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Health Hazards among Health Care Workers and Associated Factors in Public Hospitals, Sana'a-Yemen

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Nutrition college of Medical Sciences, Al-Razi University as a
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الجمهورية اليمنية
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المخاطر الصحية بين العاملين الصحيين والعوامل المرتبطة بها في المستشفيات العامة صنعاء - اليمن.

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Certificate

This is to certify that the thesis entitled. Health Hazards among Health Workers and Associated Factors in Public Hospitals, Sana'a Yemen; which Submitted to the Department of Community Health and Nutrition, Faculty of Medical Sciences, Al-Razi University for the award Master Degree in (Epidemiology). It is a record of the original and bona fide thesis work carried out by Makkia Ahmad Ali al-Falahi 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.

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Dedication

*This thesis is dedicated to my great parents, who never stop
giving of themselves in countless ways,*

My beloved son, who stood beside me and supported me,

*To my brothers and sisters who lead me through the valley
of darkness with the light of hope and support.*

To all of my family, the symbol of love and giving,

To my friends, who encourage and support me, and finally,

it is also to

all the people who are in my life who touch my heart.

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
BC	Before Christ
BB	Blood bourn
BBF	Blood and body fluid
CDC	Central of disease control and prevention
CTDs	Cumulative trauma disorders
CTS	Carpal tunnel syndrome
EM	Electromagnetic
GA	Glutaraldehyde
GDP	Gross Domestic Product
HBV	Hepatitis B virus
HCC	Hepato-cellular carcinoma
HCV	Hepatitis C virus
HCWs	Health care worker
HIV	Human immunodeficiency virus
HIV	Human Immunodeficiency virus
IAEA	International Atomic Energy Agency
ICRP	International commission on radiological protection
ICUs	Intensive care units
IEA	International Ergonomics Association
IPC	Infection prevention and control
LBP	Low back pain.
MCC	Mucocutaneous contact
NIOSH	National Institute for Occupational Safety and Health
NIOSH	National institute for Occupational Safety and Health
NRL	Natural rubber latex
NSI	Needle stick injury
NSIs	Needle stick and sharps injuries
OHH	Occupational health hazard
OR	Operations Room
OSH	Occupational safety health

PEP	Post exposure prophylaxes
RMT	Repetitive motion trauma
RSIs	Repetitive strain injuries
STF	Slips, trips and falls
USA	United States of America
WAGs	Waste anesthetic gases
WHO	World health organization
WMSD	Work related musculoskeletal disorders
WPB	Workplace Bullying
UK	United Kingdom

ABSTRACT

Background: Healthcare workers (HCWs) in Yemen are exposed to a myriad of occupational health hazards, including biological, physical, ergonomic, chemical and psychosocial hazards. HCWs operate in an environment that is considered to be one of the most hazardous occupational settings

Objective: to assess the prevalence of occupational health hazards among health care workers and associated risk factors in public hospitals in Sana'a city Yemen.

Method: descriptive cross-sectional design was utilized, out of 5443 totals of HCWs 396 were selected by multistage sampling technique was carried out in the public hospitals in Sana'a city Yemen. Self-administrated questionnaire used for data collection from the 1st November to the 5th December 2020. Pearson Chi- Square test was used to assess overall knowledge and demographic characteristics. Multiple linear regressions analysis was used to determine the predictors of knowledge, total risk prevalence, and total safety practice.

Results: More the half (60.6%) of HCWs aged between 20-30 years, (50.8%) were males, (56.3%) married, and (45.5%) had a diploma qualification, while (65.2%) of HCWs had less than 6 years' experience. The result showed that the highest prevalence of occupational hazards was (99%), (ergonomic hazards (93.4%), biological hazards (87.6%), psychosocial (86.65%), physical hazards (83.3%), and chemical hazards (73.5%). HCWs had moderate knowledge about occupational hazards and fair safety practice. there were statistically significant association between the overall of knowledge among HCWs toward occupational hazard and age (p-value = 0.031), sex, (p-value = 0.057), and experiences (p-value = 0.057). On the other hand, there was statistically significant association between the safety practice with age, experience and professional categories (p-value= 0.000, 0.025,0.010 respectively).

