Deanship of Graduate Studies

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Factors determining Healthcare worker's knowledge, attitude, and practice regarding hand washing, disinfection and sterilization in Jericho Governorate

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Thesis Approval

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Dedication

I dedicate this master's thesis to the most important people in my life.

To my family, who have been my foundation, offering endless love, support, and encouragement throughout this journey.

To my beloved wife, for your understanding and patience as I worked late nights, your emotional support when the path seemed challenging, and your faith in my abilities have made this accomplishment possible.

To all my friends, mentors, and colleagues who offered guidance, advice, and encouragement, I am deeply grateful for your help along the way. Your collective efforts have played a significant role in shaping this achievement.

With sincere appreciation, I thank every one of you for being a part of this journey.

Sincerely,
Ahmad Mhalees

Declaration

I Certify that this thesis submitted for the degree of Master of Science in environmental studies is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for higher degree to any other university or institution.

Signature: 

Ahmad Faisal Abdalrhman Mhalees

Date: 8/8/2024

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Abstract

Background

To ensure patient safety and lower the number of infections in Healthcare-Associated Infections (HAIs) and governmental hospitals, infection prevention and control (IPC) procedures are essential to the provision of healthcare. Basic IPC procedures including hand washing, disinfection, and sterilization greatly reduce the chance of infection transmission in healthcare environments. However, healthcare professionals' knowledge, attitudes, and practices (KAP) have a major impact on how successful these measurements are. The aim of this study is evaluating the factors that influence primary healthcare and governmental hospitals workers' knowledge, attitudes, and practices (KAP) concerning hand washing, disinfection and sterilization within primary healthcare directorate and governmental hospital in the Jericho Governorate.

Methodology

In a cross-sectional descriptive study, 110 samples of health workers (physicians, nurses, laboratory technicians, radiology technicians, and pharmacists) were included. A convenience sampling technique was used for data collection. All necessary approvals were obtained (Al-Quds University Ethics Committee "IRB" and from the General Administration of Health Education and Scientific Research in the Ministry of Health) before starting to distribute any tool. Descriptive analysis (means and standard deviation) was used using SPSS V26. The Pearson correlation coefficient was completed, Sidak Post-Hawk test and the one-way ANOVA test were used.

Results

The results indicated that the level of KAP among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization is high. The results also indicate a positive relationship between knowledge and both attitude and practice among healthcare workers in Jericho Governorate ($r = 0.58$).

Conclusions

The health staff at Jericho Hospital lacks sufficient knowledge in disinfection and sterilization. Therefore, it is important to conduct training and workshops regarding infection control in hospitals in an organized manner.

Keywords: KAP, infection prevention and control (IPC), Health workers, hospital, primary healthcare, hand washing. Disinfection.

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List of abbreviations

ABHR	Alcohol based hand rub
EVD	Ebola virus disease
HAIs	Healthcare associated infection
HBM	Health belief model
HBV	Hepatitis B virus
HCPs	Healthcare providers
HCWs	Healthcare workers
HIV	Human immunodeficiency viruses
IPC	Infection prevention and control
KAP	Knowledge, Attitudes, Practices
PPE	Personal protective equipment
SSIs	Surgical site infections
TPB	Theory of planned behavior
WHO	World health organization

Chapter One

Introduction

1.1 Background

1.2 Problem statement

1.3 Study Justification

1.4 Main Purpose

1.5 Minor Objectives

1.6 Expected Outcome

1.7 Study Context

Chapter One: Introduction

1.1 Background

Globally, healthcare-associated infections (HAIs) represent a serious risk to public health and patient safety. The implementation of hand hygiene, disinfection, and sterilization protocols is crucial in mitigating the transmission of illnesses linked to healthcare environments (Alshathri, 2021). Healthcare-associated infections are among the most common diseases. Continuing patient safety issues around the world. According to WHO estimates, hundreds of millions of patients are affected annually, leading to serious illness, death and financial losses to health systems. In high-income countries, at least 7% of hospital admissions are associated with healthcare-associated infections. Also, about 15% are in low- and middle-income countries; Infections affect more than 4 million patients annually in Europe and cause 37,000 deaths (Allegranzi, et al., 2013).

