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Simulation of Causes of Occupational Hazards and Accidents in the Gas Company of Isfahan

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Abstract

This study aimed to investigate solutions to reduce incidents Gas Company operating in the province of Isfahan. Statistical methods used in this research survey. The population of the present paper is all employees of the gas company. Random sampling was done in this study is to determine the sample size formula is used in the present study. This study used a questionnaire to collect data univariate statistics and regression t-test and Friedman ranking is performed. Of the SPSS software was used for data analysis. The AMOS software was used to investigate the hypotheses. The results were significant at 5%, indicating that the poor state of the environment, protection unavailability, inappropriate gas company personnel training, compliance and ethics training factors, organizational factors and work-related accidents are related.

Keywords: Accidents, work accidents, organizational, environmental, financial, and technical factors, the availability of protective devices

Introduction

Although mankind's achievements in new energies and his development of technologies in this field have made his life comfortable, a number of malign consequences accompany such technological prosperity. With the development of industries and technologies in the modern life, the increase in the number of occupational accidents and their consequential disabilities are such malign consequences that threaten human beings and laborers specifically (Seneschal, 2005). In old times, occupational hazards could be summarized as follows: falling from trees or heights, being hit or attacked by carnivorous and herbivorous and being poisonous plants and animals. However, nowadays, due to the rapid growth in technological facilities in travel, electricity, heavy machinery and chemical substances, human beings are prone to become inflicted by a number of deadly accidents. Annually, accidents happen in millions, some of which cause death or life-long disabilities. Generally, any kind of accidence would result in grief and financial distress for the inflicted laborers and their families. Some believe accidence is a phenomenon that cannot be predicted for its suddenness and an external force that can not be controlled by the laborer causes accidence. In other words, whatever deviates human beings from life's normalized path, causing financial, physical and psychological damages can be considered accident (Afshar Zade, 2006). One of the social deviances that inflicted lots of societies, including Iranian society, is the issue of occupational hazards. Occupational hazards may threat laborers' life, resulting in raw materials damages, hampering facilitated level of production, damaging machineries, polluting workstations and making them unbearable work places (Mohseni, 2009).

Statistical evidences suggest that in The United States of America in 2009, 88000 cases of accidents had deadly casualties and 8600000 of them resulted in sever injuries. 9900 laborers died and 1700000 of them had severe injuries that resulted in life long disabilities, costing 177 billion dollars, 35000000 efficient working days and 116400000 laborers for the government of The United States of America to compensate such losses. To put in another form, an average amount of three days wage for each laborer was lost for occupational compensation.

The study of occupational hazards in Iran depicts comprehensive financial and physical damages as well. In 2008, a general statistical study in the country depicted that 1399 cases of occupational accidence took place in each month. 663 of these accidences ─ that were reported to the department of social services ─ happened in industrial workshops. If one considers 270 days, as the standard value for annual working days, 3 accidences per working day occurred in industrial workshops in Iran in 2009. This statistical fact depicts the huge amount of financial burden such losses has imposed on the social and economical infrastructure of the Iranian society (Gol Mohammadi, 2008).

Therefore, due to importance of preventive procedures towards occupational hazards in the gas company, the necessity of studying the reasons and factors in generating occupational accidences and hazards and finding appropriate preventive procedures become vital. This study presents a number of preventive procedures after discussing simulated instances of a number of occupational hazards and accidences that occurred in working stations. The primary objective of such a pursuit is to reduce malign social and economical consequences in the provinces and their suburban areas. With widespread circulation of results of this study, the possibility of laborers and human resources in work stations utilizing such scholarly findings in their workplaces will be materialized. Through such scientific awareness, employers and employees alongside with government officials become aware of the degree of occupational hazards and their causes in workstations, their direct and indirect social and economical consequences and practical preventives of such accidents. By taking the issue of occupational hazards seriously, they utilize such preventive procedures, detracting the degree of occupational hazards and accidents and facilitating the efficiency of workstations. Ultimately, the country benefits from the positivity of such preventive procedures in detracting occupational hazards and accidences.

