The sample size was (185) workers selected by convenient sampling. Data collection was conducted in February 2020.The instrument development by researcher depended on (Ware et al.,2002) involved this interview questionnaire that was designed by the researchers and included three parts: (A) Part 1: personal data questionnaire, which includes (age,years of experience , educational level, department, residence and nature of work) (B) Part II: questions to assess occupational hazards among cement factory workers such as physical, mechanical chemical, , and psychological hazards. (C) part III: Quality of Life was measured by Ware et al. (2002). There are 36 questions measuring eight dimensions of QOL: physical functioning, social functioning, role limiting (physical), role limiting (emotional), physical discomfort, mental well-being, endurance and overall health. Every aspect has a score started from (0 -100), with higher degree become consequences better for health status. The data was computerized and verified using the SPSS (SPSS Inc., Chicago, IL, USA), version 19 to perform tabulation and statistical analysis. For qualitative variables, data were provided using descriptive statistics e.g: frequencies and percentages, and quantitative mean and SDs. Variables tested were measured using X2-test(15-100).

Results:

Table 1: Distribution of the Cement workers factory Hamam AL-alili at Mosul City regarding personal characteristics at Mosul City (n=185)

Personal characteristics	Number	Percentage
Age		
20-30 Years	55	29.8%
30-40 Years	76	41.1%
40-50 years	40	21.6%
50 or more	14	7.5%
Mean± SD = (38.7±8.3) **Range=(22–57)**		
Department		
Quarry	46	24.8%
mechanical maintenance	23	12.5%
electrical maintenance	22	11.9%
production	70	37.8%
quality control	18	9.7%
stores	6	3.3%
Years of experiences		
<10	58	31.4%
10-20	95	51.3%
20- 30	32	17.3%
Mean±SD =(17.4±9.5) **Range= (2–29)**		
Educational of level		
Illiterate	30	16.2%
Elementary education	66	35.7%
Technical education	57	30.8%
University	32	17.3%
Residence		
Rural	103	55.7%
Urban	82	44.3%
Nature of work		
Morning	78	42.2%
Evening	41	22.2%
Alternate	66	35.6%

Table 2: Protective clothes used by Cement workers factory in Hamam AL-alili at Mosul City (n=185)

Use of protective clothes during work	Number	Percentage
Yes	127	68.7%
No	58	31.3%
Protective clothes		
Use mask	78	42.2%
Use eye goggles	69	37.3%
Use apron	29	15.7%
Use rubber boot	37	20%
Use Protective ear gears	61	32.9%
Use Gloves	4	2.2%
Use Overhead protective gears	123	66.5%

Table 3. Present complaints of Cement factory workers at Mosul City (n=185)

Present complaints	Number	Percentage
Skin problem and allergy symptoms	21	11.35%
Headache	58	31.35%
Nausea and vomiting	14	7.56%
Fainting	42	22.7%
Drowsy and loss of concentration	19	10.27%
Hypotension	39	21.08%
Eye problems	98	52.97%
Respiratory problems	138	74.59%
Injury during work		
Yes	33	17.83%
No	152	82.17%
Place of injury		
Vertebral column	9	27.3%
Face	2	6%
Forearm	8	24.3%
Neck	1	3%
Leg	10	30.3%
Chest	3	9.1%
Cause of injury		
Chemical	4	12.1%
Mechanical	22	66.7%
electronical	7	21.2%

Table 4. Workers' knowledge toward occupational hazards in Cement factory at Mosul City (n=185)

Occupation hazards	Number	Percentage
Problems of noise		
Headache	19	10.4%
Irritability	15	8.1%
Hearing problems	10	5.4%
Loss of concentration	22	11.9%
Lack of production	6	3.2%
Do not know	113	61%
Problems of inadequate lighting		
Accident exposure	108	58.4%
Lack of production	21	11.4%
Eye problems	3	1.6%
Headache and irritability	6	3.2%
Do not know	47	25.4%
Problems of bad ventilation		
Respiratory problems	149	80.5%
Spread of infectious disease	26	14.1%
Headache and loss of concentration	3	1.6%
Lack of production	7	3.8%
Problems of mechanical hazards		
Accident or injury	154	83.3%
Do not know	31	16.7%
Problems of chemical hazards		
Respiratory problems	136	73.5%
Gastrointestinal problems	21	11.4%
Skin problems	91	49.2%

Table 5. Quality of life among Cement factory workers at Mosul City (n=185)

Mean of score to quality of life	Number	Percentage
Poor	71	38.4%
Moderate	102	55.1%
Good	12	6.5%

Table 6 Relation between quality of life and occupational hazards among cement factory workers at Mosul City (n=185)

