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Occupational Health and Infection Control Practices Related to COVID-19 in Sana'a City Public Hospitals – Yemen

Thesis Submitted to the Department of Community Health and Nutrition, College of Medical Sciences, AL-Razi University as Partial Fulfilment for MSc. in epidemiology

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CERTIFICATE

This is to certify that the thesis entitled **Occupational Health and Infection Control Practices-Related to COVID-19 in Public Hospitals Sana'a City*;*** *which submitted to the Department of community and nutrition, Faculty of Medical Sciences, Al-Razi University for the award MSc. degree in Epidemiology. It is a record of the original and bona fide thesis work carried out by Ola Mohammed Nader Jarada under our guidance. Such material as has been obtained from other sources has been duly acknowledged in the research. This thesis embodies the work of the candidate herself and no part thereof has been submitted for any other degree.*

Supervisor

Associate Professor Dr. Abdulsalam M Al-Mekhlafi

DEDICATION

This thesis is dedicated to my family and my friends. A special feeling of gratitude to my loving parents, for their undying support and for teaching me the value of education and critical thought, and for them believes that I can achieve so much.

I am very fortunate and grateful to my husband for his encouragement and support.

I also dedicate this work to my sisters who have never left my side and are very special.

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TABLE OF CONTENTS:

TITLE OF THE STUDY ..... **I**
CERTIFICATE ..... **II**
DEDICATION ..... **III**
ACKNOWLEDGMENT ..... **IV**
TABLE OF CONTENTS: ..... **V**
LIST OF FIGURES ..... **IX**
LIST OF ABBREVIATIONS ..... **X**
ABSTRACT ..... **XI**
CHAPTER 1: INTRODUCTION **2**
1.1 Background of the study ..... …2
1.1.1 Problem statement 3
CHAPTER TWO: LITERATURE REVIEW **6**
2.1 Introduction 7
2.2. Overview on Coronaviruses 7
2.2.1 Epidemiology 8
2.2.2 Virology: 9
2.2.3 Mode of transmission: 10
2.2.4 Symptoms: 11
2.2.5 Treatment 12
2.2.6 The incubation period: 14
2.2.7 Infectious period: 14
2.2.8 Occupational health: 15
2.2.9 Infection prevention and control 16
2.2.10 Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) 21
2.2.11 Risk factors 25
2.3Occupational health: 25
2.3.1 Importance of occupational safety 26
2.3.2 Pubic health and occupational health 26
2.3.3 The medical role in occupational health 27
2.3.4 Occupational health practice 27

2.3.5 Occupational health hazards among health care workers: 28
2.3.6 Effective control of hazards 30
2.3.7 Infection prevention and control (IPC) 33
2.3.8 Infection spread 33
2.3.9 IPC principles 33
2.3.10 Standard precautions 34
CHAPTER 3: OBJECTIVES OF THE STUDY 45
3.1. General objective:…….. 45
3.2 Specific objectives:……..…….……45
CHAPTER 4: RESEARCH METHODOLOGY 47
4.1. Study setting…….. 47
4.2. Study design……..... 47
4.3 Population of the Study..... 47
4.4 Sample size determination 48
4.5 Sampling technique…..... 48
4.6 Inclusion and exclusion criteria 49
4.6.1 The inclusion criteria were included:..... 49
4.6.2 The exclusion criteria were included: 49
4.7 Data Collection Methods and Tools 49
4.7.2 Data collection tools 50
4.8 Pilot study…….. 52
4.9 Validity and reliability of the tools 52
4.9.1. Validity of the questionnaire..... 52
4.9.2. Internal consistency reliability..... 53
4.10 Data processing and statistical analysis 53
4.11 Study variables/ operational definition 55
4.11.1 Study variables:..... 55
4.11.2 Operational definition: 55
4.12 Ethical Considerations 56
CHAPTER 5: RESULTS 58
5.1 Demographic characteristics of health workers: 58
5.2 The organizational factors that have a relation with COVID-19 59
5.3 The individual factors that have a relation with COVID-19 59
5.3.1 First: the concept of disease 60