Annually, various research and scientific institutes and organizations embark on scientific activities and planning on the issue of occupational hazards and accidences in the world. One of such organizations is the International labor Organization (ILO) that published a statistical report recently. This report enounces that annually, 120 million occupational hazards and accidences happen in workstations in the world, 210 thousand of which are deadly and severe in their consequences. Due to the importance of the subject matter, this study discusses simulated instances of occupational hazards and accidences that happened in the gas company, alongside with preventive procedures that have been suggested through time for controlling and detracting such malign occurrences. This study studies these issues as well:

The study of the relationship between inappropriate environment of workstations and occupational hazards

The study of the relationship between lack of accessibility to protective and preventive facilities and occupational hazards

The study of the relationship between lack of proper education for staffs of the Gas Company and occupational hazards

The study of the relationship between psychological and mental factors and occupational hazards

The study of the relationship between organizational factors and occupational hazards

Approach and Scientific Review of the Research

According to the department of social services, "accident" is an unpredictable occurrence that is caused by (an) external factors, inflicting the insured or the policy holder physically or psychologically (Mir Sepasi, 2007).

According to the department of social services, "occupational hazard and accidence" that inflicts the insured or the policy holder while he/she has been working or fulfilling his/her occupational duties. By "while in the working period", this definition means to convey the period when the insured has been working in the workstation, in the subaltern working structures or buildings or in outer space that is defined within the occupational environment. If he/ she has been ordered to work in an outside area, building or structure by the employee, the probable accidents he/ she is going to become inflicted from are considered "occupational hazards and accidents" as well (Mir Sepahi, 2007).

Shafiyee and colleagues (2009) in nominal study of occupational hazards of oil and gas masts in the northern branch of the gas company in 2009 depicted that these issues must be focused upon so that a better occupational condition can be provided for workers of such places: education of preventive procedures, providing an appropriate and facilitated environment with standard Equipment for workers' higher level of occupational concentration, periodical auditing of activities and facilities in occupational environment and providing safety maneuvers and making the conditions of occupational activities safer.

This study that has been mostly erected on the reports of occupational hazards in 2009 in the gas company depicted that most of the accidents were minor (over 83 %of the accidents) and August, September and October were the periods with which these accidents occurred in. Daily frequency of accidences was between 10 to 11 and 19 and most accidences were due to incautiousness (50 %). Lack of proper education for preventive procedures was the biggest initiator of such accidences and most workers bore injuries from their legs (39 %), heads (22 %) and arms (18 %) (Mohammad Fam, 2008).

Consequences of occupational hazards and accidences: most of the accidences resulted in minor injuries (46 % of the total number) and straining and spraining (24 %) and fractures (16 %) were some of other instances of occupational consequences. According to these finding, education of preventive procedures, providing an appropriate and facilitated environment with standard Equipment for workers' higher level of occupational concentration, periodical auditing of activities and facilities in

occupational environment and providing safety maneuvers and making the conditions of occupational activities safer become requisite for such working places.

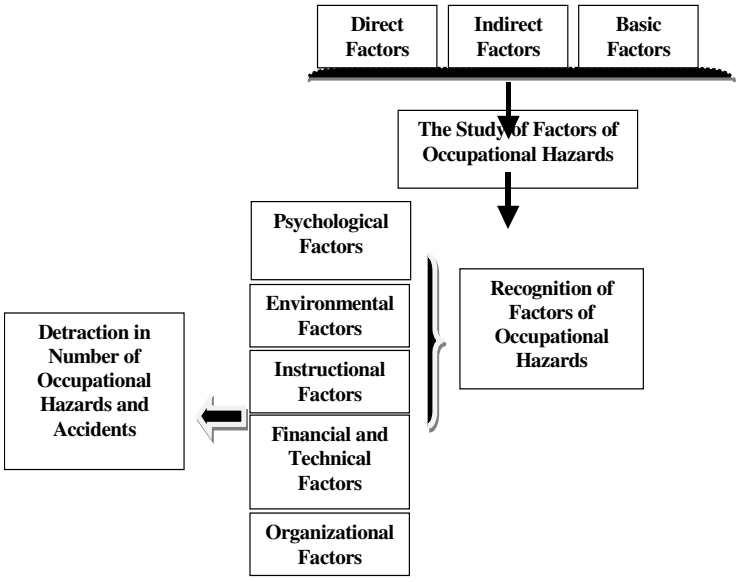
To analyze hazardous behaviors in occupational environment of this study, standard behavioral sampling procedures (SBS) was utilized. After a pilot test, the number of samples and observations were 195 and 3456. Analyzing compiled data with SPSS, a statistical software, Excel and statistical experiments depicted that 35.4 % of laborers' activities this study was concerned with were hazardous. In addition to this fact, this study by analyzing relationship between hazardous activities and occupational accidents through Regression Logistic confirmed that by a one % increase in the degree of hazardous activities, the number of occupational accidents rise third time higher than their prior statistical value.