Occupational hazards	Quality of Life			χ2	P value
	Poor (n=71)	Moderate (n=102)	Good (n=12)		
Physical hazards					
Noisy					
Yes	25(35.2%)	27(26.5%)	1(8.3%)		
No	46(64.8%)	75(73.5%)	11(91.7%)	9.7	0.008*
Lighting					
Efficient	40(56.4%)	67(65.7%)	9(75%)		
Inefficient	31(43.6%)	35(34.3%)	3(25%)	0.66	0.835
Ventilation					
Efficient	59(83.1%)	97(95.1%)	12(100%)		
Inefficient	12(16.9%)	5(4.9%)	0(0%)	15.4	<0.003*
Mechanical hazards					
Yes	62(87.3%)	83(81.4%)	2(16.7%)		
No	9(12.7%)	19(18.6%)	10(83.3%)	33.9	<0.001*
Chemical hazards					
Yes	55(77.5%)	94(92.2%)	10(83.3%)		
No	16(22.5%)	8(7.8%)	2(16.7%)	26.6	<0.004*
Psychological					
Good	69(97.2%)	101(99.1%)	12(100%)	5.8	0.106
Bad	2(2.8%)	1(0.9%)	0(0%)		

*P<0.05, statistically significant difference.

Discussion:

Workers work for half the world's population. The health of the staff is reflected in ensuring a healthy working climate. Some reasons for most developed countries not enforcing the protection policy because lack of knowledge about occupational diseases and injuries (101-108) .Table 1: reveals the distribution of the studied sample regarding personal characteristics among cement factory workers; it was observed that the mean age of workers was Mean± SD = (38.7±8.3) years, and 55.7% of them were from rural areas. Regarding educational level, Table 1 shows that 35.7% of workers had elementary education. Moreover, 37.5% of them worked in production department in the factory. However, more than half (51.3%) of workers had experience from (10-20 Y). The present research indicates that the mean age was (38.7±8.3) years for the participant workers. This was similar to a research carried out by Hovland et al. (2014), as they recorded 47.3±9.9 years of mean age. Table 2: illustrates the protective clothes used by workers in order of their work in Cement factory. It was noticed that 84.5% of workers use protective clothing. More than half (66.5%) of them wear overhead protective gears followed by masks and the glasses, whereas only 2.2% wears

gloves.These results agreement with the study conducted in Nigeria among paint factory workers, and it found that 85.5% of them did not use gloves, whereas 25.5% of them used boots (109-112) .Table 3: reveals the present complaints of cement factory workers. It is observed that (74.59%) and (52.97%) of workers complained of respiratory problems and eyes troubles, respectively, followed by osteoporosis. In contrast, only (10.27%) of workers complained of drowsy and loss of concentration followed by hypotension. Moreover, only (17.83%) of workers were exposed to injuries during work, whereas (30.3%) had leg injuries and (66.7%) of these injuries were caused by mechanical agents.Regarding the complaints among Cement factory workers, the current study indicated that (52.97%) of them have eye problems, and these findings are agreement with Parulekar (2015), as they found that the prevalence of eye problems was (34.6%).Table 4: shows the workers' knowledge toward occupational hazards in cement factory. It shows that (61%) of workers do not know the problems of noise, whereas (58.4%) of them know that accident exposure is one of problems of inadequate lighting, and (80.5%) of workers mention that bad ventilation in the factory causes respiratory problems.The majority of staff (83.3 and 73.5 per cent) indicated that accidents or injuries and respiratory problems are problems of exposure to mechanical and chemical hazards.This study is agreement with study in Europe by Montano (2014) who found the worker exposed to biological hazards almost (43.1%) exposed to skin problems(113,114). Table 5: The current study found that more than half of participants had moderate level of QOL, whereas only 6.5% of them had good level, and those findings are consistent with the Kittipichai (2015) report. Also (50.9%) had a moderate level of QOL.Table 6: reveals the relation between QOL and occupational hazards. significant correlation between workers' QOL and the following workplace hazards noise and ventilation as physical, mechanical , and chemical hazards, respectively (P=0.008, < 0.004, < 0.003, < 0.001,). This study examines the relationship between QOL and occupational hazards among Cement factory employees, and this may refer to the occupational environment that affects workers' health status, such as injury and disease, and poor work environment affects satisfaction , as if the person could do something they're happy with, and live in a good atmosphere, then they'd have a good QOL.

Conclusion:

These researchers found that a significant correlation between QOL and the following workers' complaints including skin issues, headache and symptoms of asthma. In addition there was a highly important discrepancy between the QOL of staff and noise and ventilation as physical risks, electrical risks and chemical hazards.

Recommendation:

This study recommended building of training program for workers about occupational hazards in Cement industry. Increase awareness of Cement factory workers toward importance of compliance with Protective measure during work and measure regularly medical checkups for workers.

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