Therefore, Adequate sterilization protocols must be put in place in hospitals in order to preserve human life. because hospital-acquired infections continue to be the biggest cause for concern despite enormous advancements in medicine (Panta, Richardson, Shaw, & Coope, 2022). The procedure of sterilization lowers the likelihood that a pharmaceutical product contains viable microbes to fewer than 10-6. Being infertile is a condition that is challenging to diagnose and attain (Kulkarni & Chillarge, 2015). Reprocessing is therefore necessary for reusable medical equipment used in clinical procedures (such as surgery). Before using it for the first time, sterilize it to stop pathogens from spreading to patients or healthcare personnel from the surroundings. Surgical site infections (SSIs) are thought to account for 10.2% (CI95: 9.0% - 13.0%) of hospitalized patients' healthcare-associated infections (HAIs) in developing nations. In these nations, it is the most frequently reported infection related to healthcare (Panta, Richardson, Shaw, & Coope, 2022). Health care providers (HCPs) are particularly vulnerable.

The Ebola Virus Disease (EVD) outbreak that occurred between 2013 and 2016 may have played a role in the WHO strategy's initial implementation on the African continent in 2006. Knowledge and adherence to hand hygiene were especially low in East and West African environments with inadequate infrastructure and resources (Pfäfflin, et al., 2017). A number of professional categories, including physicians and nurse assistants, the kinds and levels of patient care provided in hospital wards, understaffing and a heavy workload, have been

identified as factors influencing hand hygiene compliance (Moussa Douno, Rocha, Borchert, Müller, & Nabe, 2023).

Infection by reaching out blood, bodily fluids, or contaminated body parts. Risks of respiratory infections during work for healthcare professionals When infection control procedures are not followed, it grows (Sukhlecha1, Vaya, Parma, & Chavda, 2015). Any policy or practice that emphasizes enhancing the actions of patients and healthcare personnel with the goal of minimizing and preventing the transmission of infections in healthcare facilities is known as infection prevention and control (Al-Hammar, et al., 2017). Achieving a high degree of infection control measures involves taking into account a number of aspects, including raising awareness of infection prevention, changing behavior and attitude, offering personal protective equipment, holding training sessions, and posting reminders around the workplace. Furthermore, to create or develop effective infection control measures, it is crucial to understand the degree of knowledge, attitudes, and practices surrounding infection prevention and control among healthcare personnel (Alshathri, 2021).

Healthcare-associated infections (HCAIs) are illnesses that a patient contract while receiving treatment in a hospital or other healthcare facility; these diseases are not present or incubating at the time of admission. The most prevalent HAIs are HIV infection, Hepatitis B virus, and Hepatitis C virus (Desta, et al., 2018). These infections are typically spread by healthcare professionals who disregard infection control procedures. Hence, healthcare professionals are in the front line of infection control for both themselves and their patients (Bayleyegn, Mehari, Damtie, & Negash, 2021). The lack of a standardized infection prevention program, which has been ignored because of inadequate resources, unhygienic facilities, and poor hygiene practices, is the cause of the high burden of infections linked to healthcare (Desta, et al., 2018).

Appropriate, standardized preventive measures can reduce the risk of pathogen transmission during medical care delivery and the rates of infections connected with health care. Nonetheless, it has been observed that health care workers' (HCWs') dismal compliance with using tried-and-true medical interventions has been documented (Sessa, Giuseppe, Albano, & Angelillo, 2011). The knowledge-belief-behavior paradigm divides health-related behavior into three sequential processes: behavior, belief formation, and knowledge acquisition. Knowledge, attitude, belief, and practice are the components influencing health-related behavior. Knowledge is the basis, which includes learning and knowledge; belief is

the driving force, which includes attitudes and beliefs; and practice is the end result, which is engaging in behavior that promotes health (Ni, et al., 2023). Laboratory workers may be exposed to chemical and biological risks when handling clinical material, using chemicals, or using radiation. Biological hazards can be encountered by laboratory workers in a number of ways, including ingestion (smoking, eating, or aspirating through a pipette), contact between contaminated materials (surfaces, hands), percutaneous inoculation (needlestick injuries and cuts from contaminated items), and inhalation of aerosols (Coelho & Díez, 2015).