Conclusion: considering the direct relationship between hazardous activities in occupational environments and occupational accidents, detraction of such hazardous activities requires a considerable investment that can utilizes safety protocols hat have been based on behavioral standards. Such actions can substantiate the culture of occupational safety among employers and employees.

This study is a descriptive study that regards laborers of Iran Aluminum Factory in Arak its statistical population, whose statistical value reaches to 3945 people in 2008; the very year this experiment was performed. Analysis of 650 cases of accidents in this workstation was considered in this study. For data compilation, direct observation, analysis of official documents and interviews were considered as the means for accomplishing such an objective. Other descriptive factors will be laborers' age, occupational precedent, type of occupation, marital status and prior disability. Besides, the location of workstation, possible occupational hazards and accidents and the period such malign accidents occurred, will be studied as well. The results of this study depict that 16/48 accidents occurred per day in this particular workstation, involving 100 laborers. The average rate of age and occupational precedent of involved laborers were 33.05 and 6.27 years. Most injuries were recorded for legs (31.7 % of the total rate of occupational accidents) and for arms (23.7 %). Most of the accidents occurred around 10 A.M. (10.9 %). Most injuries were due to straining (30.6 %), fractures (22.9 %) and burns (19.4 %).

Conclusion: according to the findings of the research, in order to detract the frequency and intensity of occupational hazards and accidents, it is suggested that in the studied workstation the necessity of planning and executing instructional courses for preventive procedures against occupational hazards must be taken into consideration seriously. Besides, hazardous conditions and utilization of standard equipment ─ which have been approved by standard criteria must be promoted.

Research Model



Research Methodology

In this study, since the objective is to study preventive procedures against occupational hazards and accidents, scientific survey or what Miller called "personal interviews in statistics" is used as the scientific methodology of the study. Of course, qualitative methodologies have been utilized alongside with the main methodology of the study as well. In addition to these methods, for establishing the theoretical framework of this study and its scientific review, documentary method has been utilized alongside with aforementioned methods. Ultimately, it is worth mentioning to say that this study is practical in setting its objectives, epidemic in setting its scientific periods, deep and bathetic in setting its measures and expansive in setting its scope. Scientific surveys are primary practical methods for data compilation in this study since in the gas company of Isfahan; such surveys were performed in lesser extents, resulting in poor quality and quantity of scientific data banks. Therefore, by providing a series of scientific questionnaire, a series of accidental samplings were utilized in personal interviews with a number of staffs of the gas company so that occupational hazards and accidents can be analyzed.

The questions in the questionnaire were organizational and psychological. Beside, in this questionnaire, preventive procedures against occupational hazards have been divided into two groups:

A The first part of the questionnaire includes organizational and personal questions such as age, sex, education, salary, occupational precedents and etc.

B The second part of the questionnaire includes 41 questions that have been ranked ascension ally according to Quintuple Likert Scale. The first six questions discuss environmental factors, the next 10 discuss instructional factors, the next 9 consider governmental and organizational factors, the next 9 study financial and technical factors and the last 7 questions discuss ethical and psychological factors.

The validity of this study is content related validity. Finally, the questionnaire was sent to the critical experts and the consulatatory board in this field so that their critical regard towards the fundaments of this questionnaire can be implemented in making it better and more scientific. In order to assess the reliability of the questionnaire, Cronbach's Coefficient Alpha was utilized. According to this formula, the reliability of the questionnaire has been appointed 0.935, whose validity is defined in 0.05, confirming the general reliability of the experiment.

Statistical population of this study is contractive and official employees of the gas company of Isfahan in 2013, whose population was appointed 2600 employees. Utilizing Cochran's theorem, the general quantitative aspect of samples was appointed 335 members. In this study, simple random sampling is utilized in generating scientific samples.

Data Analysis

Results	Average of Value Distribution	Significance Probability	Degree of Freedom	T-Test Statistics	Research Hypothesis
Confirmation of Research Hypothesis	4.37	0.000	334	40.12	The relationship between circumstantial factors of occupational environments and occupational hazards and accidents
Confirmation of Research Hypothesis	4.26	0.000	334	22.67	The relationship between lack of protective equipment's and occupational hazards and accidents.
Confirmation of Research Hypothesis	4.24	0.000	334	28.34	The relationship between organizational factors and

Confirmation of Research Hypothesis	4.36	0.000	334	11.5	occupational hazards and accidents. The relationship between instructional factors in occupational environments and occupational hazards and accidents.
Confirmation of Research Hypothesis	4.27	0.000	334	45.07	The relationship between psychological factors and occupational hazards and accidents.