5.3.2 Second: Transmission 63
5.3.3 Third: The signs and symptoms: 64
5.3.4 Fourth: The prevention from COVID-19 67
5.3.5 Fifth: The treatment of COVID-19: 68
5.3.6 Sixth: Practice toward COVID-19: 70
5.4 The environmental factors that have a relation with COVID-19 73
5.5 The health workers risk perceptions factors that have a relation with COVID-19 74
5.6 The association between demographic factors and the level of knowledge of health workers regarding COVID-19 78
5.7 The association between the demographic factors and level of health workers practice toward COVID-19 80
5.8 The association between the demographic factors and level of health workers perception toward COVID-19 81
CHAPTER 6: DISCUSSION 83
6.1 Introduction 83
6.2 Demographic characteristics of health workers: 83
6.3 HWs knowledge toward COVID-19 85
6.4 HWs practice toward COVID-19 87
6.5 HWs perception toward COVID-19 88
6.6 Assessment for organization factors toward COVID-19 88
6.7 Assessment for the environmental factors toward COVID-19 89
6.8 The association between demographic factors and level of knowledge of health workers regarding COVID-19 90
6.9 The association between demographic factors and level of practice of health workers regarding COVID-19 91
6.10 The association between demographic factors and level of perception of health workers regarding COVID-19 93
6.11 Limitations of the study 93
CHAPTER 7: CONCLUSION AND RECOMMENDATIONS 96
7.1 Conclusion From the results of the study 96
7.2 Recommendations 97
REFERENCES 101
Appendix 113

LIST OF TABLES

Table 1: Recommended personal PPE during the outbreak of COVID-19 outbreak, according to the setting, personnel, and type of activity (WHO, 2020h) 22
Table 2: Classification of the different filter penetration limits of respirators Respirator (Muñoz et al., 2014) 37
Table 3: Selection of the questionnaire sample size using stratified simple random sampling method 48
Table 4: The demographic Characteristics of health workers 58
Table 5: The knowledge of health workers regarding the concept of COVID-19 disease 62
Table 6: Knowledge of Health Workers toward transmission of COVID-19 64
Table 7: Knowledge of health workers toward COVID-19 symptoms 66
Table 8: Knowledge of health workers toward COVID – 19 preventions 68
Table 9: Knowledge of health workers toward COVID – 19 treatments 70
Table 10: Health workers practice toward COVID-19 72
Table 11: WHO recommended number of hand hygiene practices for health workers toward COVID-19 72
Table 12: The environmental factors that have a relation with COVID-19 73
Table 13: Health workers risk perceptions toward COVID-19 77
Table 14: The association between demographic factors and level of knowledge of health workers regarding COVID-19 79
Table 15: The association between the demographic factors and level of health workers practice toward COVID-19 80
Table 16: The association between demographic factors and level of perception of health workers regarding COVID-19 81

LIST OF FIGURES

Figure 1:The organizational factors that have a relation with COVID-19 59
Figure 2: The general knowledge of the HWs 60
Figure 3 Knowledge of the Health Workers regarding the concept of COVID -19 disease 61
Figure 4: level of Knowledge of HWs regarding the COVID-19 transmission 63
Figure 5: Health workers' knowledge toward COVID – 19 symptoms and signs 65
Figure 6: The health workers' knowledge toward COVID – 19 prevention 67
Figure 7: Health workers' knowledge toward COVID – 19 treatment 69
Figure 8: The health workers general practice toward COVID-19 71
Figure 9: Health workers risk perceptions factors that have a relation with COVID-19 74

LIST OF ABBREVIATIONS

ABHR	Alcohol Based Hand Rub
AIIR	Airborne infection isolation room
CDC	Centers for Disease Control
ECoV	Equine coronavirus
EPA	Environmental Protection Agency
FFP	Filtering face pieces
FGDs	Focus group discussions
HBV	Hepatitis B virus
HCFs	Healthcare facilities
HCP	Healthcare personnel
HCP	Health Care Providers
HCV	Hepatitis C virus
HR	Humanitarian resource
HWs	Health workers
IHS	International Headache Society
IPC	Infection prevention and control
LRT	lower respiratory tract
MERS-CoV	Middle eastern respiratory syndrome
MOH	Ministry of health
MSDs	Musculoskeletal disorder
NCDs	Non-communicable diseases
NIOSH	National Institute for Occupational Safety and Health
NRL	Natural rubber latex
OSHA	Occupational safety and health recommendations
PAPRs	Powered air-purifying respirators
PPE	Personal protective equipment
RT-PCR	Reverse transcription polymerase chain reaction
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
SPSS	Statistical Package for Social Sciences
SSD	Sterile Services Department
URT	Upper respiratory tract
VTM	Viral transport media
WHO	World health organization

