

# **Occupational Hazards among Gas Station Workers**

*Thesis*

Submitted in Partial Fulfillment of the Master Degree  
in Nursing Sciences (Community Health Nursing)

*By*

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## List of Contents

<i>Subject</i>	<i>Page No.</i>
<i>List of Tables</i>	I
<i>List of Figures</i>	iv
<i>List of Abbreviations</i>	vii
<i>Abstract</i>	viii
<b><i>Introduction</i></b>	1
<b><i>Aim of the study</i></b>	8
<b>Review of literature</b>	
<b>Part (I): Gas station work environment</b>	9
<b>Part (II): Occupational health hazards among gas station workers</b>	26
<b>Part (III): Safety measures at gas station</b>	59
<b>Part (IV): Role of Occupational Health Nurse</b>	83
<b><i>Subjects and methods</i></b>	100
<b><i>Results</i></b>	108
<b><i>Discussion</i></b>	139
<b><i>Conclusion</i></b>	173
<b><i>Recommendations</i></b>	174
<b><i>Summary</i></b>	175
<b><i>References</i></b>	182
<b><i>Appendices</i></b>	211
<b><i>Protocol</i></b>	--
<b><i>Arabic summary</i></b>	--

## **List of Tables**

### **Tables of Review**

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
<b>1</b>	Examples of hazard information on a label	14
<b>2</b>	Examples of common fuel and oxygen sources	15
<b>3</b>	Non exhaustive guide list of harmful and hazardous factors together with some examples of types of PPE	68
<b>4</b>	Permissible noise exposures 1/4 or less 115	78

## Tables of Results

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
<b>1</b>	Distribution of studied sample according to their socio-demographic characteristics (n=260)	109
<b>2</b>	Distribution of studied sample according to their work characteristics (n=260)	111
<b>3</b>	Distribution of community health services which offered to gas stations workers (n=260)	112
<b>4</b>	Distribution of studied sample according to their present and past medical history (n=260)	113
<b>5</b>	Distribution of studied sample according the exposure to occupational health hazards in the work place (n=260)	114
<b>6</b>	Distribution of studied sample according to the exposure to occupational health hazards in work place by each hazards types (n=260)	115
<b>7</b>	Distribution of studied sample according to their current health status and common health problem (n=260)	118
<b>8</b>	Distribution of studied sample according to their knowledge about the occupational health hazards (n=260)	121
<b>9</b>	Distribution of studied sample according to their knowledge work related preventive measures (n=260)	122
<b>10</b>	Distribution of studied sample according to their practice regarding to preventive measures (Using protective clothing & the personal hygiene) (n=260)	124
<b>11</b>	Distribution of Gas Stations according to environmental occupational checklist to assess occupational environment (n=53)	126
<b>12</b>	Relation between socio-demographic characteristics of studied sample and their knowledge about occupational hazards (n=260)	128

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
<b>13</b>	Relation between exposure of studied sample to Occupational hazard and their socio-demographic characteristic (n=260)	130
<b>14</b>	Relation between exposure of studied sample to Occupational hazard and their work characteristics (n=260)	132
<b>15</b>	Relation between exposure of studied sample to occupational hazard and their total knowledge in work place (n=260)	133
<b>16</b>	Relation between knowledge of studied sample and their practice in work related preventive measure	134
<b>17</b>	Correlation between exposure of studied sample to Occupational hazard and their Working environment (n=260)	135
<b>18</b>	Relation between Socio-demographic characteristics of studied sample and their practice in work related preventive measure (n=260)	136
<b>19</b>	Relation between work characteristics of studied sample and their total practices in work related preventive measure (n=260)	138

## List of Figures

### Figures of Review

<b>Figure no.</b>	<b>Title</b>	<b>Page No.</b>
1	Fuel leakage on the ground in a gas station.	10
2	Traffic congestion by motors	16
3	Crowded station	16
4	Workers fueling a car.	17
5	Cleaning a care.	18
6	A gas station after explosion	21
7	Gas station after fire accident	22
8	The signs (there is a gas station).	24
9	Example of LP gas filling warning sing	25
10	Worker cleaning a car and wearing PPE.	27
11	Worker feuling a car and not wearing all of PPE	28
12	Reviewing the tire.	37
13	Fire accident in a gas station	53
14	Warning signs which found in gas station	55
15	Hierarchy of control.	60
16	Gloves, hand protection	71
17	Gloves, hand protection	72
18	Examples of head protection	73
19	Eye protection equipment.	74
20	Safety boots	75
21	Safety shoes java script	75
22	Respirator	77

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 *List of Figures*

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<b>Figure no.</b>	<b>Title</b>	<b>Page No.</b>
<b>23</b>	Ear plugs	78
<b>24</b>	Ear muffs.	79
<b>25</b>	Body protection	80

## Figures of Results

<b>Figure no.</b>	<b>Title</b>	<b>Page No.</b>
<b>1</b>	Distribution of studied sample according to total score of their exposure to occupational health hazards	117
<b>2</b>	Distribution of studied sample according to total score of their knowledge about the types of occupational health hazards and knowledge about utilization of the work related preventive measures	123
<b>3</b>	Distribution of studied sample according to total score of their practice regarding PPE and safety measures	125
<b>4</b>	Distribution gas stations according to total score level of environmental safety (n=53)	127

## List of Abbreviations

<b>Abb.</b>	<b>Full term</b>
<b>AAOHN</b>	American Association of Occupational Health Nurse
<b>BLS</b>	Bureau of labor statistics
<b>BTEX</b>	Benzene, toluene, ethylbenzene and the three isomers of xylene
<b>CPSC</b>	The consumer product safety commission
<b>DNA</b>	Deoxyribonucleic acid
<b>EPA</b>	United States Environmental Protection Agency
<b>FDA</b>	The US food and drug administration
<b>FSS</b>	Fuel Station Service
<b>GGNP</b>	Global Gross National Product
<b>GNP</b>	Gross national product
<b>ILO</b>	International labour office
<b>ILO</b>	International Labour Organization
<b>LPG</b>	Liquefied petroleum gas
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>NOHS</b>	National Occupational Health and Safety Policy
<b>OHSA</b>	Occupational health and safety administration
<b>OSH</b>	Occupational safety and health
<b>OSHA</b>	Occupational health and safety administration
<b>PFS</b>	Petrol Fuel Station
<b>PPE</b>	Personal Protective Equipment
<b>RSI</b>	Repetitive Strain Injury
<b>SDS</b>	Safety Data Sheet
<b>SWA</b>	Safe Work Australia
<b>VOCs</b>	Volatile organic compounds

## Occupational Hazards among Gas Station Workers

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### Abstract

Gas stations as work setting have hazards of chemicals substance and physical hazards which be potentially hazardous to environmental and human health. **Aim of the study** was to assess the occupational health hazards among gas station workers **Research design** :descriptive design was used **Setting**: the study was conducted at 53 gas stations in Assuit governorate **Sample**: convenience sample include 260 gas station workers **Tools**: two tools were used for data collection, **1<sup>st</sup> tools**: interviewing questionnaire sheet for the workers divided into five parts: **part one**: socio-demographic characteristics and work characteristics, **part two**: workers medical history, **part three**: occupational health hazards exposure in the work place **part four**: gas station worker's health status assessment, **part five**: worker's knowledge about of occupational health hazards& work related prevented measures **2<sup>nd</sup> tools**: observational checklist for workers practice for work related preventive measures, and gas station work environment **Results**: the study revealed 33.8 % of workers age was >30-40 years old. Mean 38.42 SD  $\pm 9.22$ , 6.1% of gas station workers suffered from Gastritis, 4.6% of them suffered from varicose vein, and 93.8% of the workers Define Chemical hazards as hazard they expose in work place. 58.8% of workers demonstrated exposure to occupational health hazards during work, 76.1% of workers had un satisfactory practice regarding to safety measures (Personal Protective Equipment & The personal hygiene). And 43.4% of gas stations had unsafe environment. **Conclusion**: the study concluded there was statistically significant relation between knowledge of gas station workers and their age, education level, monthly income. Although there was statistically significant relation between gas station worker's exposure to Occupational health hazard and their education level highly, There was statistically significant relation between worker's knowledge and their occupational hazard exposure and there was Negative correlation and significant between hazard exposure and the Working environment , there was statistically significant relation of gas station workers between knowledge and their practice in work related preventive measure. **Recommendation**: the study recommended that educational program related to gas station's health hazards, safety measures should be conducted.