Freedman's Test

1.1. Freedman's Ranking Experiment of Effectively of Environmental Factors in Detraction of Occupational Hazards and Accidents

Ranking Average	Questions
3.22	Proper Lighting in Occupational Environments
3.63	Occupational Discipline
3.01	Proper Ventilation in Occupational Environments
3.67	Elimination of Hazardous Factors
3.74	Efficient Working Temperature in the Occupational Environments
3.72	Lack of crowdedness in Occupational Environments

Significance Probability	Degree of Freedom	Statistical Report on Sequential Chi- Square Test
0.000	5	77.23

The results of the Freedman's experiment depicts that the effectuality of all the six environmental factors are not equal. "Proper ventilation in occupational environments" with ranking average of 3.01 and "efficient working temperature in the occupational environments" with ranking average of 3.74 are the least and the most effectual factors in detracting occupational hazards and accidences.

1.2. Freedman's Ranking Experiment of Effectively of Economical and Technical Factors in Detraction of Occupational Hazards and Accidents

Ranking Average	Questions
5.25	Utilization of Standard and Protective Equipment
5.18	Accessibility to Protective Equipment
4.9	Facilitation of Occupational Safety
4.43	Standard Working Tools
5.1	Audition on Utilization of Protective Equipment
5.3	Individual Protective Equipment
5.02	Utilizing Every Necessary Working Tool
4.57	Proper Interior Design of Workstations
5.25	Proper Utilization of Protective Equipment

Statistical Report on Sequential Chi- Square Test	Degree of Freedom	Significance Probability
52.467	8	0.000

The results of the Freedman's experiment depicts that the effectuality of all the nine economical and technical factors are not equal. "Utilizing every necessary working tool" and "proper utilization of

protective Equipment" with ranking averages of 5.25 and "standard working tools" with ranking average of 4.43 are the most and the least effectual factors in detracting occupational hazards and accidences.

1.3. Freedman's Ranking Experiment of Effectively of Instructional Factors in Detraction of Occupational Hazards and Accidents

Questions	Ranking Average
Cultural Implementation of Utilization of Protective Equipment	7.88
Appropriateness of Instructions on the Issue of Occupational Safety	7.68
Standard Working Tools	8.10
Instructional Courses Prior to Acceptance of Occupational Duties	8.38
Occupational Discipline	2.26
Proper Interior Design of Workstations	5.60
Benefiting From Expert's Opinions on the Issue of Employee's Instructions	7.46
Facilitating Public Awareness on the issue of Occupational Safety	7.03
Proper Utilization of Protective Equipment	8.00
Occupational Guidelines for Employees	6.00

Significance Probability	Degree of Freedom	Statistical Report on Sequential Chi- Square Test
0.000	12	618.35

The results of the Freedman's experiment depicts that the effectuality of all the thirteen instructional factors are not equal. "Occupational discipline" with ranking averages of 2.26 and "instructional courses prior to acceptance of occupational duties" with ranking average of 8.38 are the least and the most effectual factors in detracting occupational hazards and accidences.

1.4. Freedman's Ranking Experiment of Effectively of Organizational Factors in Detraction of Occupational Hazards and Accidents

Questions	Ranking Average
Proper Occupational Guidelines	6.55
Occupational Guidelines for Employees	5.01
Proper Utilizations of Regularities and Occupational Routines	4.04
Punishment of Careless Employees in Regards to Occupational Safety	3.92
Encouragement of Precautious Employees in Regards to Occupational Safety	5.87
Sustaining Spirit of Workmanship in Employees	5.86
Proper Utilizing Every Guideline	5.85
Accessibility to Protective and Standard Equipment	5.36
Respecting Employer's Orders	5.93
Proper Auditing of Occupational Activities	6.62

Significance Probability	Degree of Freedom	Statistical Report on Sequential Chi- Square Test
0.000	9	393.994

The results of the Freedman's experiment depicts that the effectuality of all the ten organizational factors are not equal. "Punishment of careless employees in regards to occupational safety" with ranking averages of 3.92 and "proper auditing of occupational activities" with ranking average of 6.62 are the least and the most effectual factors in detracting occupational hazards and accidences.

