



Effect Of Work Environment on the Safety and Occupational Health of Medical-Legal Directorate's Staff

Ream I. Majeed¹,

¹Diploma of Community Medicine/ Genetic data-Bank
Dep./Medical-Legal Directorate(MLD)/
Ministry of Health(MOH)/Iraq- Baghdad (Bag.)
tahaqasimahmad@gmail.com

Dr. Taha Q. Ahmed²,

²M.B.Ch.B -M.Sc./Forensic Pathologist(Expert)/ Al. Farabi. College
tahaqasimahmad@gmail.com

Dr. Sabeha M.Sheya³,

³B.Sc./ Ph.D. Statistic/ Planning and Health Statistic Section/MOH-
Bag.
tahaqasimahmad@gmail.com

Dr. Ammirah J. Omar⁴

⁴M.B.Ch.B.-M.Sc./Training and Human Development
Section / MLD- Bag
tahaqasim19@yahoo.com

ABSTRACT

The human element is the real fortune and the central axis in various places of work, therefore

it is necessary to have safe work conditions to achieve health, safety and avoid facing risk. Laws and legislation have been enacted to protect people at work, to try hard the prevention of accidents , injuries and reduce the risks of the surrounded work environment.

Medical-Legal Directorate(MLD)is one of the health institutions which people depends on to diagnose the unnatural causes of death in variable accidents and where the workers may susceptible to risk because of the nature of the performed services, specially when the force of law has impaired , for instance; after 2003conflict. In some occasions ,due to work pressure , threaten and poor knowledge of protective measures , those workers are in touch with a probable risk when encounter to it.

The aim of this research is to study the nature effect of routine environment work done by employees of MLD on their psychological, physical and mental health besides the effectiveness of safety and health measures. A descriptive analytical approach to collect the necessary data has been performed using a prepared questionnaire which contained of 3 dimensions of 40 clauses. The researchers used a community study obtained from workers in the directorate and used random sample in collecting data. The size of samples were (210) people with recovery rate of (85%) of those who participated in this study. In addition to the personal interviews as a second tool to accredit of and to answer on some questions of this research.

The researchers have found many injuries documented in the study questionnaire. It's percentage after the statistical analysis is (78%) which covers different range of career services up to 21 years. The results indicate that the nature and the work environment

done by MLD's staffs have a significant impact upon statistical level ($\alpha = 0.05$) on psychological, physical and mental health. As it turned out that the poor own knowledge about the protective measures of safety, prevention, security and training of workers at work field may lead to the possibility of expecting the risk of occupational health at any time.

The study recommends the need to strengthen professional management of occupational safety and health with the necessity to train employees and develop their skills to promote awareness and activate a sustainable safety systems by many suggestions and measures.

Keywords:

Occupational Health, Bio-Medical Care, Mental Legal Health, The Preventive Security.

1. Chapter One : Introduction and Literature Review

The human element is the real fortune and the central axis in various places of work. It is essential to have safe working conditions for health and avoid to face risks. God has mentioned in his Holy Koran a lot of principles and rules, which care about the preservation of the human soul, and urge to protect it, like The verse of Sura of Women (O' believers take your caution) verse (71).

Also, because the rate of care of the Professional Safety and Health have been raised, laws and regulations have been enacted and followed by local and international conferences which aim to protect human at work and so they have been held frequently such as the international conventions (the Convention of professional safety and health NO 155 at 1981) which aims to prevent of accidents, injuries and reduce the risks associated with working environment. [1,2,3,4]. In addition, based on the Iraqi Labor Law NO. (71) of 1987 an articles 152 and 108 the legislation of occupational health and safety principles No. 22 of 1987 have been emerged in Iraq. [5]