Conclusion and recommendations: The study showed highest prevalence of occupational hazards, and healthcare workers had moderate knowledge regarding occupational hazards. Regarding to the prevalence of biological hazards exposure to sharp related injury, most prevalence of physical hazards was slip/trip/and fall. Ergonomic hazards had back or neck pain during work. Chemical hazards were allergic to medical gloves powder. On psychosocial hazards was suffered from verbal and physical harassment. The study concluded by raising awareness among HCWs by conducting training courses to prevent occupational hazards.

ملخص الدراسة

خلفية الدراسة: يتعرض عمال الرعاية الصحية في اليمن لعدد لا يحصى من المخاطر المهنية، بما في ذلك المخاطر، البيولوجية، الفيزيائية، الميكانيكية، الكيميائية والنفسية الاجتماعية. يعمل العاملون في مجال الرعاية الصحية في بيئة تعتبر من أكثر البيئات المهنية خطورة

هدف الدراسة: تقييم انتشار المخاطر الصحة المهنية بين العاملين في مجال الرعاية الصحية وعوامل الاختطار المرتبطة بها في المستشفيات العامة في مدينة صنعاء- باليمن.

طرائق البحث: هذه دراسة وصفية مقطعية عرضيه، تم اختيار 396 من إجمالي العاملين في مجال الرعاية الصحية البالغ عددهم 5443 باستخدام تقنية أخذ العينات متعددة المراحل من المستشفيات العامة في مدينة صنعاء باليمن. وقد تم استخدام استبيان لجمع البيانات من 1 نوفمبر إلى 5 ديسمبر 2020. تم استخدام Pearson Chi- Square لتقييم العلاقة بين المعرفة الشاملة والبيانات الديموغرافية وتحليل الانحدار الخطي المتعدد لتحديد تنبؤات المعرفة وانتشار المخاطر وممارسة السلامة بين العاملين.

النتائج: أكثر من النصف (60.6%) من العاملين في مجال الرعاية الصحية الذين تتراوح أعمارهم بين 20-30 سنة، (50.8%) ذكور، (56.3%) متزوجون، و (45.5%) مؤهلاتهم العلمية دبلوم، بينما لديهم خبرة أقل من 6 سنوات (65.2%). أظهرت النتائج نسبة عالية من انتشار المخاطر المهنية وكان معدل الانتشار للمخاطر الصحية (99%)، وتوزع بالشكل التالي، مخاطر فيزيائية (93.4%)، مخاطر بيولوجية (87.6%)، مخاطر نفسية اجتماعية (86.65%)، مخاطر ميكانيكية (83.3%)، ومخاطر كيميائية (73.5%). كان لدى العاملين في مجال الرعاية الصحية معرفة متوسطة بالمخاطر المهنية وممارسات السلامة. وكان هناك ارتباط ذي دلالة إحصائية بين إجمالي المعرفة بين العاملين في مجال الرعاية الصحية تجاه المخاطر المهنية والعمر (عند مستوى الدلالة $p = 0.031$)، والجنس، (القيمة الاحتمالية = 0.057) والخبرات (القيمة الاحتمالية = 0.057) ومن ناحية أخرى، كان هناك ارتباط ذي دلالة إحصائية بين ممارسة السلامة مع العمر والخبرة والفئات المهنية (عند مستوى الدلالة = 0.000، 0.0، 0.025 على التوالي).

الاستنتاجات والتوصيات: أظهرت الدراسة انتشار عالي للمخاطر المهنية وكان لدى العاملين في مجال الرعاية الصحية معرفة متوسطة فيما يتعلق بالمخاطر. فيما يتعلق بانتشار المخاطر البيولوجية كان أكثر التعرض لإصابات بألة حادة، ومعظم انتشار المخاطر الفيزيائية هو الانزلاق/التعثر/السقوط. بالنسبة للمخاطر الميكانيكية هو وجود آلام في الظهر أو الرقبة أثناء العمل. المخاطر الكيميائية أظهرت الدراسة وجود حساسية تجاه مسحوق القفازات الطبية. كما أن المضايقات اللفظية والجسدية كانت الإغلب في المخاطر النفسية والاجتماعية. خلصت الدراسة إلى رفع مستوى الوعي بين العاملين في مجال الرعاية الصحية من خلال عقد دورات تدريبية للوقاية من الأخطار المهنية.

Chapter1: Introduction

1.1 Background of the study

Occupational hazards refer to workplace factors with a potential for harm in terms of injury or ill health. Health hazards are classified in five categories (*Omoijiade and Okareh, 2018*)

Biological (bacteria, viruses,), Physical (noise, radiation, extremes of temperature), Ergonomic or mechanical hazards (poor posture, heavy lifting), Chemical (solid, liquid, and vapors), Psychosocial (work related stress, violence, bullying and harassment).

Exposure to any of these hazards can cause occupational diseases and work accidents. (*Izadi and Piruznia, 2018*)

The world health organization (WHO) global plan of action on workers' health calls on all member states to develop national programmers for health worker occupational health and to develop national campaigns for immunizing health workers against hepatitis B. WHO global burden disease from sharps injuries among health workers and National Institute for Occupational Safety and Health report indicated that an estimated 600,000 to 800,000 percutaneous injuries occur annually to HCWs (*Ghosh, 2013*). WHO estimated that there are approximately 3 million cases of needle stick injury (NSI) in healthcare workers each year, with 90% of these occurring in developing countries, resulting in 40% of hepatitis B and C cases among HCWs worldwide (*Wilburn, 2004*).

The current global labor force stands at about 2.6 billion and is growing continuously each year, approximately 75% of them are in developing countries. Another 40 million people join the labor force, most of them are in developing countries. Health care workers face a wide range of hazards in their job; as physical hazards, chemical hazards, latex allergies, and violence. (*Ghosh, 2013*).

Healthcare workers are all the people who are engaged in actions and whose primary intents are to enhance health and make important contributions and are critical to the functioning of most health systems (*Ghosh, 2013*). Healthcare workforce is one of the largest work forces in the world constituting over 12% of the working population in the whole world (*Osungbemiro et al., 2016*). Occupational Health is an emerging discipline of health and has been considered as an integral part in the working places and health care workers, considerably uniquely hazardous occupation (*Sabita et al.,*

2018). Health care provider , have a critical role to play in the healthcare delivery system .They are at the highest risk of exposure to occupational health hazards, and they routinely come into contact with blood and body fluids, chemicals, radiations which are very hazardous to their health (*Ran, 2018*).

The work environment in most cases is not safe. In spite of that, the health care workers constantly carry out their jobs and the multiplicity of tasks while exposed to a great variety of hazards. The health care workplace harbors are the most hazardous disease-provoking agents' especially the biological, chemical, physical, psychological, and social stressors. The estimate of the global number of work-related fatal and non-accident diseases does not seem to have changed significantly during the past 10 years (*Nwankwo et al., 2018*).

Occupational risks of health professionals can alter according to the profession, the work itself, and the unit of the hospital (*Ulutasdemir and Tanir, 2017*). This is linked to both the recent globalization process and rapid industrialization which are common in poor countries that are not capable of maintaining effective occupational health and safety systems, so the call on the need to focus on health and safety is as paramount as ever. Therefore, the traditional hazard risk prevention and control tools are still effective but need to be completed by strategies designed to address the consequences of a continuous adaptation to a rapidly changing world of fatal work (*Nwankwo et al., 2018*)

Health workers are the bedrock for sustainable social and economic development of any society at both local and global level and they play vital role to functioning of a given health system. The majority of the health workers provide health care services to the consumers, while the other staff carryout administrative duties and the paramedical or allied staff are the supporting staff. But the unfortunate fact is that, these workers while carrying out their job are exposed to wide range of harmful and hazardous substances which could cause illness and injuries in, most cases focus are on the care consumers rather than the care giver (*Nwankwo, 2019*).

WHO reported that, the disease burden caused by percutaneous sharps injuries among healthcare workers was found to be three million per year, moreover, 40% of hepatitis B, 40% of hepatitis C, and 4.4% of HIV due to needle stick injuries. It is very unfortunate that approximately 1000 healthcare workers die annually from occupational HIV, which can and should have been prevented, despite this, almost 80%