1.5. Freedman's Ranking Experiment of Effectively of Psychological Factors in Detraction of Occupational Hazards and Accidents

Questions	Ranking Average
Avoidance of Unnecessary Activities	3.74
Occupational Responsibility in Providing a Safe Occupational Environment	3.31
Lack of Familial Problems	3.3
Sustaining Friendly Relationship with Staff Members	3.71
Sense of Responsibility	3.84
Lack of Petty Skirmishes	3.38

Significance Probability	Degree of Freedom	Statistical Report on Sequential Chi- Square Test
0.000	5	82.487

The results of the Freedman's experiment depicts that the effectuality of all the six psychological factors are not equal. "Sense of responsibility" with ranking averages of 3.84 and "lack of familial problems" with ranking average of 3.3 are the least and the most effectual factors in detracting occupational hazards and accidences.

1.1. Table of Regression

Results	Significance Probability	Degree of Freedom	Statistics of (f) Test
Null Hypothesis	0.000	5	6.005

Significance probability of 0.05 confirms the appropriateness of embedded model.

1.2. Table of Coefficients

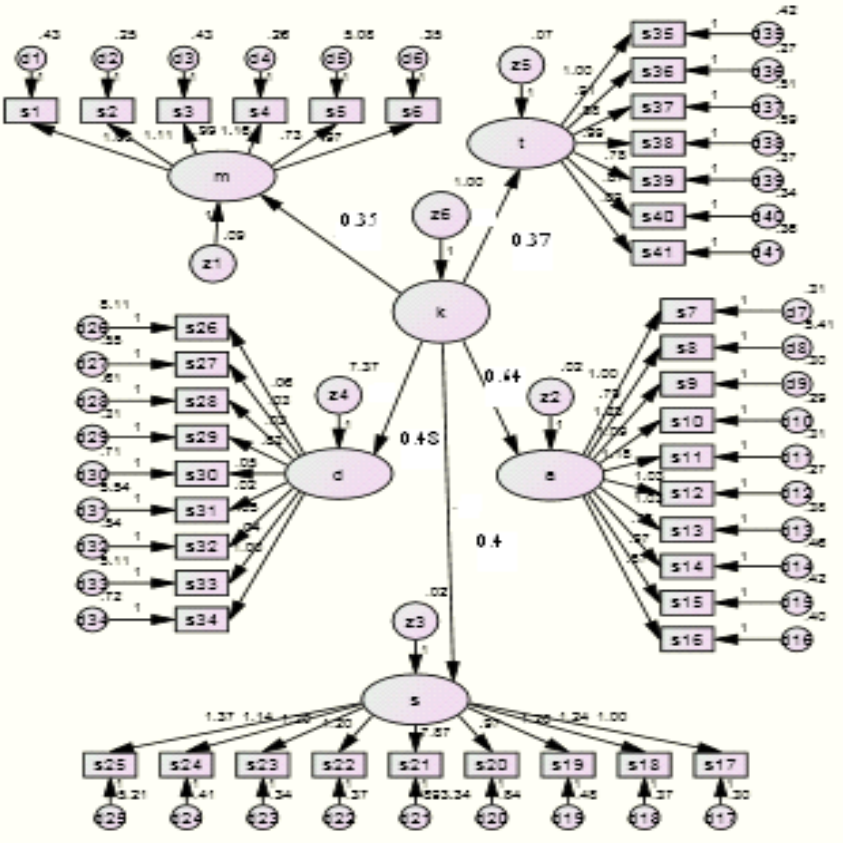
Results	T	Significance Probability	Beta	Coefficients
No Statistical Significance	0.47	0.64	-	Fixed Modality
Statistical Significance	4.2E3	0.000	0.135	Environmental Factors
Statistical Significance	6.7E3	0.000	0.650	Instruction
Statistical Significance	1.2E3	0.000	0.207	Organizational
Statistical Significance	8.3E3	0.000	0.250	Economical
Statistical Significance	8.1E3	0.000	0.157	Psychological

Results	R	R
Aforementioned factors are in direct correlation with occupational hazards and accidents.	1	1

The embedded model can be summarized as follows:

Organizational factors (0.207) +Instructional factors (0.650) +Psychological factors (0.157) +Environmental factors (0.135) +Economical factors (0.250) = Detraction of occupational hazards and accidents

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.2328	15.8218	4.3618	.80026	335
Residual	-.00248	.00358	.00000	.00086	335
Std. Predicted Value	-2.660	14.320	.000	1.000	335
Std. Residual	-2.867	4.133	.000	.992	335



P=0.05 CMIN =2.1 CFI=0.82 PCFI =0.92 RMSEA =0.07

Embedded factors depict appropriate degree of utility in the embedded model. According to this model, there is a direct relationship between instruction of preventive procedures against occupational hazards and accidents and detraction of occupational hazards and accidents (0.64), financial losses (0.48), organizational losses (0.40) and psychological and environmental impairments (0.37 and 0.35).