Ministry of Health has adopted the Iraqi Injury Surveillance System in Baghdad Governorate at 2008 which provide information about fatal and non fatal injuries in Iraqi Society, according to their data: the burden of self-harm as a mechanism of injury was expected to be increase [6]. Therefore, one of the goal and objectives of this system is to inform prevention activities to minimize the burden of external injuries like crashes, fall, fires, electricity, poisoning, explosive remnants of war, etc.. Of

course MLD is one of data source for this system. The Center of Health and Professional Safety receives a copy of the report whenever issued. Moreover, Ministry of Health considers the Medical-Legal Directorate (MLD) as important health institution which depends on the diagnosis of the unnatural causes of death, legal problems of living people and testing criminal evidences for the issues transferred to competent courts through the various laboratory sections. Though, the workers and administrators in MLD are most at risk because of many reasons; the performed nature services in Autopsy Department and their routine duties conditions they would be in touch with sad stories and accidents besides their contact with people suffered from post traumatic syndrome; like what happen occasionally to the families in Missing Department [7,8,9]. Also contact with criminals or violent people. They may be involved sometimes to solve or deal with social issue problems occurred between trouble makers; For Instance among families and relatives in Paternity Lab. Section. Moreover, The tribal nature of Iraqi society may play another role in the involvement or threaten to some other departments like in Autopsy and a Living Dep. Another challenges, the growing work and issues led to shortage in places and incompatible infrastructure. Hence, such environment may lead sometimes to many sequences like no enough fridge space, crowd of the material and equipment's, inadequate lighting, poor ventilation, high temperature and characteristic smell of chemicals or decomposition of corpse in autopsy theatre especially at hot summer

despite continuous attempts for improvement and management whenever happened[10]. Definitely, huge efforts are being made to compensate those sequences and the exposure of employees to diseases and injuries during their work wherever and whenever they occur. From another point of view, in adequate knowledge about protective procedures should the employees follow during their own work when at risk may add another burden.

As it is known, the law, instructions and control, the administrative and the workers undertake the responsibility to abide by the safety instructions which include wear safety clothes and act on equipment, pay attention to emergency procedures or possible risks and the cooperation of all are important and necessary to maintain a good working conditions.[11,12], Therefore, this study highlighted the affected factors the safety and health occupational to create a safe work environment for employees.

1.1.Study Problem

The researchers have done a survey and prepared interviews with the professionals such as the Forensic Pathologists, laboratory technicians and biological staff in the lab, In addition they have inspect the places and identify the availability of the prevention means and occupational safety measures there. Researchers have found many accidents and diseases in the rate of (78%) covered variable duration of career services up to 21 years in the questionnaires. These accidents and diseases had not been documented in a medical report, as well as occupational medical records system concerning persons covered. Also the researchers have found parts of Professional Safety and Health applications that did not compatible exactly as it should be to the international standards established by the International labor Organization(ILO), The Occupational Safety and Health Administration (OSHA) and the World Health Organization (WHO). On the basis of all that the problem drafting can made as follow (What is the influence of work environment in the MLD on the safety and health of workers there?)

1.2.The Aim of Study

1-Show the effect of work environment on the safety and health of employees in the MLD.

2-Study occupational pressures that workers faced and its impact on their mental, physical and psychological health.

3-How to create a safe and free environment from risks by activation of all the rules and procedures that should be followed in the work environment that has been mentioned by the workers through questionnaire and personal interviews.

2.Chapter Two : Methods

2.1.Study hypotheses

1-Workig pressures of those who work in MLD has an impact on their health and safety, the effect is statistically significant at the level of (0.05).

2. The nature of work and the environment have an impact on psychological, physical and mental health of workers in MLD, the effect is statistically significant at the level of ($\alpha= 0.05$).

3. The shortage of supplying of the safety means, tools, protection and prevention besides training employees on safety procedures and self defense at the workplace which may subject them to a serious health and security risks have impact effect upon statistic at the level of ($\alpha= 0.05$), the effect is statistically significant at the level of ($\alpha= 0.05$).

2.2. Study Society

The target study community consists of workers in the MLD(Doctor, Dentist, Pharmacist, An engineer, An expert technician, Administer), estimated at about 500 employees.

