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Compliance and Contributing Factors of Standard Precautions Usage Among Emergency Nurses in Palestine During COVID_19 Pandemic

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Approval form

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Declaration

This thesis was submitted in partial fulfillment of the requirement for the Master's degree in the Emergency Nursing.

I declare that the content of this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Waed Azeeza N. Salameh

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Abstract

This study was **aime**d to assess the level of compliance toward standard precautions (SPs) and identify the contributing factors influence usage of SPs among emergency nurses during COVID-19 pandemic in the west bank.

Method: All nurses who works in emergency departments was targeted, which was 225 nurses. Quantitative, cross-sectional, self-administered questionnaire in the limited period (27th of February to the 6th of May, 2021) were used. In order to analyze the responses of the members of the study sample descriptive statistic (mean, standard deviation SD) were used. **Results:** The level of compliance toward SPs among emergency nurses during COVID-19 pandemic in the west bank had a percentage of 51.1% (poor compliance). According to source of information of SPs, the results revealed that MOHP and WHO website was the most one used (68.0%), and revealed that there was significant differences between television& lectures as source of information and the mean nurse's compliance to SPs, television (p =0.004), lectures (p= 0.006) which is less than 0.005. The analysis also revealed that the most factors affecting emergency nurses' compliance with SPs during COVID-19 was "There is not enough gloves"(81.3%), "Gloves cause skin irritation" (76.4%), **Recommendation:** create new strategies and intervention to strengthen workplace policy, strong support and supervision are highly recommended, improving education and training for nurses, provide adequate human and material resources.

Keywords: emergency nurses, standard precautions, personal protective equipment

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Chapter one: Introduction

1.1. Background

Emergency Department (ED) is a part of a hospital which plays a major role in response to the emergency incident (Pranita et al., 2019) that is taking care of individuals of all ages with variety alteration of health status, serious and unexpected situation involving an illness or injury. So, the emergency nursing is considered episodic, primary and typically short term (Solheim, 2016). According to Palestinian MOH in 2018 the number of visits to emergency services in MOH reached 2.276.145 visits (MOH, 2018).

From this point the medical team who works in the ED will face many issues. One of them is the risk of exposure to potential blood infections, especially during the widespread of COVID-19 pandemic which is considered a respiratory infectious disease caused by the novel corona virus. Therefore, the health care workers (HCWs) are at a high potential risk of getting infected due to inadequate protection while caring for patients (Alaoet al., 2020). Nurses must prioritize protecting themselves by using an effective and appropriate personal protective equipment (PPE) while caring for those with suspected or confirmed COVID-19 cases, and to be healthy and available to care for future patients (Deitricket al., 2020). PPE provide the dual role of preventing disease spreading from patients to HCWs and vice versa (Alaoet al., 2020).

To protect HCWs from the occupational injuries, the Centers for Disease Control (CDC) recommends preventing infections by providing health services by implementation of SPs (Luo et al.,2010; CDC, 2007).

Standard precautions include hand hygiene, use of (PPE), safe handling of potentially contaminated equipment or surfaces in the patient environment including respiratory hygiene, needle safety and disposal of sharps, body fluids, and other clinical wastes properly (Punia, Nair & Shetty, 2014). This aims to control the spread of the healthcare associated infections, promote healthy and safe work environments (Al-Khatib et al., 2015; Pasay et al., 2015). The Palestinian Ministry of Health (MOH) adopted the national Infection Prevention and Control (IPC) Protocol in 2004, aiming to prevent infections among health care providers (HCPs), clients and within the community (Eljedi&Dalo, 2014).

Compliance to personal protective equipment's considered a crucial issue during the COVID-19 pandemic. Access to and correct use of the right type, size, and fit to the PPE is important to maintain the safety. Staff must have adequate information, education and training regarding indication of use. That leads to being able to correctly follow and understand a systematic donning and doffing processes of PPE safely and effectively (Peters et al., 2020).So the adherence of healthcare workers to IPC guidelines becomes even more important during this pandemic (Houghton et al., 2020).

Implementation of safety protocols and guidelines in clinical practice requires HCWs' knowledge of such protocols and skills to implement them. However, awareness of the implementation of standard precautions is still low in most health workers, non-compliance in the implementation of standard precautions can indicate the presence of barriers perceived by nurses (Luo et al., 2010; Pranita et al., 2019).

1.2. Problem statement:

Globally, many studies were done about knowledge and practice of SP measures as a major risk in professional nursing is exposure to blood and body fluids. Also, little local studies talk about the knowledge and practice of SPs and sharp injures among nurses. Healthcare-associated infections (HAIs) are considered a crucial risk factor for patients and HCWs in a different healthcare environment (Haile, Engeda&Abdo, 2017). The CDC developed universal precautions, including PPE, to protect HCWs from hazardous occupational exposure. As a result, nursing practice considers infection prevention procedures to be extremely important. Incorrect or inconsistent practice can lead to occupational exposures or disease transmission (Rebmann, Carrico, 2017). Despite the availability of detailed guidelines, HCWs' knowledge and compliance with standard precautions vary and have been found to be insufficient in both developed and developing countries (Punia, Nair & Shetty, 2014). According to some studies, the implementation of SPs has not been optimal due to perceived barriers by nurses (Pranita et al., 2019). As a result, even in high-risk clinical situations, HCWs' adherence to universal precautions is low (Okello et al., 2017).

Because they are frequently exposed to blood and potential infections, emergency nurses are at risk of catching a blood-borne infection (Kong, Park, 2016). The percentage of compliance in the emergency room (ER) is only 42.33 percent, making it the hospital's second lowest compliance rate (Singh et al., 2016).

Poor compliance with personal protective behaviors among healthcare staff has been identified as a major cause of nosocomial transmission by outbreaks of emerging infectious diseases (COVID-19) (Brooks et al., 2020).

As of May, 2020, 87% of nurses reported having to reuse a single-use disposable mask or N95 respirator, and 27% of nurses reported they had been exposed to confirmed COVID-19 patients without wearing appropriate PPE. As of July 28, 2020, at least 1842 nurses, doctors,

physicians' assistants, medical technicians, and other HCWs globally, and 342 in the US, died due to the virus, and many more became sick. The CDC aggregate national data of 172,844 cases among healthcare personnel and 743 deaths (CDC, 2020), (Cohen& Rodgers, 2020).

A few studies have focused on the rate of compliance and factors influencing compliance in ED among nurse, generally the researches talk about the nurse's compliance within HCWs compliance. That results in lack of information about the compliance to SPs in the emergency department of the health care settings (Punia, Nair & Shetty, 2014). So, this study aims to assess the level of compliance and identify the factors that influence an emergency nurse's decision to use SPs especially during COVID-19 pandemic.

1.3. Significance of the study

Despite efforts to promote disease monitoring and infection control, the spread of emerging infectious diseases (EIDs) remains a major threat to global public health and presents significant enormous challenges to healthcare systems around the world (Stanley et al., 2019). Which place the infectious diseases in the main causes of mortality and morbidity in hospitals and other health care facilities (Pranita et al., 2019).

Both patients and health-care workers can be affected by HAI, because of the nature of their jobs (Haile, Engeda&Abdo, 2017). If infection control practices and standard precautions are not followed, the risk of infectious agent transmission increases (Almurr, 2013). HAIs are associated with longer hospital stays, increased mortality, poor medical care quality, increased healthcare costs, and psychosocial and economic burdens on the individuals involved, as well as their families and communities, forming a serious problem that threatens the health and safety of patients and medical workers (Donati et al., 2019; Luo et al.,2010).

Several studies have found evidence of clinical nurses becoming infected as a result of occupational exposure; they reported 80.6 percent incidence rate of needle stick injury in

nurses (Luo et al, 2010). A Turkish study found that 44.3 percent of nurses had a sharp or needle stick injury during their professional career (Akyol, Kargin, 2016). According to an Ethiopian study, a significant number of healthcare workers (65.9 percent) were exposed to blood and body fluids (Haile, Engeda&Abdo, 2017).

In the COVID-19 pandemic, life and health has been affected. This affected the healthcare providers especially nurses who were fighting on the frontlines against the corona virus disease 2019 (COVID-19) pandemic (Al Thobaity, Alshammari, 2020).They were working at a very challenging environment to be able to provide safe and effective care to patients (Key et al., 2020).According to the most recent morbidity and mortality weekly report from the Centers for Disease Control and Prevention in the United States, nearly 35% of healthcare workers were infected with COVID-19 (Yuan, Shu Chen&Xu, 2020). The rapid spread of Covid-19 around the world, along with the associated mortality and morbidity, is worrying (Ogolodomet al., 2020).

Inadequate knowledge and incorrect attitudes among HCWs can have a direct impact on practices, resulting in delayed diagnosis, poor infection control, and disease spread (Abdel Wahed et al., 2020). As a result, having a good understanding of the infection process and control would change behavioral patterns and increase the willingness of health care workers to carry out their duties plans in order to improve their preparedness (Ogolodom, et al., 2020).

Nurses and patients' safety is identified as a critical issue in controlling and limiting the transmission of infectious disease between nurses and patients. Nurses hold the key to infection control challenges, representing a force of abilities capable of shaping and advancing patient outcomes (Jahangiri et al., 2015). Therefore, it is important to identify barriers perceived by nurses in implementing standard precautions and levels of compliances

to SPs that will influence safe work environment practice, which will be introduced in this study, and it may also provide reference evidence to the instituting policies.

1.4. Purpose of study

The aim of this study was to assess the level of compliance toward SPs and identify the contributing factors that influence usage of SPs among emergency nurses during COVID -19 pandemic in the west bank.

1.5. Research objectives

The research objectives are to:

• Assess the level of compliance toward SPs among emergency nurses in the west bank during COVID -19.

• Identify the contributing factors affecting practice SPs among emergency nurses in the west bank during COVID-19.

1.6. Research questions

1. What is the level of compliance to SPs among emergency nurses in the during west bank during COVID-19?
2. What are the factors affecting emergency nurse's compliance with SPs in the west bank during COVID-19?
3. Are there differences between selected Demographic data, Work characteristics and nurse's compliance to SPs in ED during COVID-19?
4. Are there differences between selected hospitals and nurse's compliance to SPs in ED during COVID-19?
5. Are there differences between source of information and nurse's compliance to SPs in ED during COVID-19?
6. Are there differences between formal personal protective equipment training and nurse's compliance to SP in ED during COVID-19?

1.7. Dependent and independent variables:

- The **dependent** variable is compliance with SPs.
- The **independent** variable: Compliance factors to SPs "institutional policies of SPs-infection control polices, Standard precautions knowledge, PPE equipment, SP training, demographic data, source of SPs knowledge".

1.8. Conceptual and Operational Definition

A) Conceptual Definition

A.1. COVID -19:

"COVID-19 (coronavirus disease 2019) is an infectious respiratory disease caused by the novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Public Health England (PHE), 2020a) (Gordon& Thompson, 2020). The novel coronavirus binds to the angiotensin converting enzyme (ACE) 2 receptor, which is found on endothelial cells including those in the lungs, blood vessels, and gastrointestinal tract (Deitrick, et al. 2020, P.2).

A.2. Standard Precautions (SPs):

(Previously known as "universal precautions") Standard Precautions "are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection cases of the patient, in any setting where healthcare is delivered". Also, a set of infection control guidelines designed to prevent the transmission of infections from viruses and bacteria (CDC, 2016, P.8).

Standard Precautions include: 1) hand hygiene, 2) use of personal protective equipment "e.g., gloves, gowns, masks" 3) safe injection practices,4) safe handling of potentially contaminated equipment or surfaces in the patient environment, and 5) respiratory hygiene/cough etiquette (CDC, 2016, P.8).

A.3.Compliance to SPs Compliance is the precision and consistency with which prescribed standard protocols are followed to achieve the desired results. The level of compliance can be influenced by a variety of factors, including cultural, economic, and social factors. Furthermore, an individual's level of self-efficacy and knowledge can influence their level of compliance (Dorgham, Obied, 2016, P.122).

“The compliance rate is defined as the extent to which the behaviors of a worker coincide with the prescriptions of the authority” (Donati et al., 2019, P.2).

A.4. Personal Protective Equipment (PPE):

PPE is a physical barrier worn by healthcare workers to prevent the spread of pathogens from a suspected or confirmed case or a pathologic specimen. It has the dual purpose of preventing disease transmission from patients to HCWs and vice versa. In combination with other IPC methods, these physical barriers include goggles, face shields, fluid-resistant medical or surgical masks, particulate respirators (e.g., powered air-purifying and N95 respirators), gloves, disposable gowns, disposable coveralls, waterproof or heavy-duty aprons, waterproof boots, and hoods or head-covers (Alao, et al.2020, P.2). The type of PPE chosen is determined by the nature of the patient interaction and the potential for exposure to blood, body fluids or infectious agents (CDC, 2016, P.9).

B) Operational Definition

B.1. Compliance: was assessed by compliance with Standard Precautions Scale (CSPS) which have 20 items (Lam, 2017).

B.2. Barriers of practice of SPs: was assessed by asking about 13 barriers that impede their practice of SPs (Fayaz et al, 2014).

Chapter Two: Literature Review

2.1. Introduction

Standard precautions are actions taken to prevent infection in any medical treatment given to patients. However, some studies have found that due to perceived barriers by nurses, the implementation of standard precautions has not been optimal.

The purpose of this study is to assess the compliance to SPs also identify the factors which affect the compliance among emergency nurses in the west bank. This chapter reviews some literatures about the level of compliance& contributing factors, which could be institutional, individual or environmental ones.

Without proper PPE, healthcare workers will be at risk because the PPE for healthcare workers is a key component of infection prevention and control. Any shortage in supplies such as PPE will affect the quality and quantity of care availability (Cohen& Rodgers, 2020). The first essential role of the nurse in the novel COVID-19 pandemic is to protect themselves from contracting or transmitting COVID-19. As a result, all health care workers, particularly emergency nurses, should be provided with adequate PPE (Deitrick, et al, .2020).

2.2. Compliance rate among nurses

Many of reviewed literatures explored the compliance to SPs. In a recent study of "incompliance in use of universal precautions as a safety measure in emergency department", the goals of this study are to observe emergency medical personnel's adherence to protocols and use of universal precautions (residents doctors and nursing staff). In a 6-month prospective questionnaire-based study, they revealed an overall fall of 90.09 percent in universal precautions related noncompliance among medical care providers. Therefore, they recommended for daily feedback about the usage of SPs which followed by a proper monitoring also further training is important for emergency staff (Singh et al., 2016).

There was also a study done in China "Factors Influencing Compliance with Standard Precautions in Nursing, China." Compliance with standard precautions was found to be low among the nurses surveyed. The quartile range of the overall score for compliance for all nurses was 48.29, with a maximum possible score of 80 (upper quartile score 76.36, lower quartile score 28.07) (Luo et al., 2010).

Moreover, a qualitative descriptive study of the contextual factors influencing emergency nurses' practice in managing emerging infectious diseases revealed that emergency nurses were non-compliant with guidelines and protocols intended to prevent the spread of infectious disease, such as hand hygiene practices and PPE use. Furthermore, it has been reported that the issue of emergency nurses' noncompliance with guidelines may still occur, despite the availability of adequate resources; this study shows the crucial role of institutions in providing training, guidance, and incentives to frontline staff (Stanley et al., 2019).

A study was conducted to demonstrate the perceptions and determinants of compliance in the Emergency and Trauma Triage of a tertiary care hospital in South India. Which was done on the 162 participants (staff nurses, junior residents, and senior residents with a postgraduate training from the departments of medicine, surgery, and orthopedics and who were frequently posted to the emergency and trauma triage at the hospital for emergency patient care). The participants were chosen at random for the study, which was based on a cross-sectional questionnaire. Data was collected over a two-month period. Staff nurses made up 32.7 percent of the participants. The study explored a nurse's compliance with standard precautions during patient care, such as "use of hand rub 81.1 percent, use of gloves 90.6 percent, mask 67.9 percent, gown 18.8 percent and 7.5 percent of nurses reported a needle stick injury (NSI) at least once in the previous twelve months (Punia, Nair & Shetty, 2014).

In addition, studies have been done to assess compliance among nurses in general. An Ethiopian study was conducted to assess compliance with standard precautions and associated factors among healthcare workers in northwest Ethiopia. Compliance with standard precautions was measured using 22 items on a three-point Likert scale (1 = seldom, 2 = sometimes, and 3 = always). The study participants were chosen using a simple random sampling technique; the sample size was 423 people, with 39.8 % of them being nurses, 36.4 % nurses are non-compliant with SPs, while 3.4 % are compliant with SPs. The proportion of healthcare workers who always follow standard precautions was discovered to be 12%. Higher infection risk perception training, access to personal protective equipment, and management support. In addition, compared to non-trained HCWs, healthcare workers who had received infection prevention training were 2.9 times more likely to be always compliant with standard precautions. Furthermore, HCWs who received more frequent management support for the institution's safety environment were 2.23 times more likely to be always compliant than those who received less frequent management support(Haile, Engeda&Abdo, 2017).

In addition, across-section study was conducted in 2016 to assess health care workers' compliance with standard precaution practices and associated factors in public health institutions in Dawuro zone, south west Ethiopia. Data were collected using a pre-tested questionnaire on 250 health care workers chosen using a simple random sampling technique. The results showed that 58.0 percent of participants practice good hand hygiene, 87.2 percent practice good PPE, 88.8 percent practice good injection safety, 67.6 percent practice good sharps handling, and 80.8 percent practice good instrument processing and waste management (Beyamo, Dodicho&Facha, 2019).

Incongruity to previous studies, compliance with standard precautions among hospital nurses in Ozamiz City, Philippines was found to be low (Pasay et al., 2015). The compliance

with SPs of 100 nurses in two tertiary hospitals in Ozamiz City was assessed using a questionnaire adapted from an instrument developed by (Luo et al., 2010). The descriptive-inferential research design and simple random sampling were used in the study. The findings revealed that 82.6 percent of the SP's nurses had very high compliance. In terms of exposure to blood or body fluids, the results revealed that compliance with SPs was higher among nurses who were not exposed to the patient's body fluid. Those who were exposed should have practiced caution following their exposure to reduce the risk of infecting and spreading blood-borne infections in the hospital. It was also discovered that nurses who attended SP training had higher compliance than those who did not (Pasay et al., 2015). This research results were similar to research done on nurses and midwives "Midwives and Nurses Compliance with Standard Precautions in Palestinian Hospitals" In this study, both knowledge and compliance with standard precautions were found to be at a high level (Fashafsheh et al., 2016).

Analysis data of research done in Myanmar "Factors affecting the compliance of Myanmar nurses in performing standard precaution "showed 73.5% of participants had good compliance and 26.5% had poor compliance with standard precautions (Aung, Nursalam&Dewi,2017).

Relevant to the core of this research paper many research studies done about the COVID19 and the importance of SPs in this pandemic, after the outbreak of novel corona virus has raised. "Transmission Based Precaution Practices among Nurses in Edo State, Nigeria during COVID-19 Pandemic" is a descriptive cross-sectional survey study that used a Google online questionnaire to elicit responses from 367 front line nurses. The majority 85.6 % of the respondents maintained a good level of transmission-based precautions practice, such as hand hygiene performed after all procedures 89.1%, PPE is always used for COVID patients requiring healthcare facility admission and with aerosol-generating

procedure as agreed by 83.1% of the respondents. Provision of waste receptacle to dispose tissue after use 90.2% (Afemikhe et al., 2020).

The prevalence of the good practices to COVID-19 in this study is similar to that obtained among healthcare professionals from other study on standard precautions and infection control conducted in Northern Uganda “Knowledge and Compliance with Covid-19 Infection Prevention and Control measures among Health Workers in Regional Referral Hospitals in Northern Uganda: A cross-sectional Online Survey” found high compliance with Covid-19 IPC, with the majority of participants (68 percent) scoring more than 80 percent of the compliance score, providing correct responses to items concerning the cleaning of frequently touched surfaces (97.3 percent), use of contact precautions (94.7 percent), and screening for Covid-19 signs (94.3 percent),cleaning of shared equipment (89 percent). For items pertaining to airborne precautions (41.3 percent) and the applicability of hand hygiene (57.4 percent and 76%, respectively) (Amanya et al., 2020).

However, some other studies conducted in London on "Factors affecting healthcare workers' compliance with social and behavioral infection control measures during emerging infectious disease outbreaks: Rapid evidence review" produced contradictory results, indicating poor compliance with personal protective behaviors among healthcare staff. Early reports from the COVID-19 frontline have revealed that healthcare workers are not complying with recommended behaviors. For example, in a hospital in China, many HCWS had their masks hung from one ear or pulled downwards, and more than half had inadequate hand hygiene (Brooks et al., 2020).

2.3. Factors that affect compliance to SPs

In a recent study of “Perceived Barriers to Standard Precautions Implementation Among nurses in the Emergency Department,” a cross-sectional approach was used on 37 nurses in the General Hospital Emergency Department using a total sampling technique. The data was collected using questionnaires that contained 48 statements on a Likert scale. The questionnaire taken the content and face validity tests and was declared valid and reliable. The findings revealed that nurses perceived some barriers to standard precautions action, the most commonly perceived barriers are **limited PPEs equipment** (45.9%), (37.8%) equipment **that irritates** the skin on hand hygiene, (32.4%) increased **number of patients** in environmental disinfection, (16.2%) limited **support and supervision** in the implementations of standard precautions and **equipment limitations** (10.8%) (Pranita et al., 2019).

Another contributing factor discovered in “Factors impacting compliance with standard precautions in nursing, China,” the data in this study were collected over a 3-month period using the survey research method, randomly sampled registered nurses were chosen from 18 hospitals in Hunan, China, and completed self-report questionnaires. 1444 valid self-report questionnaires were returned. Standard precautions training and knowledge were the most important factors influencing compliance, followed by hospital grade **presence of sharps disposal box** in the department general self-efficacy, **exposure experience**, and department in which the nurse worked (Luo et al., 2010).

Cross-sectional research was administered in the St. Mary's Hospital Lacor in all wards to collect quantitative information as well as qualitative and observational data on PPE use, in accordance with the previous study "Barriers and Factors Affecting Personal Protective Equipment Usage in St. Mary's Hospital Lacor in Northern Uganda." The main barriers cited by the 59 respondents are poor fitting and weak domestic gloves, a lack of aprons, frequent

stock outs, insufficient PPE, and a lack of PPE training. About 30.5 percent of hospital employees have received no PPE training. The majority of respondents stated that they only learned about PPE on the job; this lack of training may have an impact on PPE compliance (Okello et al., 2017).

In addition, new factors were investigated in the study "Health Care Workers and Standard Precautions: Perceptions and Determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care Hospital in South India." According to a cross-sectional survey, the most common reason is a lack of time (55 percent of nurses are too busy to use SPs), followed by protective equipment not being readily available (20 percent of nurses) during an emergency situation. Doctors appeared to be negatively influenced by their peers in not wearing PPE, the study findings show low compliance with standard guidelines (Punia, Nair & Shetty, 2014).

Furthermore, a study conducted in Myanmar used a cross-sectional design "factors affecting the compliance of Myanmar nurses in performing standard precaution." 34 nurses from Waibagi Specialist Hospital (SHW) were sampled, and Myanmar Instruments were used to assess basic knowledge and compliance with Standard Precautions using (40) structured questionnaires. In this study, the most common reasons for noncompliance with Standard Precaution are an emergency situation, a heavy workload, uncomfortable PPE and poor fit, the availability of resources storage is a little far from where nursing care is provided, and time constraints (Aung, Nursalam&Dewi,2017).

A cross-sectional study was conducted in February in 17 health institutions in South West Ethiopia under the title "Compliance with standard precaution practices and associated factors among health care workers in Dawuro Zone, South West Ethiopia. Data were collected using a pre-tested questionnaire on 250 health care workers chosen using a simple random sampling technique, with the following results: (65.0 percent) of respondents adhere

to standard precaution practices, 60 percent of participants' institutions have PPE, 52.0 percent have standard precaution training, and 54.0 percent have standard precaution monitoring and evaluation. It was revealed that good hand hygiene, the availability of personal protective equipment, and standard precaution training were all independently associated with standard precaution practice compliance (Beyamo,Dodicho&Facha, 2019).

A recent qualitative study was carried out to identify the barriers and facilitators to healthcare workers adhering to IPC guidelines for respiratory infectious diseases. According to the findings of the study "Barriers and facilitators to healthcare workers' adherence with IPC guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis," several factors influence staff ability to follow IPC guidelines when managing respiratory infectious diseases (Houghton, et al., 2020).

These include factors related to the guideline itself and how it is communicated, manager support, workplace culture, physical space, training, access to and trust in personal protective equipment, and a desire to provide good patient care. The review also emphasizes the importance of involving all facility staff. Health care workers' responses to IPC guidelines were influenced by the level of support they perceived they received from their management team when implementing IPC guidelines. It was considered vital to communicate clearly about IPC guidelines. However, healthcare workers reported a lack of training about the infection and how to use PPE. They also saw it as a problem when training was not mandated (Houghton, et al., 2020).

A narrative review done in India " Personal Protective Equipment: Challenges and Strategies to Combat COVID-19 in India: A Narrative Review" showed that the shortage of PPE during current outbreak of the **corona virus disease** (COVID-19) has caused a stress among HCWs. The most common challenges in the use of PPE observed in dealing with COVID-19 patients or dealing with a suspected infected person, which is primarily related to training. Rather

than the availability of PPE, guidelines for use, the skills of health workers in the use of PPE, and safe disposal practices (Sharma et al., 2020).

An online cross-sectional descriptive study of 75 health workers in regional referral hospitals in Northern Uganda was conducted. The majority of health workers had good knowledge (69%) and compliance (68%) with the Covid-19 IPC. The good compliance associated with sufficient institutional support (70.7 percent) leads the HCWS to feel adequately supported by their respective institutions, which reflects in the Covid-19 IPC compliance. The following items were used to assess institutional support for Covid-19: adequate PPEs provided by their hospitals, access to hand-washing facilities with clean running water and hand hygiene products, and sufficient supplies for the collection of sharps medical waste (Amanya et al., 2020).

A recent rapid evidence reviews "Factors affecting healthcare workers' compliance with social and behavioral infection control measures during emerging infectious disease outbreaks: Rapid evidence review" was carried out according to World Health Organization Guidelines, 56 papers were reviewed. It was showed that staff working in emergency or intensive care settings were more likely to follow recommendations than those working in other settings; additionally, there was some evidence that contact with confirmed cases could improve compliance. In addition to being found to be more likely to comply with recommended behavior in the presence of higher levels of anxiety and concern about the risk of infection, superiors' monitoring could improve compliance (Brooks et al., 2020).

Staff identified many barriers to compliance related to personal protective equipment, such as availability, perceived difficulty and effectiveness, and discomfort, noncompliance of colleagues was observed. Inadequate training was also mentioned as a barrier to compliance. As a result, infection control training with annual refresher courses is recommended. Furthermore, a lack of PPE due to insufficient resources created challenges such as having

to wear the incorrect size PPE, as well as a lack of space in the hospital making it difficult to use PPE appropriately (Brooks, et al., 2020).

According to the literature, major reported factors influencing compliance with standard precautions include, but are not limited to, a lack of knowledge and poor training among nurses, a lack of time to implement the precautions (work overload), limited resources, uncomfortable equipment, and insufficient management support in creating a facilitating work environment. Furthermore, working location in the hospital and work experience were found to be related to adherence to standard precautions.

In general, the researchers give a recommendation to overcome the barriers of applying the SPs, by providing basic training, strong support and supervision, and improving of standard operational procedures. Also pay attention to the ratio of nurses to patients when it comes to safe working practices. Furthermore, in order to improve its standard precautions, the hospital should implement socialized rewards or punishments (Punia, Nair & Shetty, 2014; Pranita et al., 2019; Aung, Nursalam&Dewi, 2017).

2.4. Gap

Literatures are everywhere, but do nurses read it? Or do they apply it in their real life? Since the beginning of the COVID-19 crisis and before, a multitude of Personal Protective Equipment guidelines have been published, but the adherence still variable.

Still, no published studies were found in Palestine that show the compliance to SP among emergency nurses during COVID-19 and the factors which affect it. Knowing the compliance and factors of use of PPE will help both clinical and education institutions in Palestine to know the extent of this problem and be able to develop an effective strategic plan to handle it.

Chapter three: Study Methodology

3.1. Introduction

This chapter addresses a review of the research method which will be used to answer the research questions. The chapter starts with, study setting, population, sample size, sampling method, instrument, data collection and process.

3.2. Study design

Quantitative, cross-sectional study was used in this research. Data was collected byutilizing a self-administered questionnaire in the limited period (27th of February to the 6th of May, 2021). Using this design to achieve the purpose of this studyto assess the compliance and identify the factors that influence a nurse's decision to use the SP, in the west bank hospitals during COVID-19 pandemic.

3.3. Study setting and population

According to Palestinian MOH 2018 the number of hospitals in Palestine is 82 hospitals, and 52 of them located in west bank. There are Seven thousand eight hundred and seventy-nine of nurses in Palestine (MOH, 2018). This study was covered the north, middle and south of the Palestine, and the targeted population was all nurses who work in the Emergency departments of governmental hospitals, as seen in table 3-1

Table 1-1: distribution of emergency nurses department in West bank

Hospital	District	Emergency department Nurses (N)
Palestinian Medical complex (PMC)	Ramallah	40
Rafidiah hospital	Nablus	20
Al-Watani hospital	Nablus	19
Dr. Khalil Suliman hospital	Jenin	14

ThabitThabit governmental hospital	Tulkarm	21
Tubas Turkish hospital	Tubas	16
Dr. DarwishNazzal governmental hospital	Qalqilya,	10
Jericho governmental hospital	Jericho.	12
Yaser Arafat governmental hospital	Salfit	12
BeitJala governmental hospital (Alhussain)	Bethlehem	17
Hebron governmental hospital (Alia)	Hebron	28
Yatta governmental hospital14	Yatta-Hebron	14
Domeh hospital	Al Dahryia –Hebron,	8
Mohammad Ali Almohtaseb	Hebron	14
Total		245

(MOH, 2018)

3.4. Study sample:

This research study focused on nurses who work in the Emergency department, therefore all nurses who work in emergency departments was targeted. Which was 225 nurses.

Inclusion criteria:

- Nurses working in governmental hospital.
- Include nurses working in the emergency wards.

3.5. Instrument

The questionnaire which used in this study was taken after getting a permission from own researcher by email which attached in the appendix. The questionnaire was composed of three sections. **The first section** consisted of 10 questions composed of demographic data and work characteristics, questions including hospital name, participant's age, gender, marital status, level of education, job title, years of experience in emergency department, type of working shifts, main source of knowledge on COVID-19 standard precautions, and

if have been received a formal PPE training including donning/doffing and pro per used of PPE.

The **second section** was composed of Compliance with Standard Precautions Scale (CSPS) which was developed by (Lam, 2017). The scale composed of 20 items, 16 positively worded items and 4 negatively worded items (item 2, 4, 6, & 15). Which was assessed using "Likert scale 1-4" which means never (1), seldom (2), sometime (3), or always (4),

1. Only the “always” option in positively worded items and the “never” option in negatively worded items are given a score of 1.
2. The other options are not given any scores, i.e., zero.
3. The total scores range from 0 to 20, and a higher score indicates a better compliance with standard precautions.

Compliance rate: The total compliance rate refers to the average compliance with all 20 items in percentage. In general, it is **optimal** when compliance rate is > 90%, **satisfactory** between 80%-89%, **suboptimal** between 50%-79%, and **poor** for < 49%. The item compliance rate refers to the mean score of each item. This scale was valid and reliable. Cronbach alpha was 0.73 which is reliable (Lam, 2017).

The third section: assess the precipitating factors of practice of SPs. among emergency nurses during COVID-19 pandemic, which nurses were asked about factors that impede their practice of SPs. There are 13 factors, the answers are agree or disagree (Refeai, et al, 2020). Using the scoring system applied in similar previous study in (Refeai et al., 2020), total scores were classified as follows:

1. Adequate knowledge, positive attitude, and good practice were obtained when achieving ≥60% of total score.
2. Inadequate knowledge, negative attitude, and poor practice were obtained if the score was <60%. (Refeai et al., 2020).

3.6 Pilot study

The author conducted a pilot study in emergency department at governmental hospital on a convenience sample of 20 nurses before starting the actual study. The pilot study was intended to identify expected problems or obstacles to the data collection procedure, and the suitability of the items in the questionnaire. This step helped the author to evaluate and ensure the clarity and familiarity of the questionnaire's words and phrases form the participants' perspective. Their comments revealed that the items were clear, not confusing, comprehensive, suitable, and were easy to complete.

3.7. Data collection

After getting permission from the faculty of Nursing and Health Sciences at Arab American University and from the ministry of health. The data was collected by the researcher in the period from the 27th of February to the 6th of May, 2021; all questionnaires were arranged, organized and numbered serially. Each questionnaire consisted of the title, the purpose of the study, instructions for filling it, asked the participants to kindly participate in the study, taking in concern confidentiality.

It also tells the participants to participate in the study with time allotted extended between 5-10 minutes. The researcher collected 225 questionnaires with response rate 100%.

3.8 Data analysis

The researcher entered the data of 225 questionnaires using the SPSS (Statistical Package for the Social Sciences) version 22 with the assistance of qualified statistician.

Descriptive statistic (mean, standard deviation SD) were used to analyze characteristic of participants. T-Test, ANOVA, P-value the ways to determine the statistical significance are different.

3.9. Ethical Considerations

- ✓ All participants in this study were given the chance to freely take part in this study. Anonymity of participant was maintained all over the research project. At the beginning, the participants asked kindly to participate in the study, taking in concern confidentiality and that they can withdraw from the study at any time.
- ✓ There were no bias and there is equality between nurses.
- ✓ The ethical committee of the university in general and the faculty of nursing and health sciences in particular were consulted, and approval was sought prior the actual phase of data gathering.
- ✓ Approval from ministry of health was secured before gathering data.
- ✓ Permission was taken to use questionnaire form scale which used in my study, from Mr. Simon Ching LAM which was used in the following study (Lam, 2017), and Ms. Sara Ahmed Refeai in the following study (Refeai et al, 2020).

Chapter Four: Results

4.1. Introduction

This chapter deals with the data collected for analysis. The statistical method allowed the investigator to deduce, analyze, coordinate, measure, evaluate and convey the numerical information. The aim of data analysis is to provide answers to the questions of the study. The data analysis strategy comes directly from the question, the design and the data collection process and the level of measurement of the data. This chapter edits, tabulates, analyzes and interprets the collected data.

This chapter expresses the findings concerning to assess the level of compliance toward SPs and identify the contributing factors influence usage of SPs among emergency nurses during COVID-19 pandemic in the west bank.

Statistical analyses were directed to explore six research questions:

1. What is the level of compliance to SPs among emergency nurses in the during west bank during COVID _19?
2. What are the factors affecting emergency nurse's compliance with SPs in the west bank during COVID-19?
3. Are there differences between selected demographic data, work characteristics and nurse's compliance to SPs in ED during COVID-19?
4. Are there differences between selected hospitals and nurse's compliance to SPs in ED during COVID-19?
5. Are there differences between source of information and nurse's compliance to SPsin ED during COVID-19?
6. Are there differences between formal personal protective equipment training and nurse's compliance to SP in ED during COVID-19?

4.2. Participants' Characteristics

The response rate was high by nurses in Palestinian Medical complex (PMC) /Ramallah 38 (16.9%), Hebron governmental hospital (Alia)/ Hebron 28 (12.4%), and Thabit/ Thabit governmental hospital/ Tulkarm 21(9.3%), as seen in table 4-1

Table 4-1: Percentage of nurses in the targeted hospitals (N=225)

Hospital	**N (%)**
Palestinian Medical complex (PMC) /Ramallah	38 (16.9%)
Rafidiah hospital/ Nablus	20 (8.9%)
Al-Watani hospital/ Nablus	19 (8.4%)
Dr. Khalil Suliman hospital/ Jenin	10 (4.4%)
Dr. DarwishNazzal governmental hospital /Qalqilia	10 (4.4%)
Tubas Turkish hospital/Tubas	9 (4.0%)
ThabitThabit governmental hospital/ Tulkarm	21 (9.3%)
Yaser Arafat governmental hospital Salfit	12 (5.3%)
BeitJala governmental hospital (Alhussain)/ Bethlehem	15 (6.7%)
Hebron governmental hospital (Alia)/ Hebron	28 (12.4%)
Yatta governmental hospital/ Yatta-Hebron	14 (6.2%)
Domeh hospital /Al Dahryia–Hebron	7 (3.1%)
Mohammad Ali Almohtaseb/ Hebron	12 (5.3%)
Jericho governmental hospital	10 (4.4%)
Total	**225 (100.0%)**

The findings revealed that the mean age of nurses was 29.5 (SD= 6.5) years. Approximately, two thirds of the participants 66.2% were male. With regard to marital status, more than half of them 59.6% were married and 54.7% had a Bachelor degree in nursing. Table 4-2 showed these demographic characteristics of the nurses.

Table 4 -2: Demographic characteristics of the participants (N=225)

Characteristics		M (SD)	N (%)
Age		29.5 (6.5)	
Gender	**Male**		**149 (66.2)**
	Female		76 (33.8)
Marital status	Single		75 (33.3)
	Married		**134 (59.6)**
	Widowed		11 (4.9)
	Divorced		5 (2.2)
Level of education	Diploma		52 (23.1)
	Three years Diploma		15 (6.7)
	BSN degree		**123 (54.7)**
	High Diploma		3 (1.3)
	MSN degree		32 (14.2)

**M= Mean, SD= standard deviation*

Also, the analysis revealed that slightly below half the participants' 109 (48.4%) have experience in nursing practice more than 5 years, as seen in Table 4-3.

Table 4-3: Years of experience in emergency department (N=225)

		N (%)
Valid	less than one year	42 (18.7)
	1_5 years	74 (32.9)
	more than 5 years	**109 (48.4)**
	Total	225 (100.0)

In addition, the analysis revealed that two thirds of the nurses 144 (64.0 %) were registered nurses, as seen in table 4-4.

Table 4-4: Job title of the participants (N=225)

		Frequency (Percent)
Valid	Head nurse	6(2.7)
	Assistant head nurse	14(6.2)
	Registered nurse	**144(64.0)**
	Practical nurse	61(27.1)
	Total	225(100.0)

Moreover, the analysis revealed that majority of the participants' 171 (76.0%) work in all shift (rotation shifts), as seen in table 4-5.

Table 4-5: Type of working shift (N=225)

		Frequency (Percent)
Valid	Morning	34 (15.1)
	Evening	14 (6.2)
	Night	6 (2.7)
	All shifts	**171 (76.0)**
	Total	225 (100.0)

According to sources of information of SPs, the results revealed that MOHP and WHO website was the most one 153 (68.0%), then by social media 113 (50.2%), as seen in table 4-6.

Table 4-6: Sources of information of SPs (N=225)

Characteristics	**Count (%)**
MOHP and WHO website	**153(68.0)**
social media	**113 (50.2)**
source of knowledge from newspaper	44 (19.6)
source of knowledge from television	57 (25.3)

Lecture	56 (24.9)
Friends /family	72 (32.0)
Courses /job training	97 (43.1)

Further, the analysis revealed that most of the participants' (75.1%) have been received a formal personal protective equipment training, as seen in table 4-7.

Table 4-7: Formal personal protective equipment training (N=225)

		Frequency (Percent)
Valid	**Yes**	**169 (75.1)**
	No	56 (24.9)
	Total	225 (100.0)

4.3. Answering research questions

Research question 1: What is the level of compliance to SPs among emergency nurses in the west bank during COVID-19?

The analysis revealed that the level of emergency nurses' compliance with SPs was poor compliance (51.1%) and the suboptimal compliance was (43.1%). Table 4-8 demonstrates the level of emergency nurses' compliance with SP during COVID 19.

Table 4-8: level of standard precautions compliance among the nurses (N=225)

Compliance level	Count (%)
Optimal compliance	0 (0)
Poor compliance	**115 (51.1)**
Suboptimal compliance	97 (43.1)
Satisfactory compliance	13 (5.8)

Research question 2: What are the factors affecting emergency nurses' compliance with SPs in the west bank during COVID-19?

The analysis also revealed that the most factor affecting emergency nurses' compliance with SP during COVID 19 was "There is no enough glove" (81.3%), "Gloves cause skin irritation" (76.4%), then "PPE are uncomfortable with use" (75.1%), as seen in table 4-9.

Table 4-9: Factors affecting emergency nurses' compliance with SP (N=225)

Number	Barriers	N (%)
1	**There is no enough glove**	**183 (81.3)**
2	**There is no enough mask**	**168 (74.7)**
3	**Others don't follow SPs measures**	**168 (74.7)**
4	**There are no enough gowns**	**165 (73.3)**

5	**Guidelines of SPs are vague**	**146 (64.9)**
6	**There is no enough hand washing facilities**	**115 (51.1)**
7	**Requirements of SPs are costly**	**134 (59.6)**
8	**Gloves cause skin irritation**	**17 (76.4)**
9	**Head shield is unavailable**	**167 (74.2)**
10	**Following SPs takes long time**	**158 (70.2)**
11	**PPE are uncomfortable with use**	**169 (75.1)**
12	**It is unimportant to follow SPs guidelines**	**105 (46.7)**
13	**Following SPs makes work harder**	**163 (72.4)**

Research question 3: Are there differences between selected Demographic data and nurse's compliance to SPs in ED during COVID-19?

The analysis revealed that there were no significant differences between selected demographic data (Gender, age, marital status, level of education) and the mean nurse's compliance to SP (P> 0.05), as seen in table 4-10.

Table 4-10: The differences between selected Demographic data and nurse's compliance to SP (N=225)

Variable		**N***	**Mean***	**SD*****	**t test**	**P-value**
Gender	Male	149	8.6913	4.39425	-1.675	.095
	Female	76	9.7105	4.15954		
Age		225			-.012	.862
Marital status	Single	75	8.8667	4.73153		
	Married	134	9.3657	4.14863		
	Widowed	11	7.6364	3.95658	1.621	.185

	Divorced	5	5.8000	1.92354		
Level of education	Diploma	52	8.6731	4.17143	.331	.857
	Three years Diploma	15	9.4000	3.58170		
	BSN degree	123	9.0976	4.43055		
	High Diploma	3	11.3333	6.42910		
	MSN degree	32	9.0000	4.53659		

N: Number of nurses, **M= Mean; ***SD= Standard deviation.

Research question 4: Are there differences between selected Work characteristics and nurse's compliance to SPs in ED during COVID-19?

Also, the analysis revealed that there were no significant differences between Work characteristics (job title, working shift, experience) and the mean nurse's compliance to SPs (P> 0.05), as seen in table 4-6. However, the analysis revealed that there was statistically significant difference between the mean of nurse's compliance to SPs and Formal personal protective equipment (PPE) training (P<0.05), as seen in table 4-11.

Table 4-11: The differences between selected Work characteristics and nurse's compliance to SP (N=225)

Variable		**N***	**Mean****	**SD*****	**F test**	**P-value**
Job title	Head nurse	6	9.8333	6.64580	.871	.457
	Assistant head nurse	14	7.2857	2.23361		
	Registered nurse	144	9.1667	4.45333		
	Practical nurse	61	9.0492	4.15703		
Working shift	Morning	34	8.7059	4.81494	1.531	.207
	Evening	14	7.3571	4.61781		

	Night	6	6.8333	2.48328		
	All shifts	171	9.3158	4.23497		
Working experience	less than one year	42	9.5000	4.55455	1.069	.345
	1_5 years	74	8.4459	4.13187		
	more than 5 years	109	9.2569	4.37883		
Formal personal protective equipment (PPE) training	Yes	169	9.4438	4.35734	6.163	**.014**
	No	56	7.8036	4.05606		

*N: Number of nurses, **M: Mean, ***SD: Standard Deviation

Research question 5: Are there differences between selected hospitals and nurse's compliance to SPs in ED during COVID-19?

Moreover, the analysis revealed that there were significant differences between hospitals and the mean nurse's compliance to SP (P< 0.05), as seen in table 4-12. The analysis illustrated that the mean nurse's compliance to SP was the highest in Dr. DarwishNazzal governmental hospital /Qalqilya.

Table 4 -12: The differences between targeted hospitals and nurse's compliance to SP (N=225)

Hospital	N*	M**	SD***	ANOVA	P-value
Hebron governmental hospital (Alia)/ Hebron	28	6.9643	2.06348	4.192	0.0001
Dr. DarwishNazzal governmental hospital /Qalqilia	10	12.5000	2.50555		
Domeh hospital /Al Dahryia –Hebron	7	11.7143	2.81154		

Jericho governmental hospital	10	7.8000	3.11983		
Rafidiah hospital/ Nablus	20	11.2000	3.50338		
Mohammad Ali Almohtaseb/ Hebron	12	10.5000	3.75379		
Yaser Arafat governmental hospital Salfit	12	7.9167	3.84846		
Yatta governmental hospital/ Yatta-Hebron	14	10.5000	3.91742		
ThabitThabit governmental hospital/ Tulkarm	21	11.6190	3.94305		
Dr. Khalil Suliman hospital/ Jenin	10	10.5000	4.42844		
Tubas Turkish hospital/Tubas	9	9.1111	4.45658		
Palestinian Medical complex (PMC) /Ramallah	38	6.9474	4.79835		
Al-Watani hospital/ Nablus	19	7.2105	4.87145		
Beit Jala governmental hospital (Alhussain)/ Bethlehem	15	8.6000	5.08218		
Total	225	9.0356	4.33410		

*N: Number of nurses, **M: Mean, ***SD: Standard Deviation

Research question 6: Are there differences between source of information and nurse's compliance to SPs in ED during COVID-19?

Furthermore, the analysis revealed that only there was significant differences between television and lectures as sources of information and the mean nurse's compliance to SP ($P < 0.05$), as seen in table 4-13.

Table 4-13: The differences between source of information and nurse's compliance to SP (N=225)

Source of information		**N***	**Mean****	**SD*****	**ANOVA**	**P-value**
	Yes	153	9.4183	3.96799	3.775	.053

MOHP and WHO website/ health website	No	72	8.2222	4.95678		
Social media	Yes	113	9.5044	4.35095	2.677	.103
	No	112	8.5625	4.28444		
Newspaper	Yes	44	10.0682	3.84827	3.134	.078
	No	181	8.7845	4.41751		
Television	**Yes**	**57**	**10.4561**	**4.12774**	**8.475**	**.004**
	No	**168**	**8.5536**	**4.30813**		
Lectures	**Yes**	**56**	**10.4107**	**4.40569**	**7.731**	**.006**
	No	169	8.5799	4.22519		
Friends/Family	Yes	72	9.4861	4.07325	1.145	.286
	No	153	8.8235	4.44871		
Courses / job training	97	9.268	4.21188	97	.489	.485
	128	8.859	4.43276	128		

Chapter Five: Discussion, conclusion and recommendations

5.1. Introduction

This chapter discusses the relevant descriptive statistical results to explore and identify the relationship between different study variables; also, it discusses the findings of the study in comparison with related literature. Furthermore, its implications that might help nursing professionals in order to know the level of compliance toward SPs and identify the contributing factors influence usage of SPs among emergency nurses during COVID-19 pandemic in the west bank.

5.2. Demographic variables and work characteristics

5.2.1. Gender, age, marital status, level of education, work experience

The analysis revealed that there are **no significant** differences between selected demographic data (Gender, age, marital status, level of education, work experience) and the mean nurse's compliance to SP (P> 0.05). This result **agrees** with a study result showed that nurse characteristics did not significantly affect adherence to standard precaution with statistical test results as follows: age, gender, level of education, work experience at Waibagi Specialist Hospital (Aung, Nursala&Dewi, 2017). However, **it disagrees with (**Fashafshehet al., 2016) studies that found there is an association between age, level of education, work experience, and compliance with standard precautions. It also disagrees with rapid evidence review study which found an older age was significantly associated with protective behaviors and female staff were significantly more likely to comply with protective behaviors (Brooks, et al., 2020). Moreover, disagree with a study that found a significant difference showed that the female of healthcare workers were 2.18 times more likely to be always compliant with standard precautions as compared to male HCW (Haile, Engeda&Abdo, 2017).

From previous research findings, a recent study found a moderately positive correlation between levels of knowledge, years of experience, and standard precautions compliance. However, there were no differences in compliance scores between genders, levels of education, or professional ranks (Al-Faouri et al., 2021).

5.2.2. Work characteristics (job title, working shift)

This study showed that there are no significant differences between work characteristics (job title, working shift) and the mean nurse's compliance to SP (P> 0.05). This result disagrees with a study revealed that compliance with the SP was higher among nursing technicians than among staff nurses, which may be related to the fact that nursing technicians participate in more procedures involving blood and other body fluids than staff nurses. Nurses who as

a team leader, are more concerned with the supervision of these activities (Pereira et al., 2021).

5.2.3. Formal personal protective equipment (PPE) training

There is **significan**t difference between the mean of nurse's compliance to SPs and formal personal protective equipment (PPE) training (p=0.014), this result agrees with recent result of (Amanya et al., 2020) study which showed that a good compliance was significantly associated with training in Covid-19 IPC. Also, (Haile, Engeda&Abdo, 2017) study revealed that knowledge about SPs, perception of infection risk, received training on SPs, and were significantly associated with compliance of SPs. Moreover, a study shown nurses who attended SP training had higher compliance than those who had not attended (Luo et al., 2010; Pasay et al., 2015).

5.3.4. Main source of knowledge on COVID-19 standard precautions

The results revealed that MOHP and WHO website was the most sources of information of SPs 153 (68.0%), then by social media 113 (50.2%), and showed that there was significant differences between television (p=0.004) as sources of information and the mean nurse's compliance to SP (P< 0.05); This result agrees with a study done by (Brooks, et al., 2020) that found attending Continuing Medical Education activities were significantly associated with higher levels of protective practice, as well as (Ogolodom et al., 2020) that found the main source of information about COVID-19 was physicians 29% , MOHP website 27% and social media 20.6 %.

5.3. Compliance to SP among emergency nurses during COVID 19 pandemic

The findings of this study revealed that the level of compliance with SP among emergency nurses was low 115. (51.1 %). This result agreed with previous studies, (Stanley et al., 2019) study which found that emergency nurses were non-compliant with guidelines and protocols designed to prevent the spread of infectious disease, also a study revealed that 148 (36.4%)

Nurses are non-compliant" from the total of HCWs 162 (39.8 %) were Nurses (Haile, Engeda&Abdo, 2017). Moreover, a study found an overall drop of 90.09 percent in universal precautions-related noncompliance among medical care providers and emergency personnel (Singh et al., 2016), indicating poor compliance with personal protective behaviors among healthcare staff. Recent COVID-19 frontline reports have revealed a lack of compliance among healthcare workers with recommended behaviors (Brooks et al., 2020). Another study (Al-Faouri et al., 2021) discovered that nurses working in emergency departments had the lowest compliance level when compared to nurses working in other units. Besides that, when it came to proper patient handling (54 percent) and performing invasive procedures, their compliance was relatively low. (46%) (Wong et al., 2021).

In contrast to the findings of this study, (Afemikhe et al., 2020) found that the majority of 314 nurses (85.6 percent) maintained a high level of transmission-based precautions practice, and (Amanya et al., 2020) found a high level of compliance with Covid-19 IPCamong health care workers, the compliance (68 percent) with Covid-19 IPC. Furthermore, a study of nurses and midwives in Palestinian hospitals found that both knowledge and compliance with standard precautions are high (Fashafsheh et al., 2016), with high compliance among nurses in 82.6 percent of the SP (Pasay et al., 2015) and 73.5 percent of nurses having good adherence in performing standard precautions (Aung, Nursalam&Dewi,2017).

(Brooks et al. 2020) concluded that staff working in emergency or intensive care settings were more likely to follow recommendations than those working in other settings, and there was some evidence that contact with confirmed cases could improve compliance. In addition to being found to be more likely to comply with recommended behavior in the presence of higher levels of anxiety and concern about the risk of infection, superiors' monitoring could improve compliance. Compliance with the use of PPEs during health care interactions with

COVID-19 patients was high (90.6)"Registered nurses (43.6 percent)" (Ashinyo et al., 2021).

5.4. The precipitated factors of used a standard precaution among emergency nurses during COVID-19 pandemic

Regarding to the factors of using a standard precaution among emergency nurses during COVID-19 pandemic, this study found that the highest precipitating factor was “There is not enough gloves” (81.3%), “Gloves cause skin irritation” (76.4%), then “PPE are uncomfortable with use” 169(75.1%) which consider as an Environmental factor. The lowest factor was "It is unimportant to follow SPs guidelines"(46.7%) which considered an Institutional factor. According to a recent study, the level of knowledge among Jordanian registered nurses was higher than the level of compliance; this variation can be attributed to a lack of PPEs, forgetfulness to follow standard precautions, a lack of role models from colleagues or superiors, and the heavy workload that nurses face in hospitals. Other barriers, such as emergency situations and the negative side effects of protective equipment on the skin, may also have an impact on nurses' compliance (Al-Faouri et al. 2021).

As shown in a recent study (Sharma, et al. 2020) there is a shortage of PPE during the current corona virus disease outbreak (COVID-19). PPE shortages are being reported all over the world as a result of increased demand, panic buying, and irrational use. The fact that hospitals had low levels of PPE stock could explain the lack of availability of PPE. These factors lead to a fluctuation in adhering to the guidelines of appropriate PPE use.

Furthermore, (Punia, Nair, and Shetty 2014) discovered that lack of time (55 percent of nurses are too busy to use SPs) and protective equipment not being readily available (20 percent of nurses) during an emergency situation were the most common reasons. **Doctors** seemed to be **negatively influenced** by their peers in not using PPE. Also, the most perceived barriers are limited PPEs equipment (45.9 percent), equipment that irritates the

skin on hand hygiene (37.8 percent), an increased number of patients in environmental disinfection (32.4 percent), limited support and supervision in the implementations of standard precautions (16.2 percent), and equipment limitations on respiratory hygiene (10.8 percent) (Pranita et al., 2019). Another study discovered that a high compliance rate among HCWs can be attributed to the availability of personal protective equipment and training on standard precautions. (Beyamo,Dodicho&Facha, 2019).

5.5. Conclusion

The study confirmed that the level of emergency nurses' compliance with SP was poor (51.1%). Overall, poor compliance with SPs is a warning signal to health care system especially during this COVID-19 pandemics situation.

This study proved that gender, age, marital status, level of education, work experience has no significant differences with mean nurse's compliance to SPs. While it has significant differences with PPE training, television and lectures as sources of information about SPs of COVID-19.

In addition, it revealed the most factors affecting emergency nurses' compliance with SPs during COVID-19 was "There is not enough gloves" 183 (81.3%), "Gloves cause skin irritation" 172 (76.4%), then "PPE are uncomfortable using them" 169 (75.1%),

5.6. Limitations

The study may encounter some limitation including:

1. This study used a self-reporting data. It is possible that nurses may have answered the questions positively based on what they perceive to be expected of them. (Subjective data)
2. Restrictions of mobility between areas due to Quarantine on the pandemic areas.

5.7. Recommendation

The study recommended

- **Researchers**

This study is one of its kinds in the north, middle and south of Palestine due to the limited published studies about it, therefore it could be considered as an as a baseline data to build on its further studies.

- **MOH & Nurses administrators**

  - The MOH should reevaluate the **workplace policy** in healthcare settings which plays an important role in the protection of healthcare worker, and to increase sustainability of healthcare system for handling new challenges from the pandemic situation.
  - Strong support **and supervision** are highly recommended that can be done by forming a team community of practice in which will be able implement reward and punishment strategy to comply with the implementation standard.
  - Improving education and training for nurses, including mandatory seminars and workshops, in order for them to apply proper standard precautions.
  - Health authorities must provide adequate human and material resources, as well as internal and external motivation, to ensure high-quality health care.
  - Encourage the reporting and surveillance system/hospital infection administration departments to collect more information on hospital infections and provide immediate feedback from monitoring results in order to strengthen medical workers' education and dissemination of standard precautions.

References

Abdel Wahed, W. Y., Hefzy, E. M., Ahmed, M. I., &Hamed, N. S. (2020). Assessment of Knowledge, Attitudes, and Perception of Health Care Workers Regarding COVID-19, A Cross-Sectional Study from Egypt. *Journal of community health*, *45*(6), 1242–1251. https://doi.org/10.1007/s10900-020-00882-0.

Abu-El-Noor, N.I., Abu-El-Noor, M.K., Abuowda, Y.Z. Alfaqawi,M., Böttcher,B. (2019). Patient safety culture among nurses working in Palestinian governmental hospital: a pathway to a new policy. *BMC Health Serv Res***19,** 550 doi:10.1186/s12913-019-4374-9 https://www.ncbi.nlm.nih.gov/pubmed/30081147.

Afemikhe, Juliana & Esewe, Roselynd & Enuku, Christie & Timothy, Ehwarieme. (2020). Transmission Based Precaution Practices among Nurses in Edo State, Nigeria during COVID-19 Pandemic. *African Journal of Reproductive Health*. 24. 98. 10.29063/ajrh2020/v24i2s.14.

Akyol AD, Kargin C (2016) Needle Stick and Sharp Injuries among Nurses. *Glob J Nurse Forensic Stud* 1: 109. doi: 10.4172/2572-0899.1000109 https://www.omicsonline.org/open-access/needle-stick-and-sharp-injuries-among-nurses.php?aid=82648

Alao, M. A., Durodola, A. O., Ibrahim, O. R., &Asinobi, O. A. (2020). Assessment of Health Workers' Knowledge, Beliefs, Attitudes, and Use of Personal Protective Equipment for Prevention of COVID-19 Infection in Low-Resource Settings. *Advances in Public Health,2020*, 1-10. doi:10.1155/2020/4619214.

Al-Faouri, I., Okour, S. H., Alakour, N. A., &Alrabadi, N. (2021). Knowledge and compliance with standard precautions among registered nurses: A cross-sectional study. *Annals of medicine and surgery (2012)*, *62*, 419–424. https://doi.org/10.1016/j.amsu.2021.01.058.

Al-Khatib IA, El Ansari W, Areqat TA, *et al*. (2015). Occupational safety precautions among nurses at four hospitals, Nablus district, Palestine. *Int J Occup Environ Med* ;**6**: -246. https://www.ncbi.nlm.nih.gov/pubmed/26498052.

Al Thobaity A, Alshammari. F (2020): Nurses on the Frontline against the COVID-19 Pandemic: An Integrative Review. Dubai Med J. doi: 10.1159/000509361.

Almurr B. (2013). Knowledge and Practice of Standard Precaution and Sharp Injures among Nurses in the Northern West Bank Hospitals; Palestine.

Amanya, S. B., Nyeko, R., Obura, B., Acen, J., Nabasirye, C., Oyella, et al. (2020). Knowledge and Compliance with Covid-19 Infection Prevention and Control measures among Health

Workers in Regional Referral Hospitals in Northern Uganda: A cross-sectional Online Survey. doi:10.21203/rs.3.rs-63627/v

Ara L, Bashar F, Tamal NKA, et al. (2019). Transferring knowledge into practice: a multi-modal, multi-centre intervention for enhancing nurses' infection control competency in Bangladesh. J Hosp infect; 102:234–40. https://www.ncbi.nlm.nih.gov/pubmed/30081147

Aung SS, Nursalam N, Dewi YS. (2017). Factors affecting the compliance of Myanmar nurses in performing standard precaution. JurnalNers 12: 1-8 https://e-journal.unair.ac.id/JNERS/article/view/2294

Ashinyo ME, Dubik SD, Duti V, Amegah KE, Ashinyo A, et al. (2021) Infection prevention and control compliance among exposed healthcare workers in COVID-19 treatment centers in Ghana: A descriptive cross-sectional study. PLOS ONE 16(3): e0248282. https://doi.org/10.1371/journal.pone.0248282

Beyamo, A., Dodicho, T. &Facha, W. (2019). Compliance with standard precaution practice and associated factors among health care workers in Dawuro Zone, South West Ethiopia, cross sectional study. *BMC Health Serv Res* **19,** 381 https://doi.org/10.1186/s12913-019-4172-4

Brooks, S.K., Greenberg, N, Wessely, S.S., Rubin,G.J.(2020). Factors affecting healthcare workers' compliance with social and behavioural infection control measures during emerging infectious disease outbreaks: Rapid evidence review. https://doi.org/10.1101/2020.05.27.20114744

CDC (Centers for Disease Control and Prevention). (2007). Guideline for isolation. precautions: Preventing transmission of infectious agents in healthcare settings. Atlanta, GA.

CDC, (Centers for Disease Control and Prevention). (2016). Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care. Atlanta, GA.

Chen, W., Qiao, F., Yang, Y., Gao, X., Li, Z., Zhang, Y., Zhang, W., Fu, Q., & Liu, Y. (2018). Interpretation and clinical practice of regulation for prevention and control of healthcare associated infection in outpatient and emergency department in healthcare facilities. *Annals Of Translational Medicine*, 7(1). doi:10.21037/22906.

Cohen, J., & Rodgers, Y.V.D. (2020). Contributing factors to personal protective equipment shortages during the COVID-19 pandemic. *Preventive medicine, 141, 106263*. Advance online publication. https://doi.org/10.1016/j.ypmed.2020.106263

Deitrick, K., Adams, J., Davis, J. (2020). Emergency Nursing Care of Patients with novel Coronavirus disease 2019. *Journal of Emergency Nursing*, 46 (6),748_759. https://doi.org/10.1016/j.jen.2020.07.010

Designing and Implementing Training Programs. (2012). (MDS-3: Managing Access to Medicines and Health Technologies, Chapter 52; 20 pages. https://apps.who.int/medicinedocs/documents/s19629en/s19629en.pdf

Donati, D.; Biagioli, V.; Cianfrocca, C.; De Marinis, M.G.; Tartaglini, D. (2019). Compliance with Standard Precautions among Clinical Nurses: Validity and Reliability of the Italian Version of the Compliance with Standard Precautions Scale (CSPS-It). *Int. J. Environ. Res. Public Health, 16*, 121https://www.mdpi.com/1660-4601/16/1/121

Dorgham, S. R., &Obied, H. K. (2016). Factors affecting nurse interns' compliance with standard precautions for preventing stick injury. *Journal of Nursing Education and Practice, 6*(12), 121–130. https://doi.org/10.5430/jnep.v6n12p121

Eljedi A., Dalo S. (2014). Compliance with the National Palestinian Infection Prevention and Control Protocol at Governmental Pediatric Hospitals in Gaza Governorates. SQU Medical Journal, Vol. 14, Iss. 3, pp. e375-381.

Fashafsheh, I., Ayed, A., Koni, M., Hussein, S. and Thultheen, I. (2016) Midwives and Nurses Compliance with Standard Precautions in Palestinian Hospitals. *Open Journal of Nursing*, **6**, 294-302.http://dx.doi.org/10.4236/ojn.2016.64030.

Gordon,C, Thompson,A.(2020). Use of personal protective equipment during the COVID-19 pandemic. *British Journal of Nursing*, 29(13).

Haile, T. G., Engeda, E. H., &Abdo, A. A. (2017). Compliance with Standard Precautions and Associated Factors among Healthcare Workers in Gondar University Comprehensive Specialized Hospital, Northwest Ethiopia. *Journal of Environmental and Public Health*. https://doi.org/10.1155/2017/2050635.

Houghton, C., Meskell, P., Delaney, H., Smalle, M., Glenton, C., Booth, A., Chan, X.H. S, Devane, D., Biesty, L.M. (2020). Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases:

a rapid qualitative evidence synthesis, Cochrane Database of Systematic Reviews, 4. No.: CD013582 https://doi/ 10.1002/14651858.CD013582

Hua, Y. (2010). A model of workplace environment satisfaction, collaboration experience, and perceived collaboration effectiveness: a survey instrument. *International Journal of Facility Management*, 1(2):1-21.

Jahangiri M., Rostamabadi A., Hoboubi N., Tadayon N.,Soleimani A. (2015).Needle Stick Injuries and their Related Safety Measures among Nurses in a University Hospital, Shiraz, Iran. Safety and health at work, 7(1), 72–77. doi: 10.1016/j.shaw.2015.07.006

Key, Thomas & Mathai, Naveen &Venkatesan, Aakaash&Farnell, Damian &Mohanty, Khitish. (2020). Personal protective equipment during the COVID-19 crisis: a snapshot and recommendations from the frontline of a university teaching hospital. Bone & Joint Open. 1. 131-136. 10.1302/2046-3758.15.BJO-2020-0027.R1.

Kong HK, Park TJ, Park KY. (2016) Knowledge on blood-borne infection, awareness and compliance on blood-borne infection control, and factors influencing compliance among emergency nurses. *Korean Journal Healthcare Associated Infection Control and Prevention*.;21(2):140-146. https://doi.org/10.14192/kjhaicp.2016.21.2.65

Lam, Simon Ching. (2017). Compliance with Standard Precautions Scale (CSPS): Fact sheet. 10.13140/RG.2.2.25361.43363.

Larson EL, Liverman CT, editors. Preventing Transmission of Pandemic Influenza and Other Viral Respiratory Diseases: Personal Protective Equipment for Healthcare Personnel: Update (2010). Washington (DC): National Academies Press (US); 2011. 4, Using PPE: Individual and Organizational Issues. Available from: https://www.ncbi.nlm.nih.gov/books/NBK209587/

Luo, Y., He, G.P., Zhou, J. &Luo, Y. (2010). Factors impacting compliance with Standard Precautions in nursing, China. *International Journal of Infectious Disease*,14: e1106–e1114.

Okello, T., Kansime, K., Odora, J., Apio, J., Prcorella, I. J. E. & SURGERY, C. A. J. O. (2017). Barriers and factors affecting personal protective equipment usage in St. Mary's Hospital Lacor in Northern Uganda. 22, 5965.

Ogolodom, M.P., Mbaba, A.N., Alazigha N, Erondu, O.F., Egbe, N.O., et al. (2020). Knowledge, Attitudes and Fears of HealthCare Workers towards the Corona Virus Disease (COVID-19) Pandemic in South-South, Nigeria. Health Sci J. Sp. Iss 1:002

Pasay, J M E, Enguito, M. R. C., Robles, C. J., Awa, A. L. (2015). Compliance with standard precautions among hospital nurses in Ozamiz city Philippines. *Journal of Multidisciplinary Studies*, volume 4, issue 1, p. 108 – 138.

Pereira, V. H., Torres, L. N., Rodrigues, N. M., Monteiro, D. A. T., Moraes, J. T., Pereira-Ávila, F. M. V., Santos, M. A. D., Gir, E., & Malaguti-Toffano, S. E. (2021).Compliance with standard precautions by nursing professionals and related factors. *Escola Anna Nery*, 25(3). https://doi.org/10.1590/2177-9465-ean-2020-0193

Peters, M., Marnie, C. & Butler, A. (2020). Policies and procedures for personal protective equipment: Does inconsistency increase risk of contamination and infection. *International Journal of Nursing Studies*,109. https://doi.org/10.1016/j.ijnurstu.2020.103653

Pranita D., Mediawati A. S., Mirwanti R. (2019). Perceived Barriers toward Standard Precautions Implementations among Nurses in the Emergency Department. *Journal of Nursing Care*, Volume 2, Issue3.

Punia, S., Nair, S., & Shetty, R. S. (2014). Health Care Workers and Standard Precautions: Perceptions and Determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care Hospital in South India. *International Scholarly Research Notices, 5.*https://doi.org/10.1155/2014/685072

Rebmann, T., Carrico, R., (2017). Consistent Infection Prevention: Vital During Routine and Emerging Infectious Diseases Care. *The Online Journal of Issues in Nursing*. Vol. 22.

Refeai, S. A., Kamal, N. N., Ghazawy, E., & Fekry, C. M. (2020). Perception and Barriers Regarding Infection Control Measures Among Healthcare Workers in Minia City, Egypt. International journal of preventive medicine, 11, 11.https://doi.org/10.4103/ijpvm.IJPVM_320_18

Sharma, N., Hasan, Z., Velayudhan, A., M. A., E., Mangal, D. K., & Gupta, S. D. (2020). Personal Protective Equipment: Challenges and Strategies to Combat COVID-19 in India: A Narrative Review. *Journal of Health Management*, *22*(2), 157–168. https://doi.org/10.1177/0972063420935540

Singh, S., Kumar, A., Gupta, P., Gupta, M., Singh, P., &Shrivastava, S. (2016). Incompliance in use of universal precautions as a safety measure in emergency department. *International Surgery Journal, 3*(2), 858-861. doi: http://dx.doi.org/10.18203/2349-2902.isj20160678

Solheim J. (2016). Emergency nursing: the profession, the pathway, the practice. https://www.scribd.com/document/333095634/Emergency-Nursing-the-Profession-the-Pathway-the-Practice

Standard Precaution Policy– ICP002, (2017). NHS. https://www.nhft.nhs.uk/download.cfm?doc=docm93jijm4n1417.

Stanley K. K. Lam, Enid W. Y. Kwong, Maria S. Y. Hung, Samantha M. C. Pang &WaiT. Chien. (2019). A qualitative descriptive study of the contextual factors influencing the practice of emergency nurses in managing emerging infectious diseases, *International Journal of Qualitative Studies on Health and Well-being*, 14:1, 1626179, DOI:10.1080/17482631.2019.1626179.

Wong, E.L.-Y.; Ho, K.-F.;Dong, D.; Cheung, A.W.-L.; Yau,P.S.-Y.; Chan, E.Y.-Y.; Yeoh, E.-K.Chien, W.-T.; Chen, F.Y.; Poon, S.; et al.(2021). Compliance with Standard Precautions and Its Relationship with Views on Infection Control and Prevention Policy among Healthcare Workers during COVID-19 Pandemic. *Int. J. Environ. Res. Public Health*,18, 3420. https://doi.org/10.3390/ijerph18073420.

Yuan, L., Chen, S., &Xu, Y. (2020). Donning and doffing of personal protective equipment protocol and key points of nursing care for patients with COVID-19 in ICU. *Stroke and Vascular Neurology*,*5*(3), 302-307. doi:10.1136/svn-2020-000456.

Appendix 1: Approval letter from the Palestinian MOH

State of Palestine
Ministry of Health
General Directorate of Education in
Health and Scientific Research

دولة فلسطين
وزارة الصحة
الإدارة العامة للتعليم الصحي
والبحث العلمي

Ref.: .....
Date:.....

الرقم: ٢٠٢١/١٤٢٧/١٦٢
التاريخ: ٢٠٢١/٣/١٨

الأخ مدير عام الادارة العامة للمستشفيات المحترم ،،،
الأخ مدير عام الادارة العامة للرعاية الصحية الأولية المحترم،،،
تحية واحترام،،،

الموضـــوع: تسهيل مهمة بحث

مرفق طلب تسهيل مهمة الطالبة: **وعد عزيزة ناجح سلامة**، ماجستير تمريض الطوارئ– الجامعة العربية الامريكية، لعمل بحث بعنوان:

" مدى التزام ممرضي الطوارئ بالاجراءات الوقائية والعوامل المؤثرة على ذلك في فلسطين خلال فترة فيروس كورونا 19"

حيث تحتاج الطالبة لتعبئة استبانة من ممرضي الطوارئ بعد اخذ موافقتهم، مع العلم أن مشرف الدراسة: د. احمد بطران.

وذلك في: **المستشفيات الحكومية والمجمع الطبي**

على أن يتم الالتزام بجميع تعليمات وإجراءات الوقاية الصادرة عن وزارة الصحة بخصوص جائحة كورونا، وتحت طائلة المسؤولية.

على ان يتم تزويدنا بنسخة من نتائج البحث والتعهد بعدم النشر.

مع الاحترام،،،
د. عبد الله القواسمي
مدير التعليم الصحي والبحث العلمي

نسخة: مشرف الدراسة المحترم/ الجامعة العربية الأمريكية

Appendix 2: Permission from AAUP

Arab American University
Faculty of Graduate Studies

الجامعة العربية الأمريكية
كلية الدراسات العليا

26-1-2021

السادة وزارة الصحة الفلسطينية المحترمين،

تسهيل مهمة بحثية

تحية طيبة وبعد،

تهديكم كلية الدراسات العليا في الجامعة العربية الامريكية اطيب التحيات، وبالإشارة الى الموضوع أعلاه، تشهد كلية الدراسات العليا في الجامعة أن الطالبة وعد عزيزة ناجح عوض سلامة والتي تحمل الرقم الجامعي201912875 هي طالبة ماجستير في الجامعة العربية الامريكية تخصص تمريض «طوارئ»، وتعمل على اعداد رسالة الماجستير كأحد متطلبات التخرج بعنوان:

"مدى التزام ممرضي الطوارئ بالإجراءات الوقائية والعوامل المؤثرة على ذلك في فلسطين خلال فترة فيروس كورونا ١٩"

تحت اشراف الدكتور احمد البطران، نأمل من حضرتكم الايعاز لمن يلزم لمساعدتها للحصول على المعلومات اللازمة للدراسة، علماً ان المعلومات ستستخدم لغاية البحث فقط، وقد أعطيت هذه الرسالة بناة على طلبها.

وتفضلوا بقبول فائق الاحترام،،،

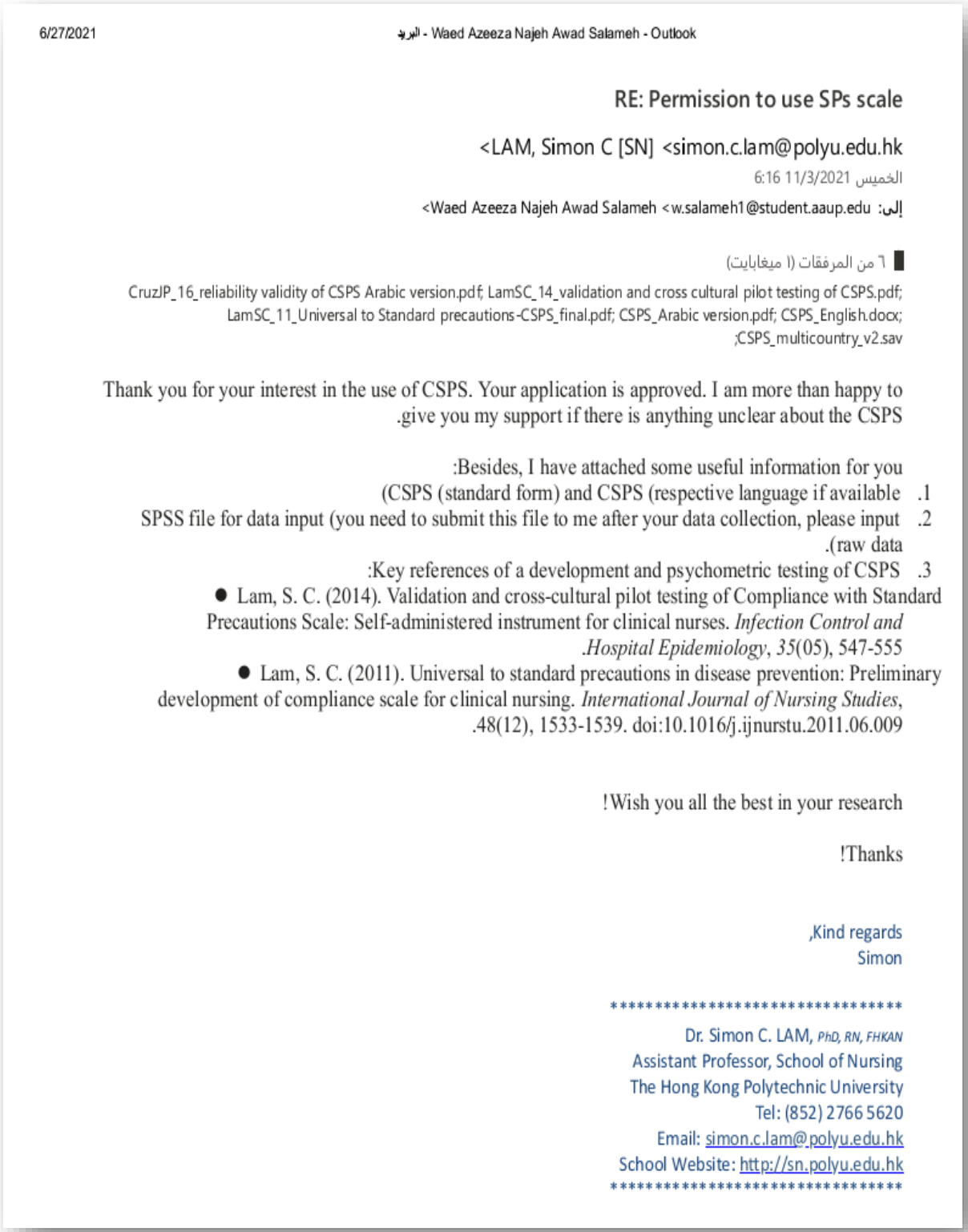
د. اشرف الميمي

عميد كلية الدراسات العليا

كلية الدراسات العليا
FACULTY OF GRADUATE STUDIES

Jenin Tel: +970-4-2418888 Ext.:1471,1472 Fax: +970-4-2510810 P.O. Box:240
Ramallah Tel: +970-2-2941999 Fax: +970-2-2941979 Abu Qash - Near Alrehan
E-mail: FGS@aaup.edu ; PGS@aaup.edu Website: www.aaup.edu

Appendix 3: permission to use SPs scale



6/27/2021 البريد - Waed Azeeza Najeh Awad Salameh - Outlook

RE: Permission to use SPs scale

<LAM, Simon C [SN] <simon.c.lam@polyu.edu.hk

الخميس 11/3/2021 6:16

إلى: <Waed Azeeza Najeh Awad Salameh <w.salameh1@student.aaup.edu

٦ من المرفقات (١ ميغابايت)

CruzJP_16_reliability validity of CSPS Arabic version.pdf; LamSC_14_validation and cross cultural pilot testing of CSPS.pdf; LamSC_11_Universal to Standard precautions-CSPS_final.pdf; CSPS_Arabic version.pdf; CSPS_English.docx; ;CSPS_multicountry_v2.sav

Thank you for your interest in the use of CSPS. Your application is approved. I am more than happy to .give you my support if there is anything unclear about the CSPS

:Besides, I have attached some useful information for you

1. (CSPS (standard form) and CSPS (respective language if available
2. SPSS file for data input (you need to submit this file to me after your data collection, please input .(raw data
3. :Key references of a development and psychometric testing of CSPS

- Lam, S. C. (2014). Validation and cross-cultural pilot testing of Compliance with Standard Precautions Scale: Self-administered instrument for clinical nurses. *Infection Control and .Hospital Epidemiology*, *35*(05), 547-555
- Lam, S. C. (2011). Universal to standard precautions in disease prevention: Preliminary development of compliance scale for clinical nursing. *International Journal of Nursing Studies*, .48(12), 1533-1539. doi:10.1016/j.ijnurstu.2011.06.009

!Wish you all the best in your research

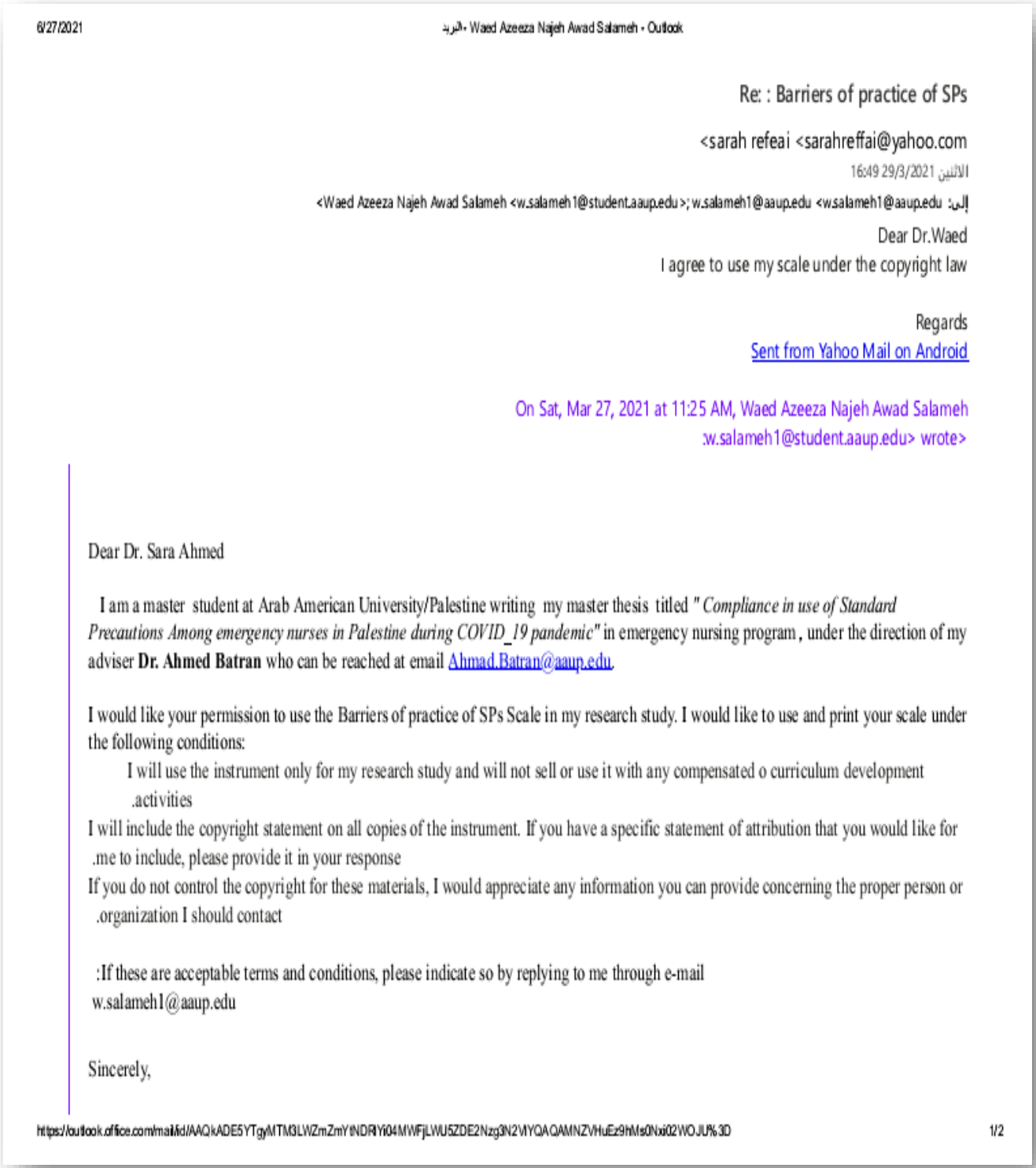
!Thanks

,Kind regards
Simon

****

Dr. Simon C. LAM, *PhD, RN, FHKAN*
Assistant Professor, School of Nursing
The Hong Kong Polytechnic University
Tel: (852) 2766 5620
Email: simon.c.lam@polyu.edu.hk
School Website: http://sn.polyu.edu.hk
****

Appendix 4: permission to use barriers of practice of SPs scale



6/27/2021 Waed Azeeza Najeh Awad Salameh - Outlook البريد

Re: : Barriers of practice of SPs

<sarah refeai <sarahreffai@yahoo.com

الاثنين 16:49 29/3/2021

إلى: <Waed Azeeza Najeh Awad Salameh <w.salameh1@student.aaup.edu>; w.salameh1@aaup.edu <w.salameh1@aaup.edu

Dear Dr.Waed

I agree to use my scale under the copyright law

Regards

Sent from Yahoo Mail on Android

On Sat, Mar 27, 2021 at 11:25 AM, Waed Azeeza Najeh Awad Salameh <w.salameh1@student.aaup.edu> wrote:

Dear Dr. Sara Ahmed

I am a master student at Arab American University/Palestine writing my master thesis titled "*Compliance in use of Standard Precautions Among emergency nurses in Palestine during COVID_19 pandemic*" in emergency nursing program, under the direction of my adviser **Dr. Ahmed Batran** who can be reached at email Ahmad.Batran@aaup.edu.

I would like your permission to use the Barriers of practice of SPs Scale in my research study. I would like to use and print your scale under the following conditions:

I will use the instrument only for my research study and will not sell or use it with any compensated o curriculum development activities.

I will include the copyright statement on all copies of the instrument. If you have a specific statement of attribution that you would like for me to include, please provide it in your response.

If you do not control the copyright for these materials, I would appreciate any information you can provide concerning the proper person or organization I should contact.

If these are acceptable terms and conditions, please indicate so by replying to me through e-mail: w.salameh1@aaup.edu

Sincerely,

https://outlook.office.com/mail/id/AAQkADE5YTgyMTM3LWZmZmYtNDRlYi04MWFjLWU5ZDE2Nzg3N2VlYQAQAMNZVHuEz9hMs0Nxi02WOJU%3D 1/2

Appendix 5: Standard precaution compliance questionnaire

Arab American University

Faculty of Nursing and health science

Dear nurses,

I am a master nursing student at Arab American University working on a study under the title of **"*Compliance and perceived barriers in use of Standard Precautions among emergency nurses in Palestine during covid-19 pandemic*."** as a graduation requirement.

The aim of this study is to assess the level of compliance toward Standard Precautions (SPs) and identify the contributing factors influence usage of SP among emergency nurses during COVID _19 pandemic in the north, middle and south of Palestine.
I would really appreciate your cooperation in filling this questionnaire logically. This questionnaire is composed of (3) parts. The information you will enter will help me in my study and it will remain confidential, and only used for research purposes that is why there is no need to write your name.

If you have any further questions, we welcome them and ready to answer them at any time. You have the right to withdraw from the study at any time. The estimated time for filling the questionnaire is 5-10minutes.

After filling the questionnaire, please put it in the envelope with the head nurse.

Researcher name: Waed A.N. Salamah / Supervised by: Mr. Ahmad Batran

For further information, you can contact us through:

Number: 05984016702 Email: salamehwaed@gmail.com

Or contact my supervisor 0568933131 Email: Ahmad.Batran@aaup.edu

Section 1: Demographic data and Work characteristics: (Please choose the right answer with **X**)

1.1.Hospital Name:

☐ **1.** Palestinian Medical complex (PMC) /Ramallah
☐ **2.** Rafidiah hospital/ Nablus
☐ **3.** Al-Watani hospital/ Nablus
☐ **4.** Dr Khalil Suliman hospital/ Jenin
☐ **5.** DrDarwishNazzal governmental hospital /Qalqilya
☐ **6.** Tubas Turkish hospital/Tubas
☐ **7.** ThabitThabit governmental hospital/ Tulkarm
☐ **8.** Yaser Arafat governmental hospital Salfit
☐ **9.** BeitJala governmental hospital (Alhussain)/ Bethlehem
☐ **10.** Hebron governmental hospital (Alia)/ Hebron
☐ **11.** Yatta governmental hospital/ Yatta-Hebron
☐ **12.** Domeh hospital /Al Dahryia -hebron
☐ **13.** Mohammad Ali Almohtaseb/ Hebron
14. Jericho governmental hospital/ Jericho

☐ **2.Age**…… years

1.3.gender: ☐ 1. Male ☐ 2. Female

1.4.Marital Status:
☐1. Single ☐ 2. Married ☐ 3. Widowed ☐4. Divorced

1.5.Years of experience in emergency department:
☐ 1.less than one year ☐_5 years 3☐more than 5 years

1.6.Level of education:
☐ 1. Diploma ☐ 2. Three years Diploma ☐ 3. BSN degree
☐ 4. High Diploma ☐ 5. MSN degree ☐ 6. Other, specify…….

1.7.Job title:
☐ 1. Head nurse ☐ 3. Registered nurse
☐ 2. Assistant head nurse ☐ 4. Practical nurse

1.8.Type of working shift:
☐ 1. Morning ☐ 2. Evening ☐ 3. Night ☐ 4. All shifts

1.9.Main source of knowledge on COVID-19 standard precautions (SPs)

☐ 1. MOHP and WHO website/ health website
☐2. Social media
☐3.Newspaper
☐4. Television
☐ 5. Lectures

☐6. Friends/Family
☐7. Courses / job training

1.10. Have you been received a formal personal protective equipment (PPE) training including donning/doffing and proper used of PPE?

☐ 1. Yes ☐ 2. No

Section 2: Compliance to SP among emergency nurses during COVID 19 pandemic:

Compliance with Standard Precautions Scale (CSPS) please mark a ✔ in the box that best reflects your current clinical practice. Please answer all 20 questions.

Number	Compliance	Never	Seldom	Sometimes	Always
1.	I wash my hands between patient contacts.				
2.	I only use water for hand washing				
3.	I use alcoholic hand rubs as an alternative if my hands are not visibly soiled.				
4.	I recap used needles after giving an injection.				

5.	I put used sharp articles into sharps boxes.				
6.	The sharps box is disposed only when it is full.				
7.	I remove Personal Protective Equipment (PPE) in a designated area.				
8.	I take a shower in case of extensive splashing even after I have put on Personal Protective Equipment (PPE).				
9.	I cover my wound(s) or lesion(s) with waterproof dressing before patient contacts				
10.	I wear gloves when I am exposed to body fluids, blood products, and any excretion of patients.				
11.	I change gloves between patient contacts.				
12.	I decontaminate my hands immediately after removal of gloves.				
13.	I wear a surgical mask alone or in combination with goggles, face shield and apron whenever there is a possibility of a splash or splatter.				
14.	My mouth and nose are covered when I wear a mask.				
15.	I reuse a surgical mask or disposable Personal Protective Equipment (PPE).				
16.	I wear a gown or apron when exposed to blood, body fluids or any patient excretions				
17.	Waste contaminated with blood, body fluids, secretion and excretion is placed in red plastic bags irrespective of the patient's infection status.				
18.	I decontaminate surfaces and equipment after use.				
19.	I wear gloves to decontaminate used equipment with visible soils.				
20.	I clean up spillage of blood or other body fluids immediately with disinfectants.				

Section Three: The precipitated barriers of used a standard precaution (SPs) among emergency nurses during COVID 19 pandemic:

This section consists of (13) precipitated barriers of SPs, please determine the effect if these factors on your compliance to SP, please put X in the appropriate place.

Barriers of practice of standard precautions of infection controlling

Number	Barriers	Agree	Disagree
1.	There is no enough glove		
2.	There is no enough mask		
3.	Others don't follow SPs measures		
4.	There is no enough gowns		
5.	Guidelines of SPs are vague		
6.	There is no enough hand washing facilities		
7.	Requirements of SPs are costly		
8.	Gloves cause skin irritation		
9.	Head shield is unavailable		
10.	Following SPs takes long time		
11.	PPE are uncomfortable with use		
12.	It is unimportant to follow SPs guidelines		
13.	Following SPs makes work harder		

The questioner has ended
☺ Thank you for your cooperation ☺

الملخص بالعربية

هدفت هذه الدراسة إلى تقييم مستوى الامتثال تجاه الاحتياطات المعيارية (SPs) وتحديد العوائق المساهمة في التأثير على استخدام SPs بين ممرضي الطوارئ خلال جائحة COVID _19في شمال ووسط وجنوب فلسطين.

الطريقة: تم استهداف جميع الممرضين العاملين في أقسام الطوارئ والبالغ عددهم 225 ممرض. تم استخدام الاستبيان الكمي والمقطعي والإداري ذاتيًا في الفترة المحدودة (27 فبراير إلى 6 مايو 2021). من أجل تحليل استجابات أعضاء عينة الدراسة تم استخدام الإحصاء الوصفي) متوسط الانحراف المعياريSD **النتائج:** بلغ مستوى الالتزام تجاه الخدمات الخاصة بين ممرضي الطوارئ خلال جائحة COVID _19 في شمال ووسط وجنوب فلسطين 51.1٪ (امتثال ضعيف). ووفقًا لمصادر معلومات مقدمي الخدمات، كشفت النتائج أن موقع وزارة الصحة والسكان ومنظمة الصحة العالمية هو الأكثر استخدامًا (68.0٪)، وكشفت عن وجود فروق ذات دلالة إحصائية بين التلفزيون كمصادر للمعلومات وامتثال الممرض المتوسط للخطاب التليفزيوني والتليفزيوني (0.004 = .(p) وهو أقل من 0.005. كشف التحليل أيضًا أن أكثر العوامل التي أثرت على امتثال ممرضي الطوارئ لـــSPs أثناء COVID 19 كان "لا توجد قفازات كافية" (81.3٪)، "القفازات تسبب تهيج الجلد" (76.4٪)، **توصية:** إنشاء استراتيجيات جديدة وتدخل من أجل تعزيز سياسة مكان العمل، يوصى بشدة بالدعم القوي والإشراف، وتحسين التعليم والتدريب للممرضات، وتوفير الموارد البشرية والمادية الكافية.

الكلمات المفتاحية: ممرضي الطوارئ، الاحتياطات القياسية، معدات الوقاية الشخصية