TURKISH REPUBLIC OF NORTH CYPRUS

NEAR EAST UNIVERSITY

HEALTH SCIENCES INSTITUTE

ATTITUDES OF HEALTH CARE WORKERS TOWARDS SAFE USE OF SHARP MEDICAL DEVICE

SALIHA AMINU

MASTER THESIS

PUBLIC HEALTH NURSING DEPARTMENT

SUPERVISOR

ASSOC. PROF. HATICE BEBIŞ

NICOSIA 2020

TURKISH REPUBLIC OF NORTH CYPRUS

NEAR EAST UNIVERSITY

HEALTH SCIENCES INSTITUTE

ATTITUDES OF HEALTH CARE WORKERS TOWARDS SAFE USE OF SHARP MEDICAL DEVICE

SALIHA AMINU

MASTER THESIS

PUBLIC HEALTH NURSING DEPARTMENT

SUPERVISOR
ASSOC. PROF HATICE BEBIŞ

NICOSIA 2020

THESIS APPROVAL CERTIFICATE

The thesis study of Nursing Department graduate student Saliha Aminu with student number 20184186 titled **ATTİTUDE OF HEALTH CARE WORKERS TOWARD SAFE USE OF SHARP MEDİCAL DEVİCE** has been approved with unanimity / majority of votes by the jury and has been accepted as a Master of Master of Nursing Thesis.

Thesis Defense Date: 22/1/2020

Jury Members Signature

Head of Jury Assist. Prof. Dr. Meltem MERİÇ

Near East University

Supervisor Assoc. Prof. Dr. Hatice BEBİŞ

Near East University

Jury Member Assist.Prof.Dr. Serap TEKBAŞ

University of Kyrenia

Professor K. Hüsnü Can BAŞER
Director of Graduate Institute of Health Sciences

STATEMENT (DECLARATION)

I hereby declare that this thesis study is my own study. I had no unethical behavior in all stages from planning of the thesis until the writing thereof. I obtained all the information in this thesis in academic and ethical rules. I provided reference to all the information and comments which could not be obtained by this thesis study and took their references into the reference list and no behavior rights and copyright infringement during the study and writing of this thesis.

../…/2020

Saliha Aminu

ACKNOWLEDGEMENT

Firstly, praise be to God Almighty for seeing me through my research successfully.

I want to acknowledge my research supervisor Assoc. Prof. Hatice Bebiş, whose guidance, contribution and experience has benefited and inspired me. Am grateful for the constructive criticism, motivation, friendship and her great sense of humor. I extend my gratitude to the Dean of the Faculty of Nursing, Prof. Dr. Ümran DAL Yilmaz. Near East University, which allows the study to be conducted. the assistant Dr. Meltem Meriç and Assistant Professor Dr. Serap Serap and also near east university hospital health worker who participated in the study and answered the question sincerely. Thank you very much

My sincere thanks to my parents Aminu Jibrin and Hajara Musa Aminu, for their love, prayers, support and sacrifices throughout my life. Am constantly grateful to have you as parents. My special thanks to my sister, Fatimah Aminu, my uncle Silvester Nda Jibrin and the rest of my family members for their support and encouragements. I express my appreciation to my friends Grace Ashengla Angulu and Nuhu Abdulhaqq Isa, for their understanding, genuine support and being there for me. Finally, my appreciation to all those who helped me complete my research work directly or indirectly.

SALIHA AMINU

January, 2020

AMINU S, The Attitude of Heath Care Workers Towards Safe Use of Sharp Medical Device, Near East University, Institute of Health Science, Nursing Department, Master Thesis, Nicosia 2020

ABSTRACT

Objective: This study was conducted in a hospital in Near East Nicosia, Turkish Republic of North Cyprus. Some demographic information, knowledge and behavior awareness was the scale, and the mean score from comparison of the demographic characteristic and attitudes were used to determine the attitudes of healthcare workers towards the safe use of sharp medical device.

Materials and methods: The total population of health care workers are approximately (N=250) in near east hospital. The sample number of the participants for the study (n=200).

Data collection: Demographic information form (7 questions) and the Turkish version of attitudes of health care workers towards safe use of sharp medical device scale (25-item question) were used to collect data. Data were collected in approximately 15-20 minutes after handing it.

Statistical analysis: The relationship between socio-demographic characteristics and attitude medical device injure had been analyzed using bimodal and Kruskal Wallis test. Bivariate logistic regression analysis was conducted to statistically examine which factors were associated with perceptions of attitude medical device injury. The results are represented as with accompanying 95% confidence intervals "CI.". Independent variable (gender) was significant at a p value less than (0.05). Statistical Package for the Social Sciences (SPSS) for Windows (Version 18.0) was used for analysis.

Results and Discussion: The purpose of this research was to find out the attitudes of healthcare workers towards the safe use of sharp medical device. The majority of the participants were female, most of the participants were university graduates and above with 44.5% living in the town. Nurses have the highest number (42.5%). People with 1-5 years of experience are more and 40% of the participants worked in outpatient wards.

The participants have a high preventive knowledge on after injury treatment. One in ten healthcare professionals in this study were not aware of preventive treatments. The participants have high knowledge on medical monitoring, some participants are unaware of importance of medical waste bin, (12%) leave themselves vulnerable to hepatitis B from patients. The participants have high awareness on hepatitis vaccination.

The participants have high awareness level on in-service training. They also have high perception that blood splatter pose risk for transmission and on the risk of infection of blood. The participants have high attitude on safe handling of used gloves and needles and also a high incident reporting culture. The participants adhere to standard precaution and glove use among the participants is very high.

A significant difference was found between the attitude of healthcare workers towards safe use of sharp medical device scale and gender, education level.
No significant differences were noted between the scale and place of living, profession, years of experience and work

Conclusion and Recommendation: it is recommended that occupational health nurse asses risk among healthcare workers, establish surveillance, increase awareness among at risk group and provide a positive environment for incident reporting. recommend Further research; to conduct prevalence study and extend the scope of study

Keywords: Attitudes, Healthcare Workers, Medical Device, Nursing

AMINU S, Sağlık Çalışanlarının Kesici Tıbbi Cihazların Güvenli Kullanımına Yönelik Tutumu, Yakın Doğu Üniversitesi, Sağlık Bilimleri Enstitüsü, Hemşirelik Bölümü, Yüksek Lisans Tezi, Lefkoşa 2020

ÖZET

Amaç: Bu çalışma; Kuzey Kıbrıs Türk Cumhuriyeti'nin Lefkoşa bölgesinde bulunan Yakın Doğu Hastanesi sağlık personeli ile yürütülmüştür. Sağlık personelinin bazı sosyo-demografik bilgi ve davranış ile kesici tıbbi cihazları güvenli kullanımına ytönelik bilgi ve tutumları değerlendirilmiştir.

Gereç ve yöntem: Yakın Doğu Hastanesi Sağlık çalışanlarından (N = 250) araştırmaya katılma kriterlerini karşılayan ve çalışmaya gönüllü olarak çalışmaya katılanlar (n= 200) ile çalışma Eylül2019-Ocak2020 tarihleri arasında tanımlayıcı bir çalışma olarak yürütülmüştür.

Veri toplama: Verilerin toplanmasında; Demografik Bilgi Formu (7soru) ve Sağlık çalışanlarının kesici-delici tıbbi aletleri güvenli kullanımına yönelik tutum ölçeği (25 maddelik soru) kullanılmıştır. Veriler teslim edildikten yaklaşık 15-20 dakika sonra toplandı.

İstatistiksel Analiz: Verilerin analizine SPSS 20.0 istatistik program kullanılmıştır. Sosyo-demografik özellikler ile tıbbi cihaz yaralanması arasındaki ilişki sayı , yüzde, ortalama ve standart sapma olarak verilmiş. Ölçek toplam puanı ile katogorik değişkenler Kruskal Wallis testi ile analiz edilmiştir. Araştırma 95 güven aralığı ve %5 hata payı ile yapılmıştır.kları "CI" ile temsil edilir.

Bulgular ve Tartışma: Bu araştırmanın amacı, sağlık çalışanlarının keskin tıbbi cihazların güvenli kullanımına yönelik tutumlarını bulmaktı. Katılımcıların çoğu kadın, katılımcıların çoğu üniversite mezunuydu ve% 44.5'i şehirde yaşıyordu. Hemşireler en yüksek sayıya sahiptir (% 42.5). 1-5 yıllık deneyime sahip insanlar daha fazladır ve katılımcıların% 40'ı polikliniklerde çalışmaktadır. Katılımcılar yaralanma sonrası tedavi hakkında önleyici bilgiye sahiptir. Bu çalışmadaki her on sağlık uzmanından biri önleyici tedavilerin farkında değildi. Katılımcılar tıbbi izleme konusunda yüksek bilgiye sahiptir, bazı katılımcılar tıbbi atık kutusunun öneminin farkında değildir, (% 12) kendilerini hastalardan hepatit B'ye karşı savunmasız bırakmaktadır. Katılımcılar hepatit aşısı konusunda yüksek farkındalığa sahiptir. Katılımcılar hizmet içi eğitim

konusunda yüksek farkındalık düzeyine sahiptir. Ayrıca kan sıçramasının bulaşma ve kan enfeksiyonu riski konusunda yüksek bir algıya sahiptirler. Katılımcılar, kullanılmış eldivenlerin ve iğnelerin güvenli kullanımı ve ayrıca olay bildirme kültürü konusunda yüksek tutuma sahiptir. Katılımcılar standart önlemlere uymakta ve katılımcılar arasında eldiven kullanımı çok yüksektir. Sağlık çalışanlarının keskin tıbbi cihaz ölçeğinin güvenli kullanımına yönelik tutumları ile cinsiyet, eğitim düzeyi arasında anlamlı bir fark bulunmuştur. Ölçeği ve yaşadığı yer, mesleği, deneyim ve çalışma yılları arasında anlamlı bir fark bulunmamıştır.

Sonuç ve Tavsiye: İş sağlığı hemşiresinin sağlık çalışanları arasında risk algısı farkındalığını artırmalı, gözlem yapmalı kayıt ve raporlaması yapması önemlidir. Bu yaralanmaların önlenmesi ve yaralanan çalışanların kendilerini raporlamaları için olumlu ortam sağlamalıdır

Anahtar Kelimeler:, Sağlık Çalışanlarının Sağlığı, Kesici Tıbbi Cihaz, Hemşirelik

TABLE OF CONTENTS

ABBREVIATIONS

ANA:	American Nurses Association
HBV:	Hepatitis B Virus
HCB:	Hepatitis B Virus
HCW:	Health Care Worker
HİV:	Human Immune Syndrome
İLO:	International Labor Organization
n:	Number of Participants
NHS:	National Health Service
NSİs:	Needle Stick Injuries
OSHA:	Occupational Safety and Health Administration
SARS:	Severe Acute Respiratory Syndrome
SOIs:	Sharp Object Injuries
TRNC:	Turkish Republic of North Cyprus

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Sharp medical devices refer to sharp, penetrative and pointed devices which can cause an injury by cutting or pricking the skin. Examples includes scalpels, syringes with needles, infusion systems, lancets, and blood collection devices (Markkanen et al., 2015). Injuries resulting from the use of sharp medical devices are called percutaneous injury. Needle stick and sharp injury, basically are unplanned, and unintended phenomenal, characterized by 'Stuck or cut by needles, surgical tools, glasses, medical equipment, medical waste and a host of other sharp objects that could lead to or increases nurses/ healthcare workers/patients' level of exposure to blood-borne pathogens and infection (NHS Confederation, 2015). For instance, injuries resulting from contact with contaminated sharp device are the major causes of occupational exposure and are predisposing factors to such blood borne Viruses such as Hepatitis B (HBV), Hepatitis C (HBC), Hepatitis D (HDV) virus Human Immune deficiency virus (HIV), Human lymphotrophic retrovirus (HTLVI & II), Cytomegalovirus (CMV), Epstein-Barr virus (EBV), Parvovirus B19, Transfusion Transmitted virus (TTV), West Nile virus (WNV) and Malarial parasites among many others (NHS Confederation, 2015).

Evidence in research has shown a high prevalence of injuries from sharp medical device among the various healthcare workers, despite this state of high occurrence, cases of percutaneous still remains underreported (Istanbullu, I.T., Yıldız, H. & Zora, H. 2012). That notwithstanding, a study conducted by Irmak (2012), on nurses in Mugla Turkey, it was reported that 30% of the 143 nurses in the hospital suffered injuries from needle stick and sharp injury in the year 2011. Major causes of injuries were string needles which accounted for 65.1% and suture needles 18.6%. Similarly, a study by (Akgur, et al., 2012) on nurses in north Cyprus it was reported that 68.2% out of a sample size of 151 nurses experienced needle stick and sharp injuries.