2.2.1.Study Sample

Random sampling method was used, exploratory questionnaires of 10 sample size were distributed for to test the response of the staff, Internal consistency and consistency of questionnaire. The credibility and integrity of each questionnaire were confirmed by experts and adjudicators (choosing the questions among 100 certified questions within the second area of research for the Test) [12]. Then 250 questionnaires were given to study society where 212 questionnaires respondents have been obtained, the recovery rate was of 85%, only 2 questionnaires have been excluded because MLD customers didn't answer all the questions in this questionnaires suggested the

lack of their seriousness. The sample size was calculated from the following equation:

$$(1) N=(Z/2M)^2 \dots(1)$$

Z: The standard value corresponding to a given level of significance (eg.1.96=Z for significance 0.05).

M: the marginal error, and here it is 0.05
The size of the sample is corrected from the equation , in the case of final communities from the equation

$$n=(nN/ N +n-1) \dots\dots(2)$$

Equation 1 and 2 represent the sample size, by using equation 2 and after the amendment it was (210).

2.3.The Study Tool

The questionnaires have been prepared to be appropriate for the study to get information and data that are written down by responder and consists of two main sections:

The first section:

Contains personal characteristics for responder such as age , sex, years of service (Career Service of work, etc.

consists of the study areas which contain of 40 paragraphs (Table10) distributed on three main areas

The first area: is the occupational pressures that the responder faced them , include 10 questions. The second area: include the study of the effect of impact nature of work on the responders from the psychological, physical and mental health aspects besides the extent of suffering worry and tension, according to the theory of (Hans Celli).[13], include 20 questions.

The third area: Include the effect of activation of civil defense and protection on the professional health and safety procedures[14,15,16,17] ,include 10 questions.

Table(1): The questionnaires

Questions of the 1 st area.	Questions of the 2 nd area.	Questions of the 3 rd area.
1.Do you feel that you will not live long	1.Do you have headache	1.Is there any enough protection for the employees when prisoners are inside MLD
	2.Do you have decrease in appetite	
2.Do you suffer from night mere because of people accidents you have seen in MLD	3.Do you suffer from fear and that you are in danger	2.Do you agree carrying weapons inside MLD by the authorized police officers who catch the prisoners.
	4.Do you feel nervous and in attention	
3.Do you feel that you are quick anger.	5.Do you feel that you are worried	3.Do you agree to take off the weapon from the authorized police officer who comes for following up a forensic case.
	6. Do you tend to cry more than usual	
4.Do you find difficulty in attention, thinking concentration	7.Did you loss your interest in everything	4. Regarding their signature on forensic or laboratory cases, is there any enough protection to Forensic pathologists and lab. staff.
	8.Do you have palpitation	
5.Do you feel panic soon when something happened suddenly	9.Do you feel suffocated	5.In external trauma investigation in a live instigative Dep. ,is it suppose that the doctors should stay alone with the patient (without the police officer)
	10.Do you always think about work problems	
	11.Do you feel lassitude	

6.Do you suffer from insomnia or difficulty in sleeping	12.Do you sometimes prefer not to go to work	6.Is it necessary for MLD employees to participate in a training programs of civilian defense for self-protection
7.Do you feel sad when hearing the told sad stories from referred people to MLD	13.Do you suffer from loss of memory	7.Is it must to separate the employees from prisoners to protect them
	14.Do you suffer from pain in stomach and loss of appetite	
8. Do you have a feeling that you will be subjected to an accident in the future	15.Do you suffer from colitis	8.Is it important to legislate a special law for Forensic Medicine about civilian and employees protection specially in dangerous cases.
	16. Do you suffer from nausea	
9.Have you received any threat from referred people to MLD	17.Do you suffer from hair falling more than usual	9.Is it must to increase the authorized bodyguards and security in MLD
	18.has your blood pressure elevated because of nature of your work	
10.Did you have ever felt of fear because of people, prisoners or dead referred to MLD	19.Are you subjected to be a heavy smoker	10.Is there any emergency exit when fire accidents or prisoners out break may happened.
	20.Have you been subjected to loss of your patience and endurance	

2.4.Normality Distribution Test

Kolmogorov-Smirnov (K-S) has been used to test whether the data is followed normal distribution or not, the results were set as it's showed in Table-2 below.