ABSTRACT

Background of the study

The novel coronavirus COVID-19 was originally identified in December 2019 as a severe case of pneumonia in China and since that it has become a global pandemic affecting the greatest nations around the whole world. COVID-19 is an important cause of mortality and morbidity which it reached over 193 657 725 cases. This can be primarily prevented by increasing the knowledge and practice of health workers to improve health care which will play an important role to enhance the health system.

Methods

A descriptive cross-sectional study was conducted among health workers (HWS) at public hospitals in Sana'a city-Yemen to assess the occupational health and infection control practices-related to COVID-19. The sample size was 386 HWs from the five public hospitals that participated in this study. Data was collected using a close-ended questionnaire, focus discussion group, and observation list. Three hundred eighty-six HWs were tested for the individual factors (acknowledge, practice and perception), 40 HWS were tested for risk perception and organization factors using focus group discussion (FGDs), five hospitals were tested for organization and environmental factors using an observation list.

Results

The results of the study showed that 53.9% of HWs were females and 46.1 % male, 58.5% of HWs aged more than 25 years old. The jobs of health workers were 19.4 % doctor, 19.4 % medical assistant, 5.4% technician, 21.8% laboratorian, 23.3% nurse, 3.1% midwife and 7.5% others. More than half (50.8 %) of the study attendance were undergraduated, about the half (51.3%) has more than 3 years of experience. The general knowledge of the health

workers was 39.4% good and 60.6% was poor, the concept of the disease was 61.9% good knowledge and 38.1% was poor knowledge, knowledge of HWs on COVID-19 transmission was 92.5% good knowledge and 7.5% poor knowledge. The knowledge of symptoms and signs was 22.5 % good knowledge and 77.5% was poor knowledge, a good knowledge of HWs prevention with 47.4 % and 52.6 % was poor acknowledge. The HWs good acknowledge toward treatment was 69.9% and 30.1% for poor knowledge. The general practice of HWs toward COVID-19 was 55.4% good practice and 44.6% bad practice. The WHO that recommended the number of hand hygiene practices were performed by 10.6% of HWs. Using the observation list, four hospitals had adequate ventilation in the rooms, the suitable distance between each bed and the PPE was available. Three hospitals from five have a sufficient quantity of PPE and have a well -equipped triage station at the entrance. Two hospitals adhere that the suspected patient wore mask when they arrive at the hospital and two from five hospitals have soap and water for hand hygiene and just one hospital adopts the universal masking policy. No hospitals have available alcohol-based hand rub or have a negative pressure room.

There was no significant association between the overall level of knowledge and sex (P = 0.41) but there was a statistically significant association between the overall level of knowledge and age, (P= 0.00), job (P=0.00), experience (P=0.00) and education (P= 0.00). Also, a significant association between level of health workers practice toward COVID-19 and sex (P = 0.02), age (P= 0.02) and job (P=0.03) and there is no significant association between level of health workers practice and education (P= 0.19) and experience (P=0.44). Although, there is significant association between level of health workers perception and age (P= 0.02), there is no significant association between level of health workers perception toward sex (P= 0.31), education (P=0.92), job (P=0.63) and experience (P=0.48).

Conclusion

The health workers' knowledge of COVID-19 was inadequate and their practice was found good and most perception of HWs was negative. There was a significant association between knowledge and age, job, education, and experience whereas no association between knowledge and sex. There was a significant association between the level of health workers' practice and sex, age and job but no significant association between the level of health workers' practice and education, and experience. There was a significant association between the level of health workers' perception and age while there was no significant association between the level of health workers' perception and sex, education, job, and experience.

Recommendations

It is recommended that the formal authorities should increase the acknowledge of HWs and train them on COVID guidelines and supply the health care facilities with all kinds of PPEs. Therefore, improvement is needed in various areas related to the character of the disease, best practices, and the experience of health workers. New information about COVID-19 can be translated into guidance for HWs. Similar studies should be conducted with a large sample size in other health facilities in Yemen are recommended.