NHS Confederation, (2015), reported an occurrence of an estimated figure of 40.000 cases of needle stick injuries among employers in the NHS of which 45% of the affected group were midwives, nurses and healthcare assistants, 41% comprised of doctors, professions allied to medicine comprised 7.5% while the remaining 6.5% comprised of dentist/ dental nurses and

ancillary staff in the ratio of 5% and 1.6% respectively (NHS Confederation, 2015). Additionally, Eye of the Needle (2014) in their study reported the occurrence of an aggregate of 4,830 occupational exposures to blood or other high-risk body fluids between the year 2004 and 2013. Of the reported cases, sharp injury was responsible for 3,396 cases of occupational exposure out of the 4,830 reported cases. Between this period a total of 1,478 healthcare workers were exposed to HIV, 590 healthcare workers were exposed to hepatitis B and 2,566 to hepatitis C, due to injury from sharp medical device (Eye of the Needle, 2014).

A world health study in the year 2002, reported that cases of percutaneous exposures to BBP stood at 3 million, 35 million health workers every year globally. Furthermore; the report also noted that the effect of these percutaneous exposure accounted for16,000 hepatitis C and 66,000 hepatitis B cases, and between 2000 and 5,000 HIV cases. infections among health workers worldwide (WHO, 2002). Similarly, in China, a study by Lin, et al. (2014), it was reported that out of 343 healthcare workers who constitute the population of the study, 88.9% of the healthcare workers have experienced at least one NSSI.

In Iran, a study by Gheshlaghat et al., it was reported that 42.5% cases of NSSIs among a sample of 16,105 healthcare workers in Iran (Gheshlagh et al., 2018)). In Lithuania, Lukianskyte, et al. (2011) reported that 51% 0f 196 nurses sampled for the study had sustained one or more NSSIs when putting a case on used needles, while 49% sustained injuries when breaking ampoule. These statistics clearly reflects the global impart of injuries from sharp medical devices among healthcare workers. Despite the global nature of NSSI and its associated health risk, cases of NSSI, have remained under reported both in TRNC and other nations. Therefore, it is important to examine the correctness of attitudes of healthcare workers towards sharp injuries and to plan and maintain in-service trainings to determine their inadequacies.

This study therefore seeks to understand the behaviors of healthcare workers in TRNC towards the safe use of sharp medical devices.

Evidence in many research studies, have established that the risk of nurses than other healthcare workers.Blood-borne infection from needles is higher than through other routes due to needlesticks accidents. Statistically, an approximate 80% of occupational exposure have been attributed to the developments of needle stick injury (Polisena, et al., 2014).

However; despite the gravity of risk to occupational exposure posed by injuries from sharp medical devices, this area of research has received little or no attention among clinical researchers in TRNC. Most studies relating to the subject matter has always focused on broad variables such as stress, work environments, exposure to toxic chemicals and radiation as major sources of occupational hazard among healthcare workers in TRNC, thus accounting for the scarcity of empirical data on the subject matter. This gap in empirical data is also compounded by the prevalence of a poor NSSIs reporting culture among healthcare workers in the area covered in the current study and beyond (Xerafy, 2013; Karaca & Arslan, 2014; Ceyhan, et al., 2018).

Specifically, Istanbullu, et al. (2012) it was established that 62% of health care professionals in Turkey whom comprised the study's population affirmed that that they did not report the medical events they encountered, similarly, another study by Martowirono, et al., (2012), it was reported that healthcare workers in the selected hospitals in Turkey had negative attitudes as it relates to error reporting, which was influenced by the absence of a sound case reporting culture.

This study therefore is focused on the attitudes of healthcare workers in near east university hospital towards the safe use of sharp medical devices. The objective is to establish a relationship between safe use of sharp medical devices and practitioner's safety. When addressing issues relating to healthcare errors and clinical outcomes, and sources of occupational hazards emphasizes has always been laid on errors resulting from drugs/ medication, factors related to stress, exposure to radiation and toxic chemicals, while neglecting how unsafe use of sharp medical devices as needles, strings among many others could constitute a significant source of occupational hazard among nurses especially. Take for instances unsafe use of such medical devices as needles could lead to the onset of SOIs, which could expose healthcare workers to blood-borne infections. In another instance, errors associated with infusion devices, such as tubing misconnection may lead to a state of a fatal overdose of the infusion medications. To this end, this study will proffer appropriate strategies towards increasing awareness on the attitude of safe sharp medical device usage among the healthcare workers in near east hospital.

It has been established that medical device error could also happen due to deficit in the manufacturing process, preventing the occurrence of this kind of error in the healthcare sector is majorly facilitated by the prevalence of error reporting culture among healthcare workers

primarily, nurses whom in often cases work directly with one or more of these medical devices, to this end, this study will seek to help establish a positive attitude towards the use of sharp medical device

1.1.Aim of The Study

The aim of this study is to understand the attitudes of the health care workers engaged in Near East Hospital,TRNC State Hospitals as it pertains to the safe use of sharp medical devices.

1.2.The Study Questions:

- What socio-demographic factors affect the use of sharp medical devices?
- What is the level of awareness on safe use of sharp medical device among healthcare workers?
- What are the attitudes of the healthcare workers?

GENERAL INFORMATION

2.1 Health care injury: Meaning

Injuries among health care workers are of various forms and are influenced basically by elements in the health care environment. Health care injuries entail damage to the body of health care practitioners during the discharge of their duties. Evidence insufficient studies have established that health care settings are among the most hazardous settings to work (World Health Organization, 2016). Health care injuries may result from exposures to biological, chemical, physical and psycho-social hazards inherent in the health care settings. These hazards, in some cases, pose varying degrees of threats to the wellness of the various categories of health care workers.

2.1.1 Types of Health Care Injuries

A study by Masum, William, &Mosharraf (2011); Umar & Abdullahi (2017) identified that the typology of health care injuries includes injuries resulting from the use of medical sharps such as needle stick, stress, bloodstains on skin, percutaneous exposures toBloodborne diseases like HIV, hepatitis B and C., disorder resulting from a noisy work environment, disorder resulting from exposures to radiations, allergies, musculoskeletal disease as well as injuries resulting from fall, sleeps and trips cum physical violence as the most reoccurring forms of injuries among health care workers.

Accurately, a study by Phaswana & Naidoo (2013) reported that allergy resulting from the frequent use of latex gloves were significant contributors to occupational injuries among health care workers. Similarly, Amarasekera et al., (2010) in their study reported that an estimate of 16.3% of the health care workers in Sri Lanka which comprised the population for the study Experienced symptoms related to latex allergy which include rapid reactions from contact dermat itis to type 1 hypersensitivity reactions. In Turkey, a study by Ozkan & Gokdogan (2003) cited in Owie & Apanga (2016), incidence of allergy resulting from the use of latex gloves stood at 19.1%.

Exposure to biological hazards was also a significant form of injury among health care workers. Specifically, numerous studies have reported cases of occupational exposure to

bloodborne pathogens and airborne diseases especially Tuberculosis inducing agents, and severe acute respiratory syndrome (SARS) as the most prevalent form of the occupationally acquired disease among health care workers. Further studies have reported that injuries from sharps, with more, emphasizes on NSI are the major factors accounting for the incidence of acquired diseases, especially as it relates to BBP such as HIV, HBV and Hepatitis C Virus (HCV) among healthcare workers globally (Abeje & Azage, 2015; Gupta, Wong & Kushner, 2014; Beyera, & Beyen, 2014).

Healthcare workers are also exposed to dangerous chemicals like dermatitis-causing sterilizing agents and sterilizing agents, carcinogens, such as medications that are harmful as well as reproductive Toxins. (Owie & Apanga, 2016). Going further, the musculoskeletal disease was also reported to be highly prevalent among health care workers, especially orthodontists and oral physicians. Injuries resulting from repetitive stress, noise, slip, trips and fall were also reported.

2.1.2. Burden and Impact of Health Care Injuries

The impact of the prevalence of injuries among health care workers is multifaceted in the sense that it has both clinical, economic and humanistic undertone.

2.1.2.1. Clinical Burden of Health Care Injuries

The clinical burden of injuries among health care workers differs significantly from country to countries as well as by the nature and use of medical sharps as well as the nature of reporting culture in practice. However, studies by Nkoko, et, al. (2014); Memish, et, al. (2015); and Exposure prevention information network, (2016),The broad range of cases from 14.9 to 69.4% of those health personnel that experience needle stick injury, followed by 3.2 to 24.7 cases of needle stick injuries in each 100 occupied beds, have been determined on global clinical burden of injury and occupational acquired disorders. Hypodermic injection using disposable syringes and needles that account for most cases of needle stick injury globally (e.g. intramuscular, subcutaneous or intradermal) (Balkhy, et al., 2011; Costigliola, et al., 2012; EPINet, 2016) Specifically, evidence in Balkhy,et al., 2011; Costigliola, et al., 2012, EPINet, 2016, noted that disposable syringes influenced 35.4 % cases of all percutaneous injuries in hospitals in the

United States, further findings also reported similar statistics. These studies reported that a total of 32 % was reported in three countries in Europe and Russia, followed by a statistic of 34.6% in Saudi Arabia.

2.1.2.2. Economic Burden of Health Care Injuries

Estimating the actual economic burden of injuries among health care workers may be difficult, because of issues relating to reporting, and is also influenced by the methods and type of injury prevalent from country to country (Rajkumari et al., 2014). Notably, a report from the US centre of disease control reported an estimate of US$71 to US$5,000, as direct expenses for implementing Initial diagnosis and follow-up of medical personnels exposed to injuries from sharps especially those from needle stick, this estimate varies and is dependent on the treatment plan adopted (Centers for Disease Control and Prevention, 2010).

Further research report on both direct and indirect expenses, the direct and indirect economic burden of NSI ranged from 44% to 77% and 23% to 56% respectively (Hanmore et al., 2013), of which prophylaxis medications following the incidence of needle stick injuries were the major cost drivers. Evidence in Oh, et al. (2014), reported an estimate of Pharmacy 54.5%, lab test 29.7%, health services 11.7%, and medical treatments 4.2%. as the direct cost by departments.

Table 2. 1: Economic analysis of the risk of an injury to a needle stick and the effects of safety devices

Reference	Country/settings	NSI expense (mean) and other economic results
Mannocci et al., 2017	14 studies in eight countries	Median direct costs of IntUS$425 (IntUS$48-1.516); IntUs$322 (IntUS $152-413), mean indirect expense amount Int$747, which was determined by writing costs to foreign currencies across the world for comparative calculation. (IntUS $140–299)
Oh et al., 2013	Republic of Korea	225.758 Direct costs Won (US$ 237) (54.5% hospital, 29.7% lab tests, 11.7% medical services and 4.2% health care). The average national economic cost for 344,587,577 Won in Korea (U.S. $884,385[2005-06]) has been reported by 34 hospitals reporting NSIs of 700.
Hanmore et al., 2013	Belgium	Direct costs € 210–950 (2012); indirect costs € 63–844. Incidence-based budget effect model expected NSIs with safety injection tools to decrease by 86 per cent. Positive net budget effect for a hospital with 420 beds (i.e. savings) for five years of € 51 710 injection safety system.
Glenngård and Persson, 2009	Sweden	Direct costs 272 euro (SEK 2.513 [2007]), respectively. Saved € 0,01 (SEK 0,07) per needle for processing, examination and care by transforming hollow-bore needle NSIs to safety needles by 80 percent lower
Trueman et al., 2008	United Kingdom	Direct cost of $550 (£ 362 [2005]). £ 600,000 NHS Insulin Administration related NSI burden
Wittman et al., 2007	Germany	€ 490, € 148 (Work Group of Bergische University of Wuppertal) paying the hospital
Leigh et at, 2007	US	The annual cost was $188.5 million in US regional expenses (direct medical expenditure of $107.3 million, and indirect cost of quality of job failure of $81.3 million); $596 in US direct medical expenses, and $257 incurred in labor productivity expenses [2004].
O'Malley et al., 2007	US	$376 ($71–860[2003]) in patient root susceptibility to unknown or harmful infections (n= 19). HCV-infected HCV-infectant patient $650 ($186–856) (n=4). $2.456 ($907–$4.838) for the endangered patients infected with HIV, such as HBV or HCV (n=19). Detailed information on the time spent on exposure recording, supervision and control was obtained by four health facilities; incentives (including benefits) for staff representative who maintained and handled exposures, and charges (not costs) to check sample laboratory exposures and exposed healthcare employees and any exposure avoidance by exposure personnel during exposure.
Lee et al., 2005	OSHA report for State of California	The expense per NSI was calculated at $259 and the total cost for each NSI in 2004 was $159. Expense-benefit analysis in State hospitals for health needles will result in a net average reduction of medical costs of $320 million overall. Sources: Cooke & Stephens (2017)

2.1.2.3. Humanistic Burden of Health Care Injuries

Evidence in the literature revealed that injuries resulting from needles were the primary source of worry among health care workers with emphasizes on nurses. The main noted concern of nurses about NSIs is personal safety and security at work. (McNamara & Patterson, 2008). Similarly, in a survey by the American Nurses, it was deduced that over 64% of nurses agreed that the significant threat to their safety in the workplace were injuries from sharps as well as the risk of exposure to bloodborne pathogens. Going further, the surveyed nurses also confessed to experiencing a range of psychological effects (Green and Griffiths, 2013).