Table (2) : Represents Normality Distribution Test

Areas of r	Z Value Pro	Significance(sig
ional pressures that the employees faced them		
Dangerous besides the extent of suffering worry and tension that the employees faced them		
The role of civil defense and application procedures of safety and professional health	0.896	0.000

The premise of scratch H0: = data tracking the normal distribution

The premise of scratch H 1: = data doesn't track the normal distribution

The null Hypothesis H0:=Data are distributed as normal distribution

Alternative Hypothesis H1:=Data are not distributed as normal distribution

It's clear from the results in table (2) that the l value of significance level for each axis is less than the level of (0.05),therefore the distribution of data of these areas don't follow the normal distribution tests so that the non-parametric testes will be used to answer research hypothesis or assumptions.

2.4.Some Characteristics of The Study Sample:

2.4.1.Distribution of the sample members by sex

The distribution of sample members by sex as it is shown in Table (3) below in percentage is 44.3

% for the male and 55.7 % is for females, indicates the females percent to be more higher than male percent but not that so much high.

Table (3):Distribution of sample of MLD employees by sex

Sex	Percentage %
Male	44.3
Female	55.7
Total	100

2.4.2.Distribution of the sample members by the duration of career service

As shown in Table (4) , the highest rate of the study sample are included in category when the

number years of career service which almost between 5 to 10 years (31.4 %) while the least percentage was for workers who have serviced 21 years and over (15.7%).

Table (4): Distribution of the sample members by years of career service

Career service	Percentage %
Less than 5 years	28.6
5-10 years	31.4
11-20 years	24.3
21 years and over	15.7
Total	100

2.4.3.The distribution of the sample members by functional professional title.

The results shown in table (5) that 50% of study sample are professionals in (engineering, software of computer, statisticians, lawyers and administrators) and then health professions

(chemists, criminal evidence, medical assistants, anthropologistsand nursing professions) to be 30% while the least proportion is related to medical professionals (doctors, dentists and pharmacists), it was less than 20%

Table (5): Distribution of the sample members by functional professional title

Occupation	Percentage %
Medical Occupation(Doctors , Dentists , Pharmacists)	20%
Health assistance Occupation (Chemists, Forensic evidences, Medical assistants, Anthropologists,...Nursing personals)	30
Administrative Occupation(Engineers, software Programmer , statisticians, lawyers and administrators)	50
Total	100

2.5 Statistical methods

We emptied the analyze questionnaire through the statistical program (SPSS)

(Statistical Package of Social Sciences)[14],non-parametric statistical tests will be used too. Following statistical tools have been used :

1.The percentages, frequencies, mean and relative median : these figures are used mainly to know the frequency of variable category which in turn to describe study sample.

2.The sign test is to know if the average degree of response had reached to the neutrality degree.

3-Chapter Three : Results

3.1.Statistical Analysis and the results of 3 areas of research:

The Triple LEKRET Measurement has been used to measure the answer of the employees for each question in the questionnaire , where the word agree or neutral or not agree is to find the

degree of agreement in front each question as follows:

- A. From 1 to 1.66 represents (not agree) to every question.
- B. from 1.67 to 2.33 represents (neutral) to every question.
- c. from 2.34 to 3 represents (agree) to every question.

3.2.Choice of study Assumptions .

Other non-parametric test are used which are suitable for consequent data as well as the LEKRET measurement in this study which considered a consequent measurement too.

To test the hypotheses using the sign test , for example, to know if the average (mean) degree of response is equal to a certain value in the case of the consequent data or data that don't follow the natural distribution, so that statistical hypothesis has been tested as the following:-

The Null Hypotheses: Test that the average degree of answer is equal to the degree of neutrality according to LEKRET measurement.

Alternative Hypothesis: The average degree of answer doesn't equal to the degree of neutrality. If (P-value)of significance is greater than level of indication $\alpha = 0.05$ (according to the results of the SPSS) so that we could not refuse the null hypothesis and in this case the average of sample members opinions about the phenomenon in this study is not different substantially from the degree of neutrality, but if the P-value of significance is less than the level of connotation $\alpha = 0.05$ so that the null hypothesis is rejected and alternative hypothesis is accepted which in turn suppose that the average of sample members opinions is different substantially from the degree of neutrality.