Conclusion

1. There is a Direct Relationship Between Circumstantial Factors of Occupational Environments and Occupational Hazards and Accidents

As observed in the statistical findings of the study, it is deducible that by defining statistical significance around 0.05, null hypothesis will be undermined. Therefore, there is a direct relationship between circumstantial factors of occupational environments and occupational hazards and accidents. These findings are in harmony with Shafiyee's and colleagues' findings. In their nominal study of occupational hazards of oil and gas masts in the northern branch of the gas company in 2009, they believed that these issues must be focused upon so that a better occupational condition can be provided for workers of such places: education of preventive procedures, providing an appropriate and facilitated environment with standard Equipment for workers' higher level of occupational concentration, periodical auditing of activities and facilities in occupational environment and providing safety maneuvers and making the conditions of occupational activities safer.

2. There is a Direct Relationship between Lack of Protective Equipment and Occupational Hazards and Accidents

As observed in the statistical findings of the study, it is deducible that by defining statistical significance around 0.05, null hypothesis will be undermined. Therefore, there is a direct relationship between lack of protective Equipment and occupational hazards and accidents. These findings are in harmony with Barzi's and Abdullahian's findings in their research in 2004 that studied epidemically cases of occupational accidents in health care centers in Semnan province in 2004. They believed that there is direct correlation between occupational hazards and accidents and laborers' age, occupational precedent, type of occupation, marital status and prior disability. Besides, the location of workstation, the period such malign accidents occurred and accessibility to protective Equipment can play important roles in such significant relationship between aforementioned descriptive factors and occupational hazards and accidents. Ultimately, it is deducible that by facilitating staff member of the gas company with protective Equipment, the degree of occupational hazards and accidents can be detracted.

3. There is a Direct Relationship between Organizational Factors and Occupational Hazards and Accidents

As observed in the statistical findings of the study, it is deducible that by defining statistical significance around 0.05, null hypothesis will be undermined. Therefore, there is a direct relationship between organizational factors and occupational hazards and accidents. These findings are in harmony with Shafiyee's and colleagues' findings. In their nominal study of occupational hazards of oil and gas masts in the northern branch of the gas company in 2009, they believed that these issues must be focused upon so that a better occupational condition can be provided for workers of such places: education of preventive procedures, providing an appropriate and facilitated environment with standard Equipment for workers' higher level of occupational concentration, periodical auditing of activities and facilities in occupational environment and providing safety maneuvers and making the conditions of occupational activities safer.

4. There is a Direct Relationship between Instructional Factors in Occupational Environments and Occupational Hazards and Accidents

As observed in the statistical findings of the study, it is deducible that by defining statistical significance around 0.05, null hypothesis will be undermined. Therefore, there is a direct relationship between instructional factors in occupational environments and occupational hazards and accidents. These findings are in harmony with Hafted's and colleagues' (2003) findings. They believed that national instructional planning for laborers, promotion of occupational regulation in workstations and general promotion of prioritization of occupational health in social and economical arenas can detract occupational hazards and accidents. Therefore, by instructing staff members of the gas company in their individualized occupational environments, occupational hazards and accidents can be detracted.

5. There is a Direct Relationship between Psychological Factors and Occupational Hazards and Accidents

As observed in the statistical findings of the study, it is deducible that by defining statistical significance around 0.05, null hypothesis will be undermined. Therefore, there is a direct relationship between psychological factors and occupational hazards and accidents. These findings are in harmony with Ali Asghar Quds', Fateme Alhani's, Monire Anooshe's and Mehdi Kahooyee's research in 2008. In "An *Epidemiologic Study of Occupational Hazards in Semnan Province", they believe that personal malfunctions (fatigues, sustaining multiple number of occupation, familial problems, being under the*

influence of drugs and etc.) are considered fundamental causes in occurrence of 53.6% of occupational accidences. Therefore, psychological factors such as friendly relationships, lack of personal grudges and cheap skirmishes among the staff member of a workstation and utilization of the spirit of occupational responsibility can detract occupational hazards and accidences in the gas company.

Suggestion for Further Actualization of the Findings of This Study

According to computed statistical significance in the first hypothesis (sig<0.05), the computed average (avg 4.37) and statistical value for "t" (40.12) ─ which is more than the statistical value in the table ─ it becomes apparent that there is a direct relationship between occupational circumstances and occupational hazards and accidences. Therefore, it is suggested that by erecting warning signs in laborers' occupational environment, a considerable number of occupational accidents can be prevented.

According to computed statistical significance in the second hypothesis (sig<0.05), the computed average (avg= 4.26) and statistical value for "t" (22.67) ─ which is more than the statistical value in the table ─ it becomes apparent that there is direct relationship between lack of accessibility to protective Equipment and occupational hazards and accidences. Therefore, it is suggested that by holding regular safety committees, occupational health and standard procedures in occupational environments can be promoted among employers, employees and other occupational officials so that occupational hazards and accidents can be prevented.

According to computed statistical significance in the third hypothesis (sig<0.05), the computed average (avg= 4.24) and statistical value for "t" (28.34) ─ which is more than the statistical value in the table ─ it becomes apparent that there is direct relationship between organizational factors and occupational hazards and accidences. Therefore, it is suggested that by regular auditing on laborers' occupational activities, occupational health and standard procedures in occupational environments can be promoted among employers, employees and other occupational officials so that occupational hazards and accidents can be prevented.

According to computed statistical significance in the fourth hypothesis (sig<0.05), the computed average (avg= 4.26) and statistical value for "t" (11.05) ─ which is more than the statistical value in the table ─ it becomes apparent that there is direct relationship between education and occupational hazards and accidences. Therefore, it is suggested that by regular instruction of employers, employees and other occupational officials in regards with occupational hazards and accidents, occupational health and standard procedures in occupational environments can be promoted.

According to computed statistical significance in the fifth hypothesis (sig<0.05), the computed average (avg= 4.27) and statistical value for "t" (45.07) ─ which is more than the statistical value in the table ─ it becomes apparent that there is direct relationship between psychological factors and occupational hazards and accidences. Therefore, it is suggested that by providing an appropriate psychological atmosphere, occupational stresses can be detracted. Besides, instructing principles of psychological health in occupational environments can facilitate such environments psychologically; in helping employers and employees to have a better understanding of individual traits of each person that is involved in the workstation. By this, possible psychological traits can be easily detected, preventing the negativity of the presence of such factors in occupational environments (What is psychological instruction? What are the signs of occupational stress? What are the precursors of such mental sicknesses? What are the appropriate procedures in facilitating occupational spirit and humanitarian relationship?)

Suggestion for Further Research

As observed, apart from the complicated nature of the suggested model, the appointed variants have been studied properly. Nevertheless, concentrating on the issues that have been represented below can

strengthen reliability and validity of the suggested model of this study, emphasizing its practical and conceptual aspects:

Utilizing same studies in other companies with more populated statistical samples

Utilizing same studies with more populated statistical population (provincial and national wide)

Utilizing same studies with different research models and comparing results with the results of this study

Utilizing more acute studies on various factors individually

Utilizing appropriate sources on the subject matter that results in facilitation of theoretical framework and comparative pursuit of further studies with prior ones

Spending a period of quality time in the intended statistical population and the intended statistical samples

Delimitation

In any research, there exist a number of malign and uncontrollable factors that interfere in the natural flow of the scientific pursuit of the study, limiting the scope of the research. Such factors are considered obtrusive elements in a scientific research that hinders ─ intensely or moderately ─ the legitimacy of its results. In any case, scholarly efforts to detract such factors are underway in various scholarly fields Seyd Abbas Zade, 2001). Of course, it is apparent that an ideal scientific atmosphere for a scholarly study is researchers' dream; however, accomplishing such atmospheres in sociological and psychological studies can not be materialized. Having said these facts, this study is after recognition and detraction of such factors in its scientific pursuit. A number of such delimitations have been named below:

Limitation of actualization of results tot the gas company

Limitation of bilateral cooperation from libraries and data banks

Lack of laborers' concentration due to the heavy bulk of occupational duties

Lack of accessibility to international data bases

Lack of time sufficiency

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