Pathogens such the hepatitis B and C viruses (HBV and HCV), human immunodeficiency viruses (HIV), and Middle East respiratory syndrome are particularly concerning when it comes to laboratory-acquired infections (Aldhamy, Maniatopoulos, McCune, Mansi, & Althaqafy, 2023). Furthermore, needlestick injuries, which can happen during any stage of needlestick procedures, are the main cause of the majority of hepatitis and HIV infections among healthcare professionals (Sabermoghaddam, et al., 2015).

The study aims to identify and examine variables that influence the knowledge, attitudes and practices of healthcare professionals (KAP) with reference to hand washing, disinfection and sterilization techniques. By analyzing these variables, the research aims to understand the obstacles and enabling factors that influence compliance with ideal hygiene practices, ultimately leading to the development of infection control strategies in hospital environments. Therefore, giving policy makers and healthcare managers useful information to create focused interventions that will increase adherence to health practices and reduce the frequency of healthcare-associated infections (HAIs).

1.2 Problem statement

Healthcare workers' knowledge, attitudes, and practices (KAP) may not always match up, despite the crucial relevance of infection prevention and control (IPC) procedures including hand washing, disinfection, and sterilization in healthcare settings. The efficacy of the IPC measures in the Jericho Governorate might be impacted by a number of factors, such as training, resources, workplace culture, and education. Comprehensive information on the factors influencing the KAP of healthcare professionals in this area is, nonetheless, lacking. Comprehending these variables is imperative in enhancing infection control protocols and mitigating the dissemination of infections associated with healthcare (HAIs). In order to

better understand healthcare professionals' KAP of hand washing, disinfection, and sterilization in the Jericho Governorate, this study aims to identify and analyses the relevant elements.

1.3 Study Justification

One of the rare studies that evaluated people's KAP about common infections or healthcare that requires infection for public health reasons was carried out in both government hospitals and the Primary Health Care Directorate. Analysis of the knowledge, attitudes and practices (KAP) of healthcare workers (HCWs) in Jericho Governorate will create vital insights into infection control measures, which in turn lead to improved patient safety and public health outcomes. Healthcare administrators can create focused education and training programs by identifying gaps in practice and knowledge. The results of this study serve as a basis for future studies. Therefore, more comprehensive research is conducted on the specific barriers to proper hand washing, sterilization, and disinfection.

1.4 Main Purpose

Evaluate the factors that influence primary healthcare and governmental hospitals workers' knowledge, attitudes, and practices (KAP) concerning hand washing, disinfection and sterilization within primary healthcare directorate and governmental hospital in the Jericho Governorate.

1.5 Minor Objectives

- To assess the level of knowledge among healthcare workers (Doctors, nurses, laboratory technicians, radiology technicians and pharmacists) in Jericho Governorate regarding hand washing, disinfection, and sterilization practices.
- To evaluate the attitudes of healthcare workers (Doctors, nurses, laboratory technicians, radiology technicians and pharmacists) towards hand washing, disinfection, and sterilization.
- To analyze the actual practices of hand washing, disinfection, and sterilization among healthcare workers (Doctors, nurses, laboratory technicians, radiology technicians and pharmacists) in Jericho Governorate.

- To identify the key factors influencing the knowledge, attitudes, and practices (KAP) of healthcare workers (Doctors, nurses, laboratory technicians, radiology technicians and pharmacists) regarding hand washing, disinfection, and sterilization.

1.6 Expected Outcome

This study is expected to yield several key findings related to healthcare workers' knowledge, attitudes and practices (KAP) regarding hand washing, disinfection and sterilization in Jericho Governorate: The results are expected to reveal differences in knowledge between different categories of healthcