# Health and Safety Measures Compliance among Workers in Petroleum Companies

### **Thesis**

Submitted for Partial Fulfillment of Requirements of Master Degree in Nursing Science (Community Health Nursing)

### By

AZIZA MOMTAZ

BS.c in Nursing, Faculty of Nursing Suez Canal University
(2000)

Faculty of Nursing
Ain Shams University
2010

# Health and Safety Measures Compliance among Workers in Petroleum Companies

### **Thesis**

Submitted for Partial Fulfillment of Requirements of Master Degree in Nursing Science (Community Health Nursing)

### **Under Supervision**

Prof. Dr. AMIRA AHMAD ELBEIH
Professor of Community Health Nursing
Faculty of Nursing
Ain shams University

DR. SEHAM GUIRGUIS

**Assistant Professor** of Community Health Nursing Faculty of Nursing Ain Shams University

Faculty of Nursing
Ain Shams University
2010

#### **ABSTRACT**

**Background:** Modern petroleum refineries utilize a vast array of chemical processes to convert raw material and crude oil into a variety of products. The petroleum industry plays a key role in the Egyptian economy. Workers in this sector are exposed to various types of occupational hazards. Health and safety measures compliance may decrease the health sequences of hazards exposure. Aim: The study aimed to assess health and safety measures compliance among workers of petroleum companies. Subjects & Methods: the study setting were in two of most important refining companies Nasr and Suez petroleum company were selected in Suez Governorate. A convenience sample (574) representing 25% of total technical workers in both companies. Tools: (1) self administered questionnaire, (2) Workers compliance observational checklist, (3) Work environment observational checklist and (4) Occupational health record review. Results finding revealed that, most of studied sample age were 35-45 years, most of them had unsatisfactory knowledge and most of them were not compliant to health and safety measures (PPE), compliance were more in safer workplace, **Conclusion**: the study concluded that there were lake of knowledge about health and safety and level of compliance with PPE **Recommendations:** encourage workers to participate in health and safety program to help in modifying their compliance behaviors toward health and safety at workplace.

Occupational Health, Safety, Workers Compliance, *Keywords:* Petroleum Company, PPE.





First and foremost, I feel always indebted to **ALLAH** the most kind and merciful whom I relate any success in achieving any work in my life.

I wish to express my deepest thanks, gratitude and appreciation to **Prof. Dr. Amira Ahmed Elbieh,** Professor of Community Health Nursing for her meticulous supervision, kind guidance, valuable instructions and generous help.

Special thanks are due to Dr. Seham Guirguis, Assistant Professor of Community Health Nursing for her sincere efforts and fruitful encouragement.

I would like to express my gratitude to all members who assisted me in various ways to establish this work specially Minister of Petroleum Eng. Sameh Fahmy, administrative managers and workers of both study settings Nasr and Suez Petroleum Companies and Minister of Manpower and Migration Mrs. Aisha Abdu El-Hady.

Aziza Momtaz 2010

# الإلتزام بإجراءات السلامة والصحة المهنية لدى العاملين بشركات البترول

رسالة توطئة للحصول على درجة الماجستير في تمريض صحة المجتمع

مقدمة من عزيزة ممتاز أبو العنين النجار بكالوريوس تمريض من جامعة قناة السويس دفعة (٢٠٠٠)

كلية التمريض جامعة عين شمس ٢٠١٠

# الإلتزام بإجراءات السلامة والصحة المهنية لدى العاملين بشركات البترول

رسالة توطئة للحصول على درجة الماجستير في تمريض صحة المجتمع

> تحت إشراف أد/ أميرة أحمد البيه

> > أستاذ تمريض صحة المجتمع جامعة عين شمس

أم د/سهام جرجس

استاذ مساعد تمريض صحة المجتمع جامعة عين شمس

كلية التمريض جامعة عين شمس ٢٠١٠



## رسالة ماجستير

لجنة المناقشة

اسم الطالبة: عزيزة ممتاز ابو العنين النجار عنوان الرسالة: الالتزام باجراءات السلامة والصحة المهنية لدي العاملين بشركات البترول اسم الدرجة: ماجستير في علوم التمريض

 أ.د./سلوي عباس: استاذ تمريض صحة المجتمع

 كلية التمريض –جامعة الزقازيق
 (ممتحن خارجي)

 أ.د./نادية يني: استاذ تمريض صحة المجتمع
 (ممتحن داخلي)

 كلية التمريض –جامعة عين شمس
 (عن المشرفين)

 كلية التمريض –جامعة عين شمس
 (عن المشرفين)

 تاريخ البحث:
 /

 ختم الاجازة:
 اجيزت الرسالة بتاريخ /
 /

 موافقة مجلس الكلية
 موافقة مجلس الكلية
 /
 /



### شكر

### اشكر الاساتذة اللاتي قمن بالاشراف وهم:

أ.د./اميرة احمد البيه: استاذ تمريض صحة المجتمع كلية التمريض -جامعة عين شمس أ.م.د./سهام جرجس استاذ مساعد صحة المجتمع كلية التمريض- جامعة عين شمس

واشكر كل من ساهم في اخراج هذه الرسالة علي هذا النحو



اسم الطالبة: عزيزة ممتاز ابو العنين النجار الدرجة العلمية: ماجستير في علوم التمريض

القسم التابع له: تمريض صحة المجتمع

اسم الكلية: كلية التمريض

الجامعة: عين شمس

سنة التخرج: ۲۰۰۰

سنة المنح: ٢٠١٠

### List of Contents

Title	Page No.
List of tables	i
List of figures	iv
List of abbreviations	vi
Abstract	vii
Introduction	Error! Bookmark not defined.
Aim of the Study	Error! Bookmark not defined.
Review of Literature	
Nature and Health Ha. Refining Process	zards of Petroleum <b>Error! Bookmark not defined.</b>
Occupational and Beha Personal Protective Equ among Workers	1
Occupational Health Nur Workers Health and Safety	rsing Roles Toward Error! Bookmark not defined.
Subject and Method	Error! Bookmark not defined.
Result	Error! Bookmark not defined.
Discussion	Error! Bookmark not defined.
Conclusion and Recommendation	s. Error! Bookmark not defined.
Summary	Error! Bookmark not defined.
References	Error! Bookmark not defined.
Appendices	Error! Bookmark not defined.
Arabic summary	

### List of Tables

Table No.	Title	Page No.
Tables of Review		
Table (1):	Chemical exposure and health effect on workers health: Error! Boo	
<b>Table (2):</b>	Occupational Hazards exposures effects on human health. Error! Bo	
<b>Table (3):</b>	Chemical and liquid resistant glove	es:Error! Bookmark not defined.
Table (4):	Acceptable noise exposure lindecibels Error! Book	
<b>Table (5):</b>	Primary prevention Error! Book	mark not defined.
<b>Table (6):</b>	Secondary level: Error! Book	mark not defined.
<b>Table (7):</b>	Tertiary level: Error! Book	mark not defined.
Tables of Results		
Table (1):	Workers Distribution According Socio-Demographic Characterist Health Conditions (n=574). <b>Error!</b> I	tics and
Table (2):	Workers Distribution According Job Characteristics and Exp Occupational Health Hazards (N=5	oosure to
Table (3):	Workers Distribution According Knowledge Score Level Regardir and Safety Measures (PPE). (n=57-	ng Health
Table (4):	Workers Distribution According Worksite Occupational Safety ar Program (n=574) Error! Books	nd Health
<b>Table (5):</b>	Workers Distribution According to Exposure and Management of Occ Accidents (n=574) Error! Books	cupational
Table (6):	Workers Distribution According Stated Availability and Complia Personal Protective Equipment (Ph	

# List of Tables (cont...)

Table No.	Title	Page No.
Table (7a):	Workers Observed Distribution Ac To Their Job Characteristics (N=101)	O .
Table (7b):	Observed Workers distribution according to their compliance with usage of personal protective equipment in study setting 89 -	
Table (7c):	Observed Workers distribution account to their total compliance level regarder.	arding
Table (8a):	Distribution of Total Observed Wo Environmental Components' Accord Actual Health and Safety Measu Study Setting (N=23). Error! Bookma	ling to res by
Table (8b):	Distribution of total workplace measures by study setting	
Table (9):	Relationship between Workers' Knowscore Level about Health and Safety Setting by Their Socio-Demo Characteristics	in Both graphic
Table (10):	Relationship between Workers' Knowscore Level about Health and Precautions in Both Setting Accord Their Job Characteristics Error! Book	Safety ding to
Table (11):	Relationship between Workers Compliance Level in Both Setting by Socio-Demographic Data (n=574). <b>Err</b> e	y Their

- Table (12): Relationship between Workers' Compliance
  Levels with PPE Usage by Their Job
  Characteristics ...... Error! Bookmark not defined.
- **Table (13):** Relationship between Workers' Knowledge Score Level about Health and Safety Measures by Their Compliance Level**Error! Bookmark not defined.**
- **Table (14):** Prevalence Rate of Occupational Accidents and Injuries in Nasr Petroleum Company.**Error! Bookmark not defined.**
- **Table (15):** Prevalence Rate of Occupational Accidents and Injuries in Suez Petroleum Company**Error! Bookmark not defined.**
- **Table (16):** Distribution of Total Components of Occupational Health Program by Industrial Setting ...... Error! Bookmark not defined.

#### List of abbreviations

AAOHN American Association of Occupational

**Health Nurses** 

ANSI American National Standards Institute

EGPC Egyptian Governmental Petroleum

Corporation

**ERI** Effort Reward Imbalance

ILO International labor organization

**LPG** Liquefied petroleum gas

NORA Non fatal occupational rates of America

OHN Occupational Health Nurses

OSHA Occupational health and safety association

**PETROSAFE** Petroleum Safety Company

**PPDS** Personal protective devices

**PPE** Personal protective equipment

CAPMAS Central Agency for Public Mobilization and

**Statistics**