In another study by Floret, Ali-Brandmeyer, L'Hériteau, et al. (2012), focused on ascertain the post-exposure experiences of health care workers as relating to cases with needle stick injuries, out of the 313 medical personnel which comprised the population of the study, experiences of anxiety, depression and stress were prevalent among 41.8% of the health staff understudied. Similarly, a study by Lee, Botteman et al., (2015), the findings of the study revealed that an estimate of 80.2% cases of post-NSI different levels of anxiety among medical personnel. Specifically, findings of the study revealed that 66.4% reported having mild/moderate anxiety, while cases of persistent anxiety stood at 13.8%. Going further, in a study by Sohn, Kim & Ham (2016) it was reported that injuries from sharps especially needles correlated to The Beck Depression Index statistically significant increases ($p < 0.01$]).

Going further,apart from depression and anxiety incidents, further studies also noted that medical personnels who have experienced needle stick injuries are also prone to experiencing post-traumatic stress disorder (PTSD) and burnout (Naghavi, Shabestari, Alcolado, 2013; Wang, Yao, Li, Liu, Wang, & Sun, 2012). Conclusively, loss of productivity and work time was the significant humanistic impact of injuries among healthcare workers globally. Specifically, a study by Lee, Nicklasson, Cobden, Chen, Conway, &Pashos (2015), noted that in the United States, an estimate of 110 nurses reported lost time due to injuries from needles. Notably, 77 days of work lost, 10 of them were caused by getting treatment, 6 through prophylactic side effects from HIV and 61 through fear and depression as a consequence of a needle stick injury. Furthermore; evidence in 20 reported that in Europe, cases of needle stick injuries accounted for

nurses 12.3% of the time modify their daily habits / team and 2.4% of the time stop working after a needle stick accident has happened.

2.1.2 Injuries Among Health Care Workers

The primary form of injury among nurses as injuries resulting from medical sharps especially needles and syringes, this is mostly due to the fact that the job routine of nurses exposes them to the frequent use of needles and syringes in the daily performance of their duties within the health care settings. This conforms with the findings in Nagi, et al. (2017) It revealed that nurses have a higher risk injury from needles relative to other medical personnels. Certain activities as the recapping of a needle, the improper disposal of needles and the improvement in design without a corresponding improvement in awareness as regards its use by nurses, heavy workload, hastily operating, exhaustion and a crowded work environment are the main causes of injury from medical sharps among nurses (Senthil et al., 2015). Going further, studies have revealed that exposure to violent and aggressive behaviours are the significant causes of trauma and anxiety among nurses especially forensic nurses engaged in mental health facilities (Mealer et al.,2010).

Doctors like other health care workers are exposed to various forms of health care injuries; however; the job routine of physician's influences causes of injuries among physicians. For instance, injuries from sharps are among the major causes of acquired diseases among surgeons and emergency doctors in Turkey (Özlü et al.,2017). Going further, heavy workloads, and shifting are the significant causes of post-traumatic stress disorder (PTSD) and vulnerability to cardiovascular artery diseases among emergency doctors (Somville, De Gucht, &Maes, 2016). Evidence in Jonathan Morgan, et al. (2016) reported that exposure to radiation, poor ergonomics, or repetitive stress as the major causes of injuries among clinical radiologist.

The most prevalent forms of occupational injuries among lab technologist includes the poor handling of lab equipment majorly causes biological hazards resulting from NSI, chemical threats from exposure to lab chemicals and other toxic substances such as gases and solvents, injuries resulting from Physical hazards, endogenic factors as well as faulty electrical appliances (Khabour, et al., 2018).

2.2. Causes of Health Care Injuries

Many factors have been named to promote incident of injuries among the various categories of medical personnels. On a general note causes of health care injuries among health care workers includes such factors as stress, accident, poor medical waste management, absence of awareness, improper equipment, inadequate understanding of equipment use and lack of training. The underpinning factors behind the occurrence of health care injuries are influenced by the nature of the job routine of the health care practitioner.

2.2.1. Sharp Medical Devices

According to Occupational Safety and Health Administration (2011), sharp medical devices is an umbrella term which encompasses pointed, penetrative devices used within the healthcare profession and other tools which can lead to a cut on the skin or go into the skin. Sharps includes such tools as needles, scalpels, **syringes, lancet, Autoinjector, infusion set and connection needle/set.**

Health care workers use sharps in the management of health conditions of patients, such sharps as needles are used basically to inject medication under the skin while the syringe is used to form a handle for needle thus, allowing the health care worker to either inject medication into the patient's body or withdraw fluid from the body. However, injuries from sharp devices may occur during usage, between steps in procedures, after usage, before disposal/ during disposal/after disposal as well as during the processes of resheathing or recapping a needle (Agency HPA, 2012; USA Centers for Disease Control and Prevention, 2010). Among the most prominent forms of injuries resulting from sharps are needlestick injuries, other forms of SOIs includes cuts, and wounds to the skin. Percutaneous injuries resulting of sharps are of high prevalence Within health care workers, particularly nurses and doctors though estimating the actual impact some occurrence has been militated majorly by the attitudes of healthcare workers towards case reporting. Such factors as knowledge on the use of sharps and behaviors of healthcare workers towards safety measures to a large extent, may underline the events of injuries as well as case reports.

2.2.2. Knowledge of healthcare workers on sharp injuries

Generally, knowledge entails the state of having a theoretical or practical understanding of a given phenomenon. Hence, knowledge in the context of this study refers to the state of awareness and understanding of sharp injuries, effect as well as preventive measures among health care workers. Several studies in this line of study have reported varying degrees of awareness and comprehension of sharp injuries among healthcare workers. One of such studies is Gupta, Rakshit, et al. (2017), whom in their study reported that the vast population of the health care workers which comprised the study were unaware of the post-exposure prophylactic measures to adopt following an incidence of being exposed to HIV positive patient blood. Similarly, the respondents of this study also showed little knowledge as relating to the need to start taking drugs immediately following exposure. These findings conform with the findings in Arli, & Berivan (2018), which reported that a total of 83.3% of the student nurses in Turkey which comprised the study did not know regarding their chances of having an occupationally acquired diseases regarding Hepatitis B following the event of percutaneous exposure to infected needles and other sharps.

2.2.3. Attitude of healthcare workers on sharp injuries

Cognitive, affective and behavioral responses influence attitude as a concept. Attitude is a psychological construct and mental states which determines the dispositions, perception and reactions of individuals towards specific events and phenomenon. Attitudes are broadly grouped into positive, negative and neutral attitudes. The attitudes of individuals in the workplace varies and may undermine their safety as well as their perception of hazards in their work environments. Several studies have reported a relationship between attitude and perception of organizational safety. Correctly, studies by Gupta, Rakshit, et al. (2017) have pointed attitude of health workers as a significant contributor to the incidence of injuries among medical personnel. for example, medical staffs with positive work attitude may tend to be more conscious of their work environment as well as the ethics surrounding their practices, as well as pay attention to details. Conversely, health care workers with negative attitude may be blinded to the ethics as well as safe practices. In a more practical term, studies have reported that injuries with sharps in some cases occurs during and after disposal, this connotes a poor attitude of adequate management and disposal of medical waste. Going further, carelessness which can be depicted in

the improper usage, placement and storing of medical sharps among the leading causes of injuries among healthcare workers.

As regarding the attitudes of health care workers towards injury reporting, evidence in Filiz, (2009); Karaca & Arslan, (2014), have established a poor state of case reporting attitudes among healthcare workers in Turkey. Going further, in a study by Istanbullu, et al. (2012) it was established that 62% of health care professionals in Turkey who comprised the study's population affirmed that "they did not report the medical events they encountered", similarly, another study by Martowirono et al., (2012), it was reported that healthcare workers in the selected hospitals in Turkey had negative attitudes as it relates to injury reporting, this dramatically undermines appropriate intervention measures.

2.2.4. Behavior of healthcare workers on sharp injuries

Health care personnel are regularly exposed to hazards in the discharge of their duty. Specifically, several studies have reported a high incidence of an occupational hazard among medical personnels in which injuries from sharps were the significant contributors to percutaneous exposures among health care workers. Findings in Mohsen & Lotfi, (2013) repeated that the behaviours causes injuries among medical personnel that comprised the study were injections and taking blood samples were the primary behaviour leading to the event of injuries with sharps of about 22.2% of health care workers who comprised the study, going further, the study also reported that such behaviours as inappropriate disposal of needles, process of drug preparation and transportation of sharps underlined the occurrence of injuries with sharps among 18.2%, 11.1% and 7.1% respectively of health care workers who comprised the study.

Thus, the behaviours and actions of health care workers following an injury from needles and other forms of sharps are deemed necessary especially as it relates to the prevention of associated consequences (Mohsen & Lotfi, 2013). As relating to the post-injury behaviours of HCW, the findings in Mohsen & Lotfi, (2013) reported that 44.6% of victims of sharps in the study took appropriate measures and were vaccinated, however, 9.8 % of the affected HCW only stopped at first treatment due to perceived frustration embedded in the follow-up service. Similarly, 7.2% of the affected population discontinued treatment because they see no reason to continue. On the other hand, 31.2% of affected HCW did not take any preventive measure following injuries because of their tight work schedules while 7.2% of HCW with an injury did

not take any preventive actions because of their perception and knowledge on the likely aftermath of the injury.

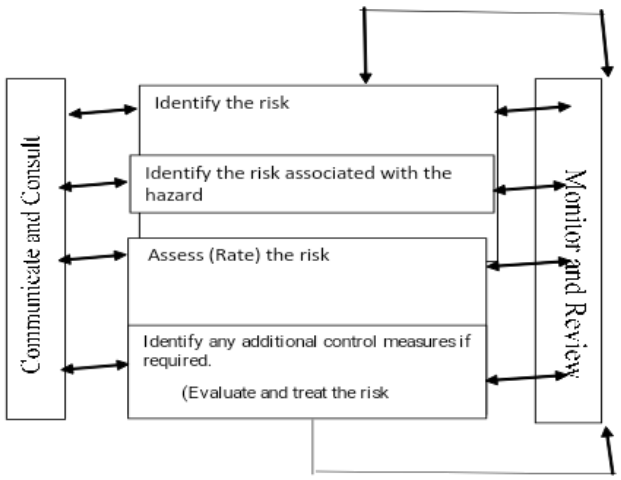
2.3. Role of Occupational Nurse in Prevention of Health Care Injuries

The effective control and prevention of healthcare injuries requires the collective effort of all health care workers as well as policy makers. Functions of occupational nurse towards prevention of healthcare injuries are therefore discussed below.

2.3.1. Risk assessment on sharp medical device

This involves a thorough examination of the possible sources of risk and hazards in the work environment. Though, risk assessment in most cases is seen as the job of the employers; however, the occupational nurse (employee) also needs to get involved in securing a better work environment and practices for both healthcare workers and patients. Conducting sharp risk assignment enables the occupational nurse as well as other categories of healthcare workers to ascertain the adequacy of already established work place controls. According to the Health Service Executive, Policy for the Prevention of Sharps Injuries (2016), a typical risk assessment process for the prevention of sharp injuries will involve the procedures presented in the fig below.

Figure 2. 1: Risk assessment procedure for sharp injury prevention



2.3.2. Prevention Measures of sharp medical device

Though sharp injuries are the most frequent and prevalent among healthcare personnel, however; many of the sharp injuries can be prevented following right practices and measures. The incidence of injuries among healthcare workers can be prevented through;

2.3.2.1. Elimination of hazards: This involves eliminating practices and use of devices that increases exposure, for instance, the healthcare worker can avoid giving injections and employ other routes such as tablets, inhaler, among others. The healthcare worker could also mitigate risk rate by eliminating sharp devices that are not essential such as towel clips, also alternative non-sharp devices as jet injectors could be used in place of syringes and needles. (American Nurses Association [ANA], 2001).

2.3.2.2. Prevention of hazards: This involves adopting work practices that reduces exposures as well as the use of safer sharp devices.

Protection: health care workers can be protected from health care hazards by using suitable and adequate personal protective equipment's that forms a barrier between the healthcare worker and the sources of hazard.

2.3.3. Safety Devices for healthcare workers

The use of safety devices has been linked to decrease incidence of hazard from percutaneous exposure from needle stick injuries or injuries other forms of sharps. On this regards the Needle stick. Act of 2000 Rights and Protection: The Pathogens Standard for OSHA born Blood recommends use of safer or safety sharps as sheath syringes, retracting needles in the syringe after use, catheters that are protected or retracting, IV systems that have a catheter port containing a needle covered in a protective covering. Furthermore; researchers such as Ballout, et al., (2016), have suggested the use of safety-engineered sharps as a preventive measure.

2.3.4. Administrative Work and Work practices control

2.4.1. Policy writing/intervention: There is a need for the establishment of policies which would target reducing chances of exposure to hazards. The policy intervention could come in form of resource allocation as a show of commitment towards the safety of health care workers, making adequate post exposure control plan, policy writing could involve the establishment of such panels as the needle stick prevention committee.

Management could come up with policy prohibiting the work practices that increases chances of incident occurrence, this can be done by introducing polices as practices as no re-

capping of needles, strategic placements of sharp boxes and containers, prompt and adequate disposal or emptying of sharp boxes or containers.

2.4.1.2 Appropriate training: lack of knowledge on the use of newer breeds of sharps among healthcare workers could increase the rate of occurrence of injuries form sharps among healthcare workers, also lack of knowledge on the health impact of percutaneous exposures as well as appropriate intervention approaches also increases the vulnerability of healthcare workers (Moazzam et al.,2010; Al tawil, 2013); thus it is very crucial for the management to organize periodic trainings aimed increasing awareness on theDangerous work conditions incidence and effects in health workers.

Personal Protective Equipment and Vaccination

Personal protective devices are those devices that forms a barrier between the healthcare workers and the hazard as well as its sources. As a way of controlling exposure to percutaneous and Mucocutaneous exposures to healthcare hazards, the use of personal protective devices as gloves, gowns, goggles, masks or face shield s have been strongly recommended (**Foley & Leyden, 2012**)

2.5.Vaccination: Research has established that pre or post exposure vaccines could go a long way in reducing risk, although the effectiveness of post exposure vaccine in influenced by the lag period (the time of exposure and when vaccination was given) (Tsai, Emau, & Follis, 1998; Cardo, et al., 1997). The World Health Organization cited in Ford, Shubber, Calmy, et al. (2015) recommends the use of 2 reverse transcriptase nucleoside inhibitors: tenofovir and lamivudine or emtricitabine for HIV post-exposure prophylaxis after sharp injuries. It is recommended that hepatitis B virus vaccination should be given immediately post exposure as the first dose of a primary course, or as a booster. It is highly recommended, in order to be effective, that interventions involving the use of post-exposure hepatitis B immunoglobulin be given within 48 hours of exposure; however, it has a time lag of one week, by administration within 48 hours of exposures may yield better and faster results (Public Health England, 2013). As relating to hepatitis C, there are presently no vaccine or an effective post-exposure prophylaxis treatment of acute hepatitis C infection (Tomkins, et al., 2015). Nonetheless, research evidence in, Riddell, Kennedy and Tong, (2015) has established that

early detection of the transmission of the hepatitis C virus as well as its prompt referral to relevant specialist for assessment and treatment is very crucial.

2.6.Incident Reporting among healthcare workers on sharp injuries

Incident reporting could go a long way in the management of the consequences that may set in as a result of exposure to contaminated sharps, however; several researches has reported a low incident reporting culture among healthcare workers (Martowirono, et al., 2012). Prompt reporting of incidents gives way for immediate and effective risk assessment (Riddell, Kennedy & Tong, 2015). Incidence reporting may also provide frame work for policy intervention.

MATERIAL AND METHOD

3.1.Study Design

This study is achieved by using a cross-sectional descriptive study.

3.2.Study Place and characteristic

Research was done in KKTC Near East Hospital, from November - January 2020. Near East University Hospital: Near East University Hospital is the largest private hospital in TRNC, its medical personnel are estimated to be about 250 and numerous non-medical personnel, the hospital have many departments which includes emergency, internal medicine, surgical unit, and out-patient wards. With its advanced medical technologies, it boasts at least on average 50 visitors per day.

3.3.Participants and Sampling

The sampling techniques that was used for the study the was the convenience sampling technique. The technique was appropriate for the study because of the nature of the work environment. (n=200) voluntary participants were approached. The inclusion and exclusion criteria will be included here.

3.3.1. Inclusion Criteria

- Both genders were considered in this study.
- Health-care workers (physicians, nurses, lab technicians) who are currently working.
- They know Turkish Language

3.3.2. Exclusion Criteria

- Retired health care workers (physicians, nurses, lab technicians)
- Hospital administrators.

3.4. Study Instrument

The questionnaires used was two parts, one part is demographic information from literature (age, gender, educational level, place of living, occupation, years of experience, work department) and the other part was 25-item questionnaire scale adapted from (Uzunbayir, 2009). Turkish version was used for the data collection. The Scale was; Attitude of Health care workers towards the safe use of sharp medical devices

3.4.1. Turkish version The Scale of Attitude of Health care workers towards the safe use of sharp medical devices

A survey tool was designed to measure Attitude of Health care workers towards the safe use of sharp medical devices. The scale consists of 25 straight-forward structured questions. To test the internal consistency of the measuring instrument, reliability test was performed. The Cronbach alpha value for this instrument is 0.80 which is very reliable.

The evaluations were measured using five-point Likert scales. The response options for the item were 1-5 Likert scale with options 1= strongly disagree 2= disagree 3= indifferent 4= agree and 5= strongly agree. Negative items were coded as in reverse so that responses were negative. (1-strongly agree, 5-strongly disagree). Negative question includes questions (3,10,12,13,16,17,18,21, and 23). The item response varies from one being the lowest and five the highest. The survey instrument of the current study address purposes by evaluating the knowledge, behaviors and perceptions of the healthcare workers.

3.5. Data Collection

The research instrument that was used for the study was the questionnaire. This method of data collection has the advantage of low cost, and also free from bias of the interviewer and gave the respondents adequate time to give well thought out answers. The data collection was done by voluntary filling out administered questionnaires. The questionnaire was administered during the working hours of the healthcare workers, it was given and collected 15-20 minutes after handing out.

3.6. Data analysis

The relationship between socio-demographic characteristics and attitude medical device injure had been analyzed using bimodal and Kruskal Wallis test. Bivariate logistic regression analysis was conducted to statistically examine which factors were associated with perceptions of attitude medical device injury. The results are represented as with accompanying 95% confidence intervals "CI.". Independent variable (gender and education level) was significant at a p value less than (0.05). Statistical Package for the Social Sciences (SPSS) for Windows (Version 18) was used for analysis.

3.7. Limitations of the study

The main possible limitations of this study borders on the geographical and the length of time of the current study. The implication of this is that results and findings made in this study cannot be used as a yardstick to ascertain the attitudes of healthcare workers towards safe use of medical devices outside the geographical scope.

Going further, this current study is not concerned with exploring all other factors which could lead to adverse clinical outcomes and occupational hazard in a clinical set up, instead it is only concerned with the behavioral dispositions of healthcare workers towards the safe use of sharp medical devices.

3.8. Research Ethics

Ethical Aspects of Study; Ethical permission was obtained from the Near East University Ethics Committee (YDU/2019/74-928), the permission of institution was obtained from the Near East Hospital. Further, the participants granted written permission.

RESULTS

Table 4. 1: Health Care Workers Demographic Characteristics Distribution

Characteristics		**N**	**%**
Gender	Female	131	**65.5**
	Male	69	34.5
Educational level	Below high school	25	12.5
	University and above	175	**87.5**
Place of living	City	43	21.5
	Town	89	44.5
	Village	68	34.0
Profession	Physician	36	18.0
	Nurse	85	42.5
	Medical technician	52	26.0
	Lab technician	27	13.5
Years of experience	0-1 year	63	31.5
	1-5 years	75	37.5
	5 years and above	65	31.0
Work place	Emergency	30	15.0
	Internal medicine	46	23.0
	Surgery	44	22.0
	Outpatient	80	40.0

Table 4.1, the gender distribution of the sample showed that 65.5% (n=131) of the participants were female and 34.5% (n=69). were male. The education level of most of the participants 87.5% (n=175) were university and above, the participants whose education level was high-school and lower was 12.5% (n=25) of the total response. Regarding place of living, reported 21.5% (n=43), of the total respondents live in city, 44.5% (n=89) lives in town and 34% (n=68 lives in village settlements). Out of 200 participants, 18% (n=36) were physicians, 42% (n=85) were nurses, 26%(n=52) were medical technicians and 13.5% (n=27) were laboratory technicians.

The participants years of experience, of the participants, 31.5% (n=63) working for 01 years, 37. 5% (n= 75) working for 1-5 years and 31% (n=65) working for 5 years and above. The participants working in emergency 15% (n=30), internal medicine 23% (n=46), surgery 22% (n=44) and outpatient participants were 40% (n=80).

Table 4. 2: Health Care Workers Knowledge about The Safe Use of Sharp Medical Devices

Scale question	**Unknown**		**Known**	
	N	**%**	**n**	**%**
Preventive treatment is important after sharp injury.	19	9.5	181	90.5
After sharp injury, contact infection control unit	17	8.5	183	91.5
Vaccinated health care workers don't need protection from HBV (+) patients	24	12.0	178	88.0
Medical waste bin should be available in units with invasive intervention	17	8.5	183	91.5
Medical monitoring is important after sharp injury	9	4.5	191	95.5
All healthcare workers should receive hepatitis B vaccine	**7**	3.5	193	96.5
Be more careful where there is risk sharp injury	3	1.5	197	98.5
Gloves are required for patient's peripheral catheter replacement	4	2.0	196	98.0
In emergency situations, the surrounding area needs to be warned when using sharp device	4	2.0	196	98.0

Table 4.2 showed **Health Care Workers Knowledge about The Safe Use of Sharp Medical Devices,** 90.5% of the response to question (Preventive treatment is important after sharp injury) is known and 9.5% is unknown, 91.5% response to the questions (After sharp injury, contact infection control unit and medical waste bin should be available in units with invasive intervention) is known and 8.5% is unknown. 88.0% of the response to the question (Vaccinated health care workers don't need protection from HBV (+) patients), the response to the question (Medical monitoring is important after sharp injury). 95.5% is known and. 96.5% of the response to question (All healthcare workers should receive hepatitis B vaccine) is known and 3.5% is unknown. 98.5% response to the question (Be more careful where there is risk sharp injury) is known and 1.5 is unknown, 98% of the response to the questions (Gloves are required

for patient's peripheral catheter replacement and in emergency situations, the surrounding area needs to be warned when using sharp device) is known and 2% is unknown.

Table 4. 3: Health Care Workers Behavior about The Safe Use of Sharp Medical Devices

	Scale question	Unknown		Known	
		n	%	N	%
1	During injection applications, antiseptic condition must be followed	19	9.5	181	90.5
2	If injury with sharp is witnessed, I will not direct the injured to the appropriate place	10	5.0	190	95.0
3	Adherence to standard precautions in all procedures to be applied to the patient	14	7.0	189	93.0
4	Present of (loud noise, noise, lack of light etc.) in the working environment, the risk of sharp injury increases	14	7.0	189	93.0
5	I believe I won't get infected because most health workers do not get infection after injury	7	3.5	193	96.5
6	I would not report to the infection control after sharp injury	4	2.0	196	98.0
7	Splatter of blood and body fluids on me does not pose a risk for transmission	8	4.0	192	96.0
8	Surfaces on which drugs are prepared should be disinfected	5	2.5	195	97.5
9	Throw used needles and gloves into medical waste bins	8	4.0	192	96.0
10	No use of gloves when injecting	1	0.5	199	99.0
11	If I have open wounds, cuts and abrasions, I won't close them while working	2	1.0	198	99.0
12	There is no need for in-service training for the use of sharp medical devices	3	1.5	197	98.5
13	Viruses such as HBV, HCV and HIV can be transmitted to healthcare workers through sharp injuries	4	2.0	196	98.0
14	I believe that if any application is made to the patient, the patient standing will reduce the injuries of sharps	2	1.0	198	99.0
15	Blood carries no more infectious risk than other body fluids	4	2.0	196	98.0

The table 4.3 showed the responses on the behaviors and perception of the safe use sharp medical devices; 90.5% of the response to the question *(During injection applications, antiseptic condition must be followed)* is known, the response to the question (*If injury with sharp is witnessed, I will not direct the injured to the appropriate place)* 95% is known. The response to the questions *(Adherence to standard precautions in all procedures to be applied to the patient*

and Presence of (loud noise, noise, lack of light etc.) in the working environment, the risk of sharp injury increases) 93% is known and, 96.5% of the response to the question *(I believe I won't get infected because most health workers do not get infection after injury)* is known. The response to the questions *(I would not report to the infection control after sharp injury, Viruses such as HBV, HCV and HIV can be transmitted to healthcare workers through sharp injuries and Blood carries no more infectious risk than other body fluids.)* 98% is known. 96% of the response to the questions (*Splatter of blood and body fluids on me does not pose a risk for transmission and Throw used needles and gloves into medical waste bins)* is known. 97.5% of the response to the question (Surfaces on which drugs are prepared should be disinfected) is known. 99.5% of the response to the question (No use of gloves when injecting) is known. The response to the questions *(If I have an open wounds, cuts and abrasions, I won't close them while working and I believe that if any application is made to the patient, the patient standing will reduce the injuries of sharps)* 99% is known. 98.5% of the response to the question (There is no need for in-service training for the use of sharp medical devices) is known.

Table 4. 4: Health Care Workers Attitude Towards Safe Use of Sharp Medical Devices and Demographic characteristics Comparation

Variable		Min	Max	Median	Mean	Sd	Test	P
GENDER	Female	95.00	125.00	115.0	114.037	± 7.099	131.000	0.001*
	Male	98.00	125.00	**116.0**	114.66	±7.75		
EDUCATION LEVEL	High school and below	108	124	**117**	117	±5.88	0.084**	0.002
	University and upper	100	124	114	115.27	±7.98		
PLACE OF LIVING	City	108	124	**117**	117	±5.88	0.723**	0.554
	Town	100	124	114	115.27	±7.96		
	Village	95	125	115	114.16	±7.46		
PROFESSION	Physician	98	125	**113**	113.44	±7.74	1.252**	0.741
	Nurse	98	125	116	114.89	±7.00		
	Medical technician	95	125	116	114.80	±7.77		
	Lab technician	102	124	115	113.81	±7.01		
YEARS OF EXPERIENCE	0-1 years	95	125	116	114.39	±7.25	0.337**	0.845
	1-5 years	99	125	116	114.72	±7.66		
	5 years and above	98	125	**115**	114.22	±7.05		
WORK PLACE	Emergency	100	125	**115**	114.86	±7.37	1.719**	0.633
	Internal medicine	101	125	116	115.47	±6.58		
	Surgery	95	125	**114**	113,31	±7.82		
	Out-patient	98	125	116	114.36	±7.44		

*Bimodal test X^2

**Krukcall Wallis X^2

Table 4.4 the table shows Health Care Workers Attitude the Safe Use of Sharp Medical Devices and Demographic characteristics Comparation (education level, place of living, profession, and work place). According to (table 4.4) a Signiant difference was found between the scale and gender (X^2= 131, p-value 0.001) within the group, male was found to have more awareness. in the comparison between education level and the scale, a significant difference was

found (X^2= 0.084, p-value 0.002) within education level, the people with lower education was found with to be more aware. No significant difference was found in between place of living and scale (X^2=0.723, p=0.554) but within the group, people in the city are likely to have more awareness. There was no significant difference between profession and scale (X^2= 1.252, p= 0.741). But within the group physicians are least aware. When compared there was no significant difference between years of experience and the scale (X^2=0.337, p=0.845). Within the group comparison, people with >5 years of experience are least likely to be aware. There was no significant difference between place of work and the scale (X^2=1.719 p=0.633). But within our group surgery department are likely to have low attitude.

DISCUSSION

5.1.Findings from the Demographic Distribution of the Respondents

The health and safety of a Workplace is very important in organizations, particularly in healthcare settings (Yazie, et al., 2019). "However, currently every year, hundreds of thousands of health care workers are exposed to dangerous and deadly blood borne pathogens through contaminated needle stick and sharps injuries (NSIs) because of performing daily procedures in clinical activities" (Dilie, et al.).When health care professionals follow a specific system targeting structural, behavioural and device-related causes that lead to the prevalence of needlestick accidents among health workers, NSIs can be believed to be preventable. (K. R& D. V).Nearly half of the general work force population is represented by females. About 80 percent of the population in the rising healthcare industry is women with a wide range of risks from latex allergen, back injuries and needlestick cases (Blosser, 2000)

From this study, it revealed that the majority of the participants were female and both groups are at risk of contaminated needle stick and sharps injuries.

Most of the literature are more concerned with education and training for healthcare workers with the to prevent sharp injuries. (Cheetham S, Thompson SC, Liira J, Afilaka OA, Liira H. 2016) (Khraisat, Firas & Juni, Muhamad & Abd Rahman, Anita & MS, Salmiah. (2017). But most literature not concerned the impact of formal education level on sharp injuries. The participants educational level revealed that majority of the respondents had attained university education and above.

The World Health Organization has reported the lack of engineering checks to ensure safe needle devices are accessible, hospital staff insufficiency and needle caps cannot be replaced after use for risk factors. (Motaarefi et al.,2016). According to, Motaarefi et al.NSIs are more likely to happen in understaffed departments than adequately staffed departments, and to nurses who work mixed shifts than those who didn't. The respondents also gave their work department and it was revealed that 15% of the respondents work at the emergency unit, 23% work at the internal medicine department, further 22% work in the surgery department and finally, 40% of the respondents work with the outpatient department. This shows that the respondents are spread across various units of the medical facilities and as such, it is expected that from the response we will be able to find out the attitude towards sharp use from different source in the hospital setting

Martins, et al., 2012 study revealed that incidences of NSSIs were high in female HCWs and in nurses, followed by physicians, which is not surprising given the nature of nursing work. Participant specialist distributions, it was found that almost half the participants were nurses. They were the highest demographic in our study of health-care workers.

Kebede, & Gerensea, 2018) noted that with regard to experience, the odds of sustaining needle stick injury were higher for nurses with work experience greater than 10 years than those whose work experience is less than or equals to 5 years. Most of the participants in this study have 1-5 years of experience.

5.2.Finding of some characteristics from health care workers knowledge about the safe use of sharp medical devices

De-Carli, et al. (2014) stressed on this outcome in their study, Rapiti, Prüss-Üstün, &Hutin (2005) agreed that there is the need for sharp objects injuries to be prevented to avoid transmission of bloodborne pathogens. Zhuo, Jingrui, et al (2018), states that all health organizations should adopt an appropriate monitoring system as well as adequate education on occupational health and safety. Also, effective action to mitigate sharp accidents and provide recommendations for their avoidance is necessary. In this study, it was found that at least one in every ten-healthcare professional was not aware that preventive treatment is essential after injury with sharp and without the necessary knowledge, these healthcare professionals will be susceptible to infectious diseases such as HBV, HIV and HCV. This result showed that after injury treatment education is necessary for medical workers. Another finding that 95.5% of the respondents knows that medical monitoring after sharp injury is important. In order to keep preventing occupational healthcare injuries, health medical sharp monitoring is important and most of the respondents know this.

The issue of careful management of medical waste has been extensively analyzed. The crucial factors for better management of medical waste is the understanding, mindset as well as behaviors of healthcare workers in medical facilities regarding medical waste (Marki and Dnane, 2013). They further stated that health care staff should have an adequate level of knowledge, good attitude and practices during handling and disposal of medical waste. Due to insufficient instruction to healthcare professionals as well as negligence in following laws and regulations, indiscriminate handling of medical waste will have severe environmental and community health

impacts (Marki & Dnane, 2013). However, 8.5% of the respondents in our study are unaware of the need for medical waste bins should be available in all units with inversive intervention. The need for training on the medical waste bin is required.

A study by Nemutandani et al. (2007) which stated that on average, per year, African medical personnels suffer two to four needle stick injuries and more than half of hospital patients in South Africa are HIV-positive. Close to half of all hepatitis B and C illnesses among healthcare professionals in some territories of Africa and Asia are ascribable to infected sharps. More than two-thirds of hepatitis B and C diseases of health care workers are due to infected sharpnesses in some parts of the eastern Mediterranean zone. Furthermore, Pruss-Ustun et al. (2005).

Over two-thirds of all Central and South American hepatitis B is the result of occupational exposure. Preventable injuries from the needle stick, although still prevalent in the United States, happen most frequently in Africa as well as Southeast Asia. These are the environments where staff in medical care are at the highest risk of infection. Factors associated with several job exposure to sharp injuries may vary from region to region.

While advanced nations are preoccupied with designing new sensitive devices and enhancing the policies, developing nations are still struggling with the lack of proper facilities, insufficient policies and poor adherence to them. However, in this study, 12% of the respondents do not think it is important to vaccinate healthcare workers and protect them from hepatitis B (+) patients, this means that at least two out of ten people is unaware, this is a very serious issue that healthcare professional leave themselves unprotected from hepatitis B due to their perception. Seminar and behavioral training are needed.

Elise et al. (2000) and De-Carli et al. (2014) stressed on how dangerous these viruses are as well as the need for the immunization status of the health workers to be determined. From in this study found that 4% are unaware that health care workers should receive hepatitis B vaccine, there is a very high knowledge among our participants on vaccine. The highest injury incidence happened during emergency care

5.3. Finding of some characteristics from health care workers behavior about the safe use of sharp medical devices

Rapiti et al. (2005) stated that education, training, and re-training with proper monitoring of medical personnel are necessary. They also emphasized the introduction of medical apparatus with a safety-engineered protection mechanism. For continuous renewal of knowledge, in-service training is very important. This study noted that there was a high awareness level from the respondents on the perception of the importance of in-service training on the use of sharp medical device. This means there is high in-service training among our participants.

In Sub-Saharan countries in Africa, Nsubuga and Mangasi (2009) stated that there exists a heavy burden of HIV / AIDS and other infectious diseases carried by the blood and strong injecting use. Lack of adequate equipment in hospitals due to low spending on treatment, workplace safety and health facilities and a high ratio of patients to healthcare staff lead to a working environment that predisposes health workers to a high risk of needle stick injury and subsequently, blood-borne contaminants. Just a few reports on severe injuries from developed countries are available, while 90% of needle stick accidents occur in developing countries (Jahan, 2015). It was found in this study that there is a high perception that blood splatter pose risk for transmission (96%) and also a high perception blood carries infectious risk (98%).

Unreported cases of needle sticks and painful cuts are a significant issue that discourages wounded health care workers from accessing prophylaxis with post-HIV treatment found to be successful against HIV infection by 80%. Without the injury documentation, the worker is unlikely to receive compensation benefits for the worker if he becomes infected with the human immunodeficiency virus or hepatitis later. Needlestick and sharp injuries continue to be a source of infection for health-care workers around the world. Active monitoring and regular action analysis are essential aspects of rising NSSIs in selected high-risk occupational classes (Jahan, 2015). In ourstudy, they are a very high knowledge among our participants on reporting of sharp injury incidence. This means there is a positive attitude towards incidence report.

A study conducted in the Ghaza strip–Palestine indicates that private and public healthcare facilities are still suffering from inadequate handling of medical waste; healthcare workers have no details on the position of medical waste collection and disposal methods;

preparation to develop their expertise, behaviors and procedures is insufficient. De-Carli et al. (2014) stated that there is a need for staff especially those at the laboratory to be acquainted with the existing procedures and policies as regards the management of the post-exposure scenario. From this study, the behavior of the respondents in terms of throwing used needles and gloves in medical waste bin and reporting after sharp injury was high. This means that there is a high knowledge and awareness on safe handling of used needles and gloves and reporting of injury incidence.

The rationale for preventive measures was stressed by Elmiyeh et al. (2004) who stressed that medical personnel is the most vulnerable to needle stick accidents by health care workers. According to the International Labor Organization (ILO), it is documented that needle stick accidents are the most severe workplace injuries that nurses are subjected to (Hashmi et al., 2012). It was found in regards to behavior adherence to standard precaution, 7% of the participants do not know to adhere. Constant surveillance is needed.

The National Institute for Occupational Safety and Health has stressed the importance of initiating interventions required for the prevention of needle sticks, which pose the highest risk to health care personnel (Henry and Campbell, 2005; EPINet, 2009). It is on this note that, it is advised that secure instruments should be used to protect the health of healthcare workers who are in touch with unsafe equipment when supplying the patient with medical care (Türk et al., 2012). Just by using protective tools, it will 80 times prevent injuries incurred by penetrative and incisive devices. Research has shown that health care workers do not pay enough attention to the use of secure devices, do not take safety measures, yet lack understanding of the issue (Türk et al., 2012, Doebbeling et al., 2013, Jovic-Vranes et al., 2016; Kermode et al., 2017). We found a high knowledge on the importance of glove use (99.5%) among our study participants. And a high number of study (99%) our participants behavior by closing open, cuts and abrasions.

5.4. Health care workers attitudes towards the safe use of sharp medical devices and Demographic comparisons

In this study was applied in the comparison for the sociodemographic characteristics.

In the study made in Iran, found that there was no significant between gender and NSIs Galougahi (2010). Male health staffs were ten (10) times more likely to face needle stick and sharp injury (AOR = 10 (1.5, 6.6)) than females. (Dilie, et al.). RT, et al. study revealed women

were more affected (80.5%).and in this study no significant difference was found when male was compared with the female ($p<0.05$). Our study shows women have low attitude toward sharp devices.

Also, the result from the study done by (Galougahi 2010), there was no relationship between education level and NSIs occurrence (Galougahi 2010). In this study found that there is a relationship between education level and the scale ($p<0.05$) when tested. Also, a difference was found between high school and below and university and above. This might be because highly the educated professional sometimes become negligent. Constant surveillance is needed.

A study by (Martins A, Coelho AC, Vieira M, Matos M, Pinto ML, 2012). revealed that the occurrence of episodes of NSSIs in female HCWs and in nurses was high, followed by doctors, which is not surprising in view of the nature of nursing work. It revealed that the occurrence of episodes of NSSIs in female HCWs and in nurses was high, followed by doctors, which is not surprising in view of the nature of nursing work. Also, study made by Sharew (2017) to investigate

As a result of the occupational exposure to injury among health care providers in regional hospitals in Ethiopia, profession was found to be a significant risk factor for sharp injury. Revealed midwifery practitioners were 2.8 times more likely than physicians, health officers, emergency surgeons and anesthetists to be subjected to sharp injury (p-value=0.04, OR=2.8, 95% CI = 1.02–7.92). However, the rate of injury among nurses (31.2%) was higher than among doctors (19.9%) Cui, Zhuo et al. (2018). We found no significant difference between profession and the scale. However, when comparison was made within the professions from the study, physician and lab technicians have low attitude toward the use of sharp device.

Health care workers (HCWs) with 10 or more years of practical experience were at higher risk of developing NSSIs relative to those with less than 10 years of work experience (Motaarefi., et al. (2016)). This study revealed that there is no significant difference between years of experience and safe use of sharp medical device, it was found that health care workers with > 5 years are likely to have low attitude toward sharp use. Workers with less experience practice acquired knowledge but experience workers are more relaxed toward safe use of sharps due to over familiarity.

HCWs in obstetrics and gynecology were more likely to have sharp injuries (42.9%) than HCWs in other departments according to study (Cui, et al.,2018). In our study, we found no

significant difference between work place and the scale. But comparison was made within our study; surgery department is seen to have low attitude towards sharp. No significant difference was found between place of living and the scale but when compared, people who live have high attitude toward sharp device.

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

The purpose of this research was to find out the attitudes of healthcare workers towards the safe use of sharp medical device. The majority of the participants were female, most of the participants were university graduates and above with 44.5% living in the town. Nurses have the highest number (42.5%). People with 1-5 years of experience are more and 40% of the participants worked in outpatient wards.

The participants have a high preventive knowledge on after injury treatment. One in ten healthcare professionals in this study were not aware of preventive treatments. The participants have high knowledge on medical monitoring, some participants are unaware of importance ofmedical waste bin, (12%) leave themselves vulnerable to hepatitis B from patients. The participants have high awareness on hepatitis vaccination.

The participants have high awareness level on in-service training. They also have high perception that blood splatter pose risk for transmission and on the risk of infection of blood. The participants have high attitude on safe handling of used gloves and needles and also a high incident reporting culture. The participants adhere to standard precaution and glove use among the participants is very high.

A significant difference was found between the attitude of healthcare workers towards safe use of sharp medical device scale and gender, education level. There was no significant difference found between the scale and place of living, profession, years of experience and work place.

6.2 Recommendations

Based on this study, we have made the following recommendations:

1. Occupational health nurses

1. Under the primary prevention, healthcare workers should check; education and training level, vaccination status, etc.

2. Establish standard data collection and surveillance systems for comparisons in institute, national and international

3. Follow-up health workers at risk working in risky work departments (emergencies, surgical units, intensive care unit etc.),

4. The awareness of low risk perception (female, more years of employment, doctor etc.) should be increased.

5. In order to start secondary prevention early, health workers who are injured at risk or who have had an accident should provide a positive working atmosphere to report themselves.

2. The researchers recommend further studies in the following areas:

Further studies:

- can be conducted on effect socio-demographic variables (gender, education level, years of experience, profession etc.) on the safe use of sharp medical device
- can be conducted as a prevalence (about place, time, situation, susceptible personnel vs.) study to understand sharp injury characteristic in a specific population
- should consider expanding the scope of the study to include public hospitals

REFERENCES

Abeje FG, &Azage M (2015) Hepatitis B vaccine knowledge and vaccination status among health care workers of Bahir Dar City Administration, Northwest Ethiopia: A cross-sectional study. BMC Infect Dis 15:30.

Adib, Mohsen &Lotfi, Sajjad. (2013). Behaviour of Healthcare Workers After Injuries From Sharp Instruments. Trauma monthly. 18. 75-80. 10.5812/traumamon.12779.

Akagbo, S., Nortey, P., &Ackumey, M. (2017). Knowledge of standard precautions and barriers to compliance among healthcare workers in the Lower ManyaKrobo District, Ghana. *BMC Research Notes, 10*(2), 43.

Akgur, Mukaddes, Dal, &Umram (2012) The prevelance of Needle Stick and Sharp Injuries in Nurses in North Cyprus. Pakistan Journal of Medical Sciences Quarterly. Vol.28.ISS.3

Al tawil F. A. M., Knowledge, Environmental Factors, and Compliance about Needle Stick Injuries among Nursing Students, Life Science Journal, 2013; 10(4): p 2467.

Ali Gumua, HilalBetulAkcay, Banu Bedir, ElifOksanCalikoglu (2019) Needle Stick and Sharps Injuries Among Nurses at Ataturk University research hospitals and their practices after injury. European research journal 2019;5(1)128-133.

Amarasekera M, Nadeeka R, Savithri S. &Maheshika J (2010) Prevalence of Latex allergy among healthcare workers. International Journal of Occupational Medicine and Environmental Health 23:391-396.

American Nurses Association. (2001). ANA workplace health and safety guide for nurses: OSHA and NIOSH resources. Washington, D.C.: ANA Publishing.

Anita Karaca&Hediye Arslan, (2014) A study on the evaluation of patient safety culture in Nursing Services. SaglikVeHemsirelikYonetimiDergisi. 1.9-18.10.5222/SHYD.2014.009.

Anna Riddell, Ioana Kennedy & William Tong C Y., (2015) Management of sharps injuries in the healthcare setting. BMJ 2015; 351:h3733 doi: 10.1136/bmj.h3733

Balkhy HH, El Beltagy KE, El-Saed A, Sallah M, & Jagger J. (2011) Benchmarking of percutaneous injuries at a teaching tertiary care centre in Saudi Arabia relative to United States hospitals participating in the Exposure Prevention Information Network.Am J Infect Control. 2011;39 (7):560–565.

Beyera GK, Beyen TK (2014) Epidemiology of exposure to HIV/AIDS risky conditions in healthcare settings: the case of health facilities in Gondar City, North West Ethiopia. BMC Public Health 14:1283.

Blosser, F. (2000). WORKING WOMEN FACE HIGH RISKS FROM WORK STRESS, MUSCULOSKELETAL INJURIES, OTHER DISORDERS, NIOSH FINDS. Retrieved 19 February 2020, from https://www.cdc.gov/niosh/updates/womrisk.html

Büyük ET, Rizalar S, Yüksel P, Yüksel VT. (2016). Students' experiences on sharp object injuries and the effect of practice training on their levels of knowledge. Samsun SağlıkBilimleriDergisi, 1(1): 1– 11.

California Occupational Safety and Health Administration (1998). Bloodborne pathogens. *8*. California Code of Regulations1998. Available from: https://www.dir.ca.gov/title8/5193.html. Accessed April 12, 2017.

Cardo DM, Culver KH, Ciesielski C, et al. (1997). A case-control study of HIV seroconversion in health-care workers after percutaneous exposure. N Engl J Med 1997; 337:1485-90

Catherine E Cooke & Jennifer M Stephens (2017) Clinical, economic, and humanistic burden of needlestick injuries in healthcare workers. Dove press journals: Medical Devices: Evidence and Research

Cheetham S, Thompson SC, Liira J, Afilaka OA, Liira H. Education and training for preventing sharps injuries and splash exposures in healthcare workers. Cochrane Database of Systematic Reviews 2016, Issue 1. Art. No.: CD012060. DOI: 10.1002/14651858.CD012060.

Costigliola V, Frid A, Letondeur C, Strauss K. (2012) Needlestick injuries in European nurses in diabetes. Diabetes Metab.;38(Suppl 1): S9–S14

De-Carli, G., Abiteboul, D., & Puro, V. (2014). The importance of implementing safe sharps practices in the laboratory setting in Europe. *BiochemiaMedica, 24*(1), 45–56.

Doebbeling, B., Vaughn, T., McCoy, K., Beekmann, S., Woolson, R., Ferguson, K., & Toner, J. (2013). Percutaneous injury, blood exposure, and adherence to standard precautions: are hospital-based health care providers still at risk? *Clin Infect Dis*, 06-13.

Dussault, G., Franceschini, M.C. Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. *Hum Resour Health* **4,** 12 (2006) doi:10.1186/1478-4491-4-12

Elise, M. B., Ian, T. W., Craig, N. S., & Mary, E. C. (2000). Risk and Management of Blood-Borne Infections in Health Care Workers. *Clinical Microbiology Reviews, 13*(3), 385–407.

Elmiyeh B, W. S., James, M. J., Chaha, C. A., Galea, A., &Alshafi, K. (2004). Needlestick Injuries in the national health service: a culture of silence. *J R Soc Med, 93*(3), 26-37.

EmelMashaki Ceyhan, HakkiGürsöz, Ali Alkan ,Hacer Co ¸skun , OguzhanKoyuncu and Stuart Walker (2018) The Turkish Medicines and Medical Devices Agency: Comparison of Its Registration Process with Australia, Canada, Saudi Arabia, and Singapore Frontiers in Pharmacology | www.frontiersin.org

EPINet. (2009). *Exposure prevention information network data reports. University of Virginia: International Health Care Worker Safety Center.* Available from URL: http://www.healthsystem.virginia.edu...

EPINet. EPINet Report for Needlestick and Sharp Object Injuries. International Safety Center. Available from: https://internationalsafetycenter.org/wp-content/uploads/2016/08/Official-2014-NeedleSummary.pdf.Accessed April 12, 2017

Eye of the Needle (2014), Public Health England www.hpa.org.uk/Publications/InfectiousDiseases/BloodBorneInfections/EyeOfTheNeedle/1212EyeoftheNeedle2012Repor

Filiz, E.(2009) Determination of perception of patient safety culture in hospitals and of health staff and patient attitudes about patient safety. Master Thesis, Selcuk University Institute of Health Sciences The Department of Public Health, Konya, Turkey

Floret N, Ali-Brandmeyer O, L'Hériteau F, et al. (2015) Sharp decrease of reported occupational blood and body fluid exposures in French hospitals, 2003–2012: results of the French National Network Survey, AES-RAISIN. Infect Control Hosp Epidemiol. 2015;36(8):963–968.

Ford N, Shubber Z, Calmy A, et al (2015) Choice of antiretroviral drugs for postexposure prophylaxis for adults and adolescents: a systematic review. Clin Infect Dis 2015;60 (Suppl3):S170-6.

Friday Ntinyari Tait, Charles Mburu,and Joseph Gikunju(2018) Occupational safety and health status of medical laboratories in Kajiado County, Kenya.Pan Afr Med J. 2018; 29: 65

Galougahi M. H. (2010). Evaluation of needle stick injuries among nurses of Khanevadeh Hospital in Tehran. *Iranian journal of nursing and midwifery research, 15*(4), 172–177.

GhaneiGheshlagh R, Aslani, Shabani,Dalvand&Parizad (2018), Prevalence of Needle Stick and Sharp Injuries in the Healthcare Workers of Iranian Hospitals: an updated meta-analysis. Eviron Health Prev Med 23,44. Doi: 10.1186/s12199-018-0734-z.

GlenngardAH,& Persson U (2009). Costs associated with sharps injuries in the Swedish health care setting and potential cost savings from needlestick prevention devices with needle and syringe. *Scand J Infect Dis.* 2009;41(4):296–302.

Green B, & Griffiths, EC. (2013) Psychiatric consequences of needlestick injury. Occup Med (Lond). 2013;63(3):183–188

Gupta S, Wong EG, & Kushner AL (2014) Scarcity of protective items against HIV and other blood-borne infections in 13 low- and middle-income countries.Trop Med Int Health 19: 1384-1390.

Guyatt GH, Oxman AD, & Sultan S, et al. (2011). GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311–6.

Hanmore E, Maclaine G, Garin F, Alonso A, Leroy N, & Ruff L. (2013) Economic benefits of safety-engineered sharp devices in Belgium - a budget impact model. BMC Health Serv Res. 2013;13:489

Hashmi, A., Al-Reesh, S., & Indah, L. (2012). *Prevalence of Needle-stick and Sharps Injuries among Healthcare Workers.* Najran, Saudi Arabia: Epidemiol.

Health Service Executive (2016) Policy for the Prevention of Sharps Injuries.

Henry, K., & Campbell, S. (2005). Needlestick/sharps injuries and HIV exposure among health care workers. National estimates based on a survey of U.S. hospitals. *Minn Med*, 1-4.

IIrmak Z, Baybuga MS. (2011). Needlestick and sharps injuries among Turkish nursing students: A cross-sectional study. Int J NursPract, 17(2): 151– 7.

Isara, A. R., Oguzie, K. E., &Okpogoro, O. E. (2015). Prevalence of Needlestick Injuries Among Healthcare Workers in the Accident and Emergency Department of a Teaching Hospital in Nigeria. *Annals of medical and health sciences research,* 392–396.

Istanbullu, I.T., Yıldız, H. & Zora, H. (2012) A study for the development of safety reporting system which is applied at Kartal Yavuz Selim State.

Istanbullu, I.T., Yıldız, H. & Zora, H. (2012) A study for the development of safety reporting system which is applied at Kartal Yavuz Selim State.

Jahan, S. (2015). Epidemiology of Needlestick injuries among healthcare workers in a secondary hospital in Saudi Arabia. *Annals of Saudi Medicine, 25*(3), 233-238.

Jonathan C. L. Rodrigues, Steven Morgan, Katharine Augustine, Gavin Clague, Tim Pearce, Adrian Pollentine, Adam Wallis, David Wilson, and Paul McCoubrie (2014) Musculoskeletal Symptoms Amongst Clinical Radiologists and the Implications of Reporting Environment Ergonomics—A Multicentre Questionnaire Study.J Digit Imaging. 2014 Apr; 27(2): 255–261

Jovic-Vranes, A., Jankovic, S., &Vranes, B. (2016). Safety practice and professional exposure to blood and blood-containing materials in Serbian health care workers. *J Occup Health, 48*(3), 77-82.

Julie Polisena, Jeffrey Jutai& RanaChreyh (2014) A proposed framework to improve the safety of medical devices in a Canadian hospital context. Medical Devices: Evidence and Research 2014:7 139–147

Karadag, M. (2010). Occupational exposure to blood and body fluids among a group of Turkish nursing and midwifery students during clinical practise training: frequency of needlestick and sharps injuries. Jpn J Nurs Sci, 7(2): 129– 35.

Kebede, A., & Gerensea, H. (2018). Prevalence of needle stick injury and its associated factors among nurses working in public hospitals of Dessie town, Northeast Ethiopia, 2016. BMC research notes, 11(1), 413. doi:10.1186/s13104-018-3529-9

Kermode, M., Jolley, D., Langkham, B., Thomas, M., & Nick, C. N. (2017). Occupational exposure to blood and the risk of bloodborne virus infection among health care workers in rural North Indian health care settings. *Am J Infect Control, 33*(1), 34-41.

Khabour, O.F., Al Ali, K.H. &Mahallawi, W.H. (2018) Occupational infection and needle stick injury among clinical laboratory workers in Al-Madinah city, Saudi Arabia. J Occup Med Toxicol 13, 15 (2018) DOI:10.1186/s12995-018-0198-5

Khraisat, Firas & Juni, Muhamad & Abd Rahman, Anita & MS, Salmiah. (2017). The impact of health education to reduce needle stick injury among nurses of private hospital in Jordan. International Journal of Public Health and Clinical Sciences. 3. 2289-7577.

Lee JM, Botteman MF, Nicklasson L, Cobden D, &Pashos CL (2011).Needlestick injury in acute care nurses caring for patients with diabetes mellitus: a retrospective study. Curr Med Res Opin. 2015;21(5):741–747

Lee JM, Botteman MF, Xanthakos N, Nicklasson L. (2005). Needlestick injuries in the United States. Epidemiologic, economic, and quality of life issues. *AAOHN J.* 2005;53(3):117–133.Hanmore E, Maclaine G, Garin F, Alonso A,

Lee WC, Nicklasson L, Cobden D, Chen E, Conway D, (2005). Pashos CL. Short-term economic impact associated with occupational needlestick injuries among acute care nurses. Curr Med Res Opin. 2005;21(12):

Leigh JP, Gillen M, Franks P, et al. (2007). Costs of needlestick injuries and subsequent hepatitis and HIV infection. *Curr Med Res Opin.* 2007;23(9):2093–2105.

Mannocci A, De Carli G, & Di Bari V, et al. (2016). Much do needlestick injuries cost? A systematic review of the economic evaluations of needlestick and sharps injuries among healthcare personnel. *InfectControl Hosp Epidemiol.* 2016;37(6):635–646.

Marki, M., &Dnane, A. (2013). *"Medical Waste Management: A Case Study of the Souss-Massa-Drâa Region.* Morocco.

Martins A, Coelho AC, Vieira M, Matos M, Pinto ML. Age and years in practice as factors associated with needlestick and sharps injuries among health care workers in a Portuguese hospital. Accident Anal Prev. 2012;47:11–15.

Martowirono, K., Jansma, J.D., Luijk, S.J. van., Wagner, C.& Bijnen, A.B. (2012) Possible solutions for barriers in incident reporting by residents. Journal of Evaluation in Clinical Practice 8: 76–81

Mary Foley, & Annemarie T. Leyden, (2012) American Nurses Association – Independent Study Module Needlestick Safety and Prevention

Max Roser and Esteban Ortiz-Ospina (2020) - "Global Education". *Published online at OurWorldInData.org.* Retrieved from: 'https://ourworldindata.org/global-education' [Online Resource]

McNamara, M & Patterson D. (2008). Workplace Safety And Needlestick Injuries Are Top Concerns For Nurses. www.nursingworld.org: American Nurses Association; 2008:1–4. Available from: http://www.nursingworld.org/MainMenuCategories/WorkplaceSafety/Healthy-Work-Environment/ SafeNeedles/Press/WorkplaceSafetyTopConcerns.pdf. Accessed April

Memish ZA, Assiri AM, Eldalatony MM, &Hathout HM. (2015). Benchmarking of percutaneous injuries at the Ministry of Health hospitals of Saudi Arabia in comparison with the United States hospitals participating in Exposure Prevention Information Network (EPINet). Int J Occup Environ Med. 2015;6(1):26–33.

Meredith Mealer, Ellen L. Burnham, MD,Colleen J. Goode, RN, Barbara Rothbaum, and Marc Moss, (2010) The prevalence and impact of post-traumatic stress disorder and burnout syndrome in nurses. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2919801/pdf/nihms211783.pdf

Moazzam A., et al., Needle Stick Injuries: An Overview of the Size of the Problem, Prevention & Management, Ibnosina Journal of Medicine and Biomedical Sciences, 2010; 2(2): pp53-61.

Mohsen Adib-Hajbaghery, & Mohammad Sajjad Lotfi (2013) Behavior of Healthcare Workers After Injuries From Sharp Instruments. Trauma Research Center DOI: 10.5812/traumamon.12779

Murphy, B. (2019). *These medical specialties have the biggest gender imbalances.* https://www.ama-assn.org/residents-students/specialty-profiles/these-medical-specialties-have-biggest-gender-imbalances.

Naghavi SH, Shabestari O, &Alcolado J. (2013). Post-traumatic stress disorder in trainee doctors with previous needlestick injuries. Occup Med (Lond). 2013;63(4):260–265.

Napoli VM, & McGowan JE Jr. (2008). How much blood is in a needlestick injury associated with insulin administration. *Br J Community Nurs.* 2008;13(9):413–417.

Nemutandani, M., Yengopal, V., Rudolph, M., &Tsotsi, N. (2007). Occupational exposures among dental assistants in public health care facilities. *Limpopo Province. SADJ, 62*(8), 348, 352-348, 355.

Ng-Sueng, L., I., V.-M., MaytaTristán, P., Pereyra-Elías, R., Montenegro-Idrogo, J., & Inga-Berrospi, F. (2016). Gender Associated with the Intention to Choose a Medical Specialty in Medical Students: A Cross-Sectional Study in 11 Countries in Latin Ame. *PLoS ONE e0161000. DOI:10.1371/journal.pone.0161000, 11*(8).

NHS Confederation, (2015). Managing the risk of sharp injuries. available at www.nhsemployers.org/publications

Nkoko L, Spiegel J, Rau A, &Yassi A. (2014). Reducing the risks to health care workers from blood and body fluid exposure in a small rural hospital in Thabo-Mofutsanyana, South Africa. Workplace Health Saf.2014;62(9):382–388.

Nsubuga, F., &Mangasi, D. (2009). Factors influencing the reporting of needlestick injuries among nurses at Mulago Hospital, Uganda. *African Newsletter on occupational health and safety, 19*, 8-11.

O'Malley EM, Scott RD, & Gayle J, et al. (2007). Costs of management of occupational exposures to blood and body fluids. *Infect Control HospEpidemiol.* 2007;28(7):774–782.

Occupational Safety and Health Administration website. OSHA fact sheet: protecting yourself when handling contaminated sharps. www.osha.gov/OshDoc/data_BloodborneFacts/bbfact02.pdf. Updated January 2011. Accessed February 21, 2018. of treatment. J Virol 1998; 72:4265-73.

Oh HS, Yoon Chang SW, Choi JS, Park ES, &Jin HY. (2013). Costs of post-exposure management of occupational sharps injuries in health care workers in the Republic of Korea. Am J Infect Control. 2013;41(1):61–65

OSHA – Bloodborne Pathogens & Needlestick Prevention. Available at http://www.osha.gov/SLTC/bloodbornepathogens/index.html (accessed 9/26/03).

Owie HO, &Apanga, P.A. (2016). Occupational Health Hazards Prevailing among Healthcare Workers in Developing Countries. J AIDS Clin Res 7:596. DOI:10.4172/2155-6113.1000596.

Ozkan O, &Gökdogan F (2003) The prevalence of latex allergy among health care workers in Bolu (Turkey).DermatolNurs 15: 543-547, 554.

Ozvaris SB. Protecting workers from infections. Surekli tip egitimidergisi 1999;9”12.

Phaswana SM, Naidoo S (2013) The prevalence of latex sensitisation and allergy and associated risk factors among healthcare workers using hypoallergenic latex gloves at King Edward VIII Hospital, KwaZulu-Natal South Africa: A cross-sectional study 3:e002900.

Phillips S. P. (2011). Including gender in public health research. *Public health reports (Washington, D.C. : 1974), 126 Suppl 3*(Suppl 3), 16–21. doi:10.1177/00333549111260S304

Pia Markkanen, Catherine Galligan , Angela Laramie, June Fisher, Susan Sama and Margaret Quinn(2015) Understanding sharps injuries in home healthcare: The Safe Home Care qualitative methods study to identify pathways for injury prevention. BMC Public Health (2015) 15:359 DOI 10.1186/s12889-015-1673-x

Poonam Gupta, Partha Rakshit2, Ravi Kumar Gupta, Namrata Bhatt1, Renu Dutta1, and Sherwal BL (2017). Assessment of Knowledge, Attitude, and Practices Towards Occupational Injuries Infections of Healthcare Workers at Tertiary Care Hospital. International Journal of Medical Research & Health Sciences, 2017, 6(5): 102-107

Pruss-Ustun, A., Rapiti, E., Hutin, Y., &Esti, S. (2005). motion of the global burden of diseases attributable to contaminated sharps injuries among healthcare workers. *American Journal of Industrial Medicine, 48*(6), 482—490.

Public Health England (2013) Immunization against infectious disease: the Green Book. Public HealthEngland;2013:
16185.www.gov.uk/government/uploads/system/uploads/attachment_data/file/263311/Green_Book_Chapter_18_v2_0.pdf.

Rajkumari N, Thanbuana BT, John NV Gunjiyal J, & Mathur P, et al. (2014) A prospective look at the burden of sharps injuries and splashes among trauma health care workers in developing countries: true picture or tip of iceberg.Injury 45: 1470-1478.

Rami A. Ballout, Batoul Diab2, Alain C. Harb, Rami Tarabay, Selma Khamassi3 and Elie A. Akl (2016). Use of safety-engineered devices by healthcare workers for intravenous and or phlebotomy procedures in healthcare settings: a systematic review and meta-analysis. BMC Health Services Research (2016) 16:458 DOI 10.1186/s12913-016-1705-y

Rapiti, E., Prüss-Üstün, A., &Hutin, Y. (2005). *Sharps injuries: assessing the burden of disease from sharps injuries to health-care workers at national and local levels. Geneva, World Health Organization.* WHO Environmental Burden of Disease Series, No. 11.

RutaLukianskyte, JulijaGataeva&LaimuteRadziunaite (2011) Needle Sticks & Sharp Injuries experienced by Staff nurses and student nurses and their prevention. International journal of Infection Control. Vol.8:11

Senthil A, Anandh B, Jayachandran P, Josephin D, Yamini R,& Kalpana B. (2015)Perception and prevalence of work-related health hazards among health care workers in public health facilities in southern India. 2015; International Journal of Occupational and Environmental Health 2015; 21 (1) pp.74-81. DOI 10.1179/2049396714Y.0000000096

Sharew, N. T., Mulu, G. B., Habtewold, T. D., &Gizachew, K. D. (2017). Occupational exposure to sharps injury among healthcare providers in Ethiopia regional hospitals. *Annals of occupational and environmental medicine, 29*, 7. doi:10.1186/s40557-017-0163-2

Sohn JW, Kim BG, Kim SH, & Han C. (2016). Mental health of healthcare workers who experience needlestick and sharps injuries. J Occup Health. 2016;48(6):474–479\

Somville, F.J., De Gucht, V. &Maes, S. (2016)The impact of occupational hazards and traumatic events among Belgian emergency physicians. *Scand J Trauma ResuscEmerg Med* 24, 59 (2016) DOI: 10.1186/s13049-016-0249-9

Steve, F. (2019). *Why are there so few men in nursing?* https://www.nursingtimes.net/archive/why-are-there-so-few-men-in-nursing-03-03-2008/.

Suliman M, Al Qadire M, &Alazzam M, et al. (2018). Students nurses' knowledge and prevalence of Needle Stick Injury in Jordan. Nurse Educ Today, 60: 23– 7. [PubMed] [Google Scholar]

Talaat M, Kandeel A, & El-Shoubary W, et al. (2003). Occupational exposure to needlestick injuries and hepatitis B vaccination coverage among health care workers in Egypt.Am J Infect Control. 2003;31(8):469–474.

The Centers for Disease Control and Prevention. (2010). Implementing and evaluating a Sharps Injury Prevention Program. 2010. Available from: http://www.cdc.gov/sharpssafety/pdf/sharpsworkbook_2008.pdf. Accessed April 12, 2017

Tomkins SE, Rice BD, Roy K, Cullen B, & Ncube FM. (2015) Universal treatment success among healthcare workers diagnosed with occupationally acquired acute hepatitis C. J Hosp Infect 2015;89:69-71.

Trueman P, Taylor M, Twena N, Chubb B. (2008). The cost of needlestick injuries associated with insulin administration. Br J Community Nurs. 2008;13(9):413–417.

Tsai CC, Emau P, Follis KE, et al. (1998) Effectiveness of post inoculation (R)-9-(2phosphonylmethoxypropyl) adenine treatment for prevention of persistent simian immunodeficiency virus SIVmne infection depends critically on timing of initiation and duration

Türk, M., Altuğlu, İ., Çiçeklioğlu, M., Büke, Ç., Erensoy, S., &Bilgiç, A. (2012). education of hospital health care workers about the prevention of bloodborne infections. *Ege Journal of Medicine,* 195-199.

Wang S, Yao L, Li S, Liu Y, Wang H, & Sun Y. (2012). Sharps injuries and job burnout: a cross-sectional study among nurses in China. NursHealth Sci. 2012;14(3):332–338.53.

Wittmann A, Hofmann F, Kralj N. (2007). Needlestick injuries - Risk from blood contact in dialysis. *J Ren Care.* 2007;33(2):70–73.

World Health Organization (2016) International statistical classification of diseases and related health problems (ICD-10) in occupational health.

World Health Organization. (2002). Reducing risks, promoting healthy life. Retrieved April 10,2008, from www.who.intlwhr/enlprevious/ index.html

Xerafy. (2013) *Five Myths about RFID and RTLS in the Healthcare Industry*. Hong Kong: Available fro http://www.xerafy.com/userfiles/misc/resources/whitepapers/Five%20Myths%20About%20the%20Healthcare%20Industry%20White%20Paper.pdf. Accessed December, 1, 2019.

Xiao Lin, Wang Qing-Yang, Kang Hong& Tang Si-Yuan (2014), The Epidemiology of Needle Stick and Sharp Injuries in Central Sterile Supply Department of Hospitals in Hunan Province China. International Journal of Infection Control 10(1).

Yazie, T., Chufa, K., &Tebeje, M. G. (2019). Prevalence of needlestick injury among healthcare workers in Ethiopia: a systematic review and meta-analysis. *Environmental Health and Preventive Medicine,* 24-52.

Zeynep KaramanÖzlü, AyşegülÇayYayla, Kenan Gümüş, SemraErdağı, İbrahim Özlü, Nadiye Özer1, AsiyeTekin, &ÖzgürTuğ (2017) The Safe Use of Sharps and Needlestick among Nurses Working in Surgical Clinics, Turkey Eurasian Journal of Emergency Medicine.

Zhang X, Chen Y, Li Y, et al. (2018). Needlestick and sharps injuries among nursing students in Nanjing, China. Workplace Health Saf, 66(6): 276– 84.

Zhuo, C., Jingrui, Z., Xiangjun, Z., Bairu, W., &Xiaojun, L. (2018). harp injuries: a cross-sectional study among health care workers in a provincial teaching hospital in China. *Environ Health Prev Med, 23*(2).

Zohre Irmak (2012) Needle Stick and Sharp Injury among Nurses at a State Hospital in Turkey. Australian Journal of Advanced Nursing Vol. 30 (2).

APPENDIX

YAKIN DOGU UNIVERSITESI HEMSIRELIK FAKULTESI HALK SAGLIGI HEMSIRELIGI AD.

SAĞLIK ÇALIŞANI TANITIM FORMU

1. Kaç yaşındasınız? _ _

2. Cinsiyetiniz nedir?

a. Kadın b. Erkek

3. Eğitim durumunuz nedir?

a. İlkokul- Ortaokul

b. Sağlık Koleji

c. Yüksek Okul-Fakülte

d. Lisansüstü

4. En uzun yaşadığınız yer neresidir?

a. İlçe

b. İl

c. Diğer

5. Mesleğiniz, işiniz nedir?

a. Hekim

b. Hemşire

c. Tıbbi teknisyen

d. Laborant

6. Kaç yıldır çalışıyorsunuz?

a. 0-1 yıl

b. 1-5 yıl

c. 5 yıldan fazla

7. Hangi klinikte çalışıyorsunuz?

……

Sağlık Çalışanlarının Kesici-Delici Tıbbi Aletleri Güvenli Kullanımına Yönelik Tutum Ölçeği

	Tamamen katiliyorum	Katiliyorum	Fikrim yok	Katilmiyorum	Hiç katilmiyorum
1. Kesici-delici alet ile yaralanma sonrası koruyucu tedavi önemlidir					
2. Enjeksiyon uygulamalarında aseptik koşullara uyulması gerektiğine inanıyorum.					
3.Tanık olduğum kesici-delici alet yaralanmalarında yaralanan kişiyi uygun yere yönlendirmem.					
4. İnvaziv girişim yapılan birimlerde tıbbi atık kutusu bulunmalıdır					
5.Kesici-delici alet ile yaralanırsam infeksiyon kontrol birimine başvururum					
6. Hastaya uygulanacak her türlü işlemde standart önlemlere uyarım.					
7. Hepatit B aşısı yaptırmış sağlık çalışanlarının HBV (+) hastalara verdikleri tetkik, tedavi ve bakım hizmetlerinde önlem almalarına gerek olmadığını düşünüyorum.					
8. Çalışma ortamında dış uyaranlar (yüksek ses, gürültü, ışık yetersizliği vb.) varsa kesici-delici aletlerle yaralanma riski artar.					
9. Kesici-delici alet yaralanmalarından sonra tıbbi izlemin önemli olduğuna inanıyorum.					
10.Kesici-delici alet ile yaralanan bir çok sağlık çalışanına infeksiyon bulaşmadığı için yaralanırsam bana da bulaşmayacağına inanıyorum.					
11.Kesici-delici alet yaralanmalarından sonra kaynak hastadan ve sağlık çalışanından serolojik inceleme gereklidir					
12.Kesici-delici alet ile yaralanırsam infeksiyon kontrol birimine bildirmem.					
13.Kan ve vücut sıvılarının üzerime sıçraması bulaş açısından risk oluşturmaz.					
14.İlaç hazırlanan yüzeylerin dezenfekte edilmesi gerektiğine inanıyorum.					
15.Kullanılmış iğneleri ve diğer kesici-delici aletleri tıbbi atık kutusuna atarım.					
16.Enjeksiyon uygularken eldiven kullanılması gerekmez					
17.Elimde açık yara, kesik ve sıyrık varsa, çalışırken kapatmam					
18.Kesici-delici alet kullanımına yönelik hizmet içi eğitime gerek yoktur.					
19.Sağlık çalışanlarının tümünün hepatit B aşısı yaptırması gerekir					
20.Kesici-delici alet yaralanmalarıyla sağlık çalışanlarına HBV,					

HCV ve HIV gibi virüsler bulaşabilir	
21.Kesici-delici alet ile yaralanma riski olan durumlarda daha dikkatli davranmam	
22.Hastaya herhangi bir uygulama yapılacağı zaman hastanın sabit durmasının, kesici-delici alet yaralanmalarını azaltacağına inanıyorum	
23.Kan, diğer vücut sıvılarına göre bulaştırıcılık açısından daha fazla risk taşımaz.	
24.Hastanın periferik kateter değişiminde eldiven kullanılması gereklidir	
25.Acil durumlarda kesici-delici aletlerle uygulama yapılırken çevredekilerin uyarılması gerekir	

EK:998-2019

YAKIN DOĞU ÜNİVERSİTESİ
BİLİMSEL ARAŞTIRMALAR ETİK KURULU

ARAŞTIRMA PROJESİ DEĞERLENDİRME RAPORU

Toplantı Tarihi : 21.11.2019
Toplantı No : 2019/74
Proje No :928

Yakın Doğu Üniversitesi Hemşirelik Fakültesi öğretim üyelerinden Doç. Dr. Hatice Bebiş'in sorumlu araştırmacısı olduğu, YDU/2019/74-928 proje numaralı ve **"The attitudes of healthcare workers toward safe use of sharp medical device"** başlıklı proje önerisi kurulumuzca değerlendirilmiş olup, etik olarak uygun bulunmuştur.

1. Prof. Dr. Rüştü Onur (BAŞKAN)
2. Prof. Dr. Nerin Bahçeciler Önder (ÜYE) KATILMADI
3. Prof. Dr. Tamer Yılmaz (ÜYE)
4. Prof. Dr. Şahan Saygı (ÜYE)
5. Prof. Dr. Şanda Çalı (ÜYE)
6. Prof. Dr. Nedim Çakır (ÜYE) KATILMADI
7. Prof. Dr. Ümran Dal Yılmaz (ÜYE)
8. Doç. Dr. Nilüfer Galip Çelik (ÜYE) KATILMADI
9. Doç.Dr. Emil Mammadov (ÜYE)
10. Doç. Dr. Mehtap Tınazlı (ÜYE)

Ref No: HF- 1385 /2019 12.11.2019
Konu: Yük. Lisans Tezi uygulaması hk.

YDÜ Hastanesi Başhekimliği'ne;

Hemşirelikte Yüksek Lisans Proroğramına devam eden 20178204 Saliha Aminu, Doç. Dr. Hatice Bebiş'in danışmanlığında tez aşamasına geçmiştir. Öğrencinin "SAĞLIK ÇALIŞANLARININ KESİCİ-DELİCİ TIBBİ ALETLERİN GÜVENLİ KULLANIMINA YÖNELİK TUTUMLARININ BELİRLENMESİ" konulu tez çalışmasının hastanede görevli ve çalışmaya katılmaya gönüllü sağlık çalışanları ile yapabilmesi için gerekli iznin verilmesini arz ederim.

Saygılarımla;

Prof. Dr. Ümran Dal Yılmaz
Hemşirelik Fakültesi Dekanı

Personal information

Name:	Saliha Aminu
Address : Yakin Doğu Universitesi Hemşirelik Fakültesi, Lefoşa, KKTC Email: aminusaliha@gmail.com	

EDUCATION

Years	Degree	University	Field Of Study
2012-2017	Bachelor	Near East University	Nursing
2017- 2020	Masters	Near East University Nursing faculty	Public Health Nursing

device injury

ORIGINALITY REPORT

19% SIMILARITY INDEX	12% INTERNET SOURCES	7% PUBLICATIONS	16% STUDENT PAPERS

PRIMARY SOURCES

1	toad.halileksi.net Internet Source	3%
2	www.saglikcalisanisagligi.org Internet Source	1%
3	Submitted to Marmara University Student Paper	1%
		1%
4	Martins, A.. "Age and years in practice as factors associated with needlestick and sharps injuries among health care workers in a Portuguese hospital", Accident Analysis and Prevention, 201207 Publication	
5	Submitted to European University of Lefke Student Paper	1%

	internationaljournalofcaringsciences.org 6 Internet Source	1%
7	Submitted to Oxford Brookes University Student Paper	<1%

dergipark.gov.tr