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**Key words**: Gas station, Occupational hazards.

## **Introduction**

**W**orking gives meaning to our lives, yet also involves health risks according to what we do, how we react to our works, and under what conditions we work (*Lundy & Janes, 2016*).

There is paradoxical relationship between work and health; work is usually financial necessity and often socially rewarding but it must be acknowledged that under circumstances it may result in significant adverse health effects (*Sines, 2010*).

An “occupational disease” is any disease contracted primarily as a result of an exposure to risk factors arising from work activity. “Work-related diseases” have multiple causes, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases (*Occupational Health & Safety, 2016*).

Although most workers may never face any serious adverse health effects from workspace exposures, all types of work have hazards. These hazards can have short – and long – term health consequences, and every effort must be made to prevent and control work- related illness and injury (*Lundy & Janes, 2016*).

Occupational health refers to the identification and control of the risks arising from physical, chemical, and other workplace hazards in order to establish and maintain a safe

and healthy working environment. These hazards may include chemical agents and solvents, heavy metals such as lead and mercury, physical agents such as loud noise or vibration, and physical hazards such as electricity or dangerous machinery (*National Institute of Environmental Health Sciences, 2016*).

Petrol stations are busy places with lots of vehicle and pedestrian traffic. They also store and dispense large amounts of hazardous substances, especially flammable substances such as petrol, diesel and liquefied petroleum gas (LPG). That's why it's very important to have good systems and processes in place for making sure people stay healthy and safe (*Work Safe, 2016*).

Work practice controls include good hygiene, waste disposal, and housekeeping. Administrative controls reduce exposure through job rotation, work place monitoring, and employee training and education. Personal protective control is the last resort and requires the worker to actively engage in strategies for expectation, such as use of gloves, masks, gowns (*Roger, 2011*).

The environment of gas stations exposes gas station attendants to innumerable risks and health hazards, which should be considered harmful to the health status of these workers. Among the risks are: contact with fuels and other

chemical products, remaining close to fuel pumps, noise, heat, cold, risk of being run over, robbery, repetitive movements, standing for long hours, and work overload due to the different functions they perform (*Cezar-Vaz et al., 2012*).

Hazards in the workplace can be found in a variety of forms, including chemical, physical, biological, psychological, and non-application of ergonomic principles, etc. Because of the multitude of hazards in most workplaces and the overall lack of attention given to health and safety by many employers, work-related accidents and diseases continue to be serious problems in all parts of the world (*International Labour Organization, 2013*).

Automobile service station workers are at high risk of benzene toxicity because they neither take protective measures to prevent inhalation of petroleum products nor undergo regular medical checkup. Individual variations depend on the age, physical activity, smoking, pre-existing medical condition of the exposed person, amount of adipose tissue, genetic variation in benzene-activating and detoxifying enzymes, DNA healing capacity, and several growth-regulatory soluble mediators (*Fayed et al., 2017*).

Petrol on skin may not initially appear to be a problem, but prolonged or repeated liquid contact can lead to irritation or dermatitis. Breathing petrol fumes is dangerous. Exposure