3.3. An example of statistical analysis: the 1st area / Occupational pressures on MLD 's staff.

Table (6):question number 8 in the questionnaire: Do you have a feeling that you will be subjected to an accident in the future

	Frequency	%Percent	Mean	Relative importance	Asymp. Sig. (2-tailed)
Yes	94	44.5	2.18.952	72.69	0.000
sometimes	60	28.4			
No	56	27.1			
Total	210	100			

The average for eighth question is equal 2.18 (the total degree of 3) i.e. the relative average percentage is 72.69%, and the probable value of significance (Sig.) is equal to 0,000 so that we consider the answer is statistically indicated at

the level of $\alpha = 0.05$, and this indicates that the average level of response to the question is different from the degree of neutrality, which means there is an acceptance or agreement by sample members of the this question.

3.3.1.The results of frequencies ,percentages, test significance and relative importance values for 1st area of the study

Table (7): Represents percentages of triple Lekret measurement , relative importance values and means for 1st area of the study

Question	Percentage % of triple Lekret Measurement			R.I.	Mean	Asymp.sig
Do you feel that you will not live long	41.400	34.300	24.300	1.750	60.950	0.060
Do you suffer from night mere because of people accidents you see in MLD	44.300	28.600	27.100	2.170	72.300	0.003

Do you feel that you are quick anger	35.70 0	52900	11400	1.650	58.03 0	0.090
Do you find difficulty in attention, thinking concentration	22.90 0	50.000	27.100	1.957	65.22 0	0.375
Do you feel panic soon when something happened suddenly	45.70 0	28.600	25.700	1.800	70.60 0	0.004
Do you suffer from insomnia or difficulty in sleeping	41.40 0	38.600	30.000	2.400	80.00 0	0.033
Do you feel sad when hearing the told sad stories from referred people to MLD	61.40 0	25.700	12.900	2.450	81.60 0	0.000
Do you have a feeling that you will be subjected to an accident in the future have you received any threat from referred people to MLD	44.50 0	28.400	27.100	2.180	72.69 0	0.000
have you received any threat from referred people to MLD	20.40 0	12.800	66.000	1.470	49.03 0	0.999
did you have ever felt of fear because of people, prisoners or dead referred to MLD	30.00 0	28.600	41.400	1.880	62.99 0	0.000
The Total of 1 st area	38.76	21.27	23.05	1.9	60.39	0.004

In general we can say , the relative calculated mean for all answers in the 1st area is equal to 60.39 % and the significance importance is equal to 0.000 ,therefore this area is considered to be indicated statistically at the level $\alpha = 0.05$ which means that ,the mean degree of response for this area is different substantially from degree of neutrality so one may conclude ; there is approval in general from sample members about the presence of occupational pressures on the workers in MLD.

3.3.2.Results of Frequencies, percentages ,mean ,relative importance , the values of test and level of significance for the 2nd and 3rd areas.

Frequencies, percentages, means, relative importance, the values of test and levels of significance for the 2nd and 3rd areas have been calculated in the same manner of 1st area as above .It has been found that the average level of response to the second area is differed substantially from the degree of neutrality in all the questions except of two questions, they are (heavy smoker and loss of patience and endurance)which means that there is approval from the sample members because there is a psychological pressure faced by workers.

Regarding to the 3rd area , the mean average of the **six questions** has been figured out which equals to 2.5 (The total degree of 3) that the calculated relative average is 83%, and the value of significance is equal to 0.000 , therefore this is considered to be statistically significant at the level of $\alpha =0.05$ this means there is approval by the sample members to put a special laws concerning civil defense to protect the self and disarmament of the interior officer when he visited the MLD to ask or follow up any case.

The overall average of **four questions** of 3rd area equals 1.5 (The total degree of 3) and relative calculated mean is 52%, and the value of significance equals to 0.99 , therefore this is considered to be non statistically significant at the level of $\alpha =0.05$, this means that there is a lack of approval by the sample members on all questions which means the existence of worries about protection when forensic pathologists and other staff put their signature on forensic reports. Also shortage in systematic emergency plans when there will be any uncontrolled situation like fire , may happened besides uncontrolled crisis by violent prisinors with the possession of the authorized Interior officers to have weapons.

4.Chapter Four :Discussion

At the beginning, it is known that the occupational safety and all related broad branches is differ than Management Quality and Quality Assurance which concerns with production and protection of services, one should differentiate between them although wearing personal protective equipment such as head cover , overshoes ,face mask, clothing gown , goggles and using hood etc.. protects workers as well as services at the same time specially in the laboratory departments like Forensic DNA or Toxicology Lab. Also it is known that risk in general, is differ from place to place and from lab to lab. according to the nature of work and nature of materials or chemicals used.

MLD like any other work-places or offices, it may be affected by all types of uncontrolled energy, such as electricity, pressures, weights, fluids, temperatures, motion or moving parts, radiation , fires, and explosions.

In this study, the researchers have found many work injuries and diseases related to occupation which have been documented in the questionnaires, about 78% cover career services up to 21 years. The results also revealed that nature and work environment affect MLD's staff in statistical significance at the level ($\alpha=0.05$) on the psychological , physical and mental health.

In fact, generally one cannot change the nature of forensic services reality nor nature of society so the common goal needs some management, safety measurement and reassurances for employees to deal with risky work environment and dangerous when expected and identifying hazardous conditions and accidents in workplace , materials and security to eliminate or reduce the attendant risks and assist workers.

Despite of all security procedures and preventive measurements , however there were very little accidents had been occurred by accused prisoners in MLD over years without any complications , losses or damages. Therefore , preventive security and it's a side of professional safety about criminal or suspect simulation and how to defend or deal with by the staff when at risk is mandatory to stabilize

employees feelings about the situation. Participation in a training programs of civilian defense for self-protection may eliminate felling of worries and increase sense of self confidence in the directorate.

Furthermore , medical reports and frequent observation seek workplace and environmental hazards are important to be available to identify and reduce the risk of injury and illness ,this will affect and reassure workers and employees optimistically. However, Civilian Defense Unit that look after the safety and civilian security , use a classical way of following up doors and windows and using firefighting machines during fire when happened after the work time .

From another aspect , it is known that mental factors may influence mildly or severely a broad range of physical diseases and conditions to worse such as high blood pressure, heart problems, respiratory and gastrointestinal systems as well as cardiovascular system affecting one's quality of life.[18], therefore the results of this study highlighted the effect of emotional and psychological factors which workers and employees are exposed to which may be the cause of strong quick anger which called Series Anger Alternation that some MLD's staff may suffered from , which may in turn affect their status physical health and may be their performance outcome.

Consequently ,the interest in the training and increase knowledge of staff to guarantees necessary protection from the works risks, in addition the commitment to international standards of professional health and safety have been motivated by series of training workshop of occupational safety each year , at least one workshop has been listed in the plan of central training programs in the directorate annually.

In another hand , it is important to put in mind the necessity to force workers by corrective measurement and procedures using methods of deterrent when event of a breach occur to prevent accidents, human and economic losses besides activation of the application of all laws and related regulations of the safety and protection of the workers according to Iraqi labor law and

prepare the competent human resources for providing, monitoring ,follow up safety means

and application besides carry out the responsibility to document injuries and diseases related to work and archive them in a detailed systematic way and to apply all laws and regulations that increase the effectiveness of procedures occupational health and safety.

Ultimately, there are many measures have been adopted recently in old and new buildings to increase safety like : Provide a special accommodation for prisoners who have issues and transaction in the directorate who should be far from the work field of incompetent staff who were un responsible for their medical examination besides increase the number of security protection personnel and camera control deployed throughout the directorate to rid of and rapid intervention when a sudden problem or danger occur. Fire sensitive auto-mechanism and firefighting mechanism dousing of ceiling water sprinkler have been installed too.

Finally , one must mention that , studies and researches in such field in association with forensic medicine services exclusively is deficient not in Iraq only but in regional area too.

5.Chapter Five : Conclusion and recommendations

1. We may suggest the necessity to establish a unit specialized in Safety and Occupational Health in addition to Civilian Defense Unit .
2. Establishment of crisis group consisting of trained workers and technicians for urgent intervention in emergencies provided with operational appliances and requirements.
3. In case of sever occupational injuries or Physical disability ,a suggestion to adopt the principle of compensation or insurance for psychological stability of employees.

6.Aknowledement

Researchers advances thanks and appreciation for Dr. Emad Abdul Razzaq; adviser of National Office of Psychological Health in the Ministry of Health for his corporation in stabilizing the sincerity and conformity of questionnaire, Dr.Zaid A. Abbas: director of MLD for his supports, At last Thanks are extended to all staff in the MLD for their effective and fruitful interaction to complete the research work.

Ethical Consideration: The study has been done according to The National Guidelines Code of Research Ethics of Iraqi MOH-2018 , protection of personal data and agreement of institute.

Fund: Personal

Interest of conflict: None

References:

1. Halme ,Ahmed and AL-Efshook, Abd-al-minaam. Occupational Safety and Health, Cairo, National Library of Science(2000).
2. kharabsheh, Mazen and al-Amiri Abd-Rahman. Occupational safety, 1st edition, 1Amman, AL-SAFA house for publication.(2000)
3. Arabic work Institute/ Arabic Institute for occupational Health and Safety .Encyclopedia of Health and professional Safety, Damascus.(2014)
4. Al-Rosan et al. Industrial security and occupational safety, the 2nd edition, the library of Arabic Society for publication and distribution, Amman.(2009)
5. Scientific curriculum for higher education of Technical Health College and Medical Technical Health Institute that given to the department of community in general occupational safety subjects.
6. Iraqi Ministry of Health ,Iraq Injury surveillance System Biennial Report (2014-2015)Edited by Dr. Ahmed H.Radhi, Director of Iraqi Injury Surveillance System. Operations Center Department Al- Muthana House for Printing and Publication pages1-53
7. Javier I.,Paolo P.Negoita N.and Francesco C. " Post-Traumatic Disorder :Evidence – Based Research for the third Millennium " .Evid Based Complement Alternat Med.2005 Dec.;2(4):503-512
8. F. ducrocq , G. Vaiva ,O. Cottencin et al . "Post –traumatic stress ,post-traumatic depression and major depressive episode:literature ". Encephale.March-Apr. 2001;27(2):159-68
9. Y. Auxemery. "The Gulf War Syndrome twenty years on" Encephale.2013 Oct.;39(5):332-8

10. Zaid A.Abbas et al "Total Civilian deaths During 2003-2015 and Post -conflict Period in Iraq : Challenges and Achievements of the Medico-Legal Directorate in Baghdad ".AJFSFM,2018;vol(1)Issue(8):800-810
11. Occupational Safety and Health Administration (OSHA), Hand and power tools.washington, DC:OSHA(1988)
12. Walker,D.andTalit.R.Worker productivity and occupational health and safety issues in selected industries ,UK..(2003)
13. AL-shrabeteer ,dr..Marwan Mohammed Wagdi. " Biological and physical dimensions resulted from the pressures of work and how to deal with them ", the Institute of Public Administration, college of Medicine and Health Sciences, Sultan Qaboos University and University Hospital(2008).
14. The International Labor Organization: The website -<http://w.ilo.org/global>.
15. The Arabic Labor Organization: The website - <http://www.alolabor.org>
16. Alya Hussain mobarak. " The strong delinquency and probable crimes, the public leadership for Dubai police of support center for decision-making ", Ali Mohamed Abdullah: the director of the center in the AL-Bayan newspaper - Dubai number (12) September (2013) .
17. Syrian Researchers theory of criminal human: The website <http://www.syr-res.com>, PDF
18. Gupta AK. Psycho cutaneous disorders. In sadock B., SadockV., RuizP.,Kaplan and Sadock s Comprehensive Textbook of Psychiatry .9th Edition Philadelphia ,USA:2009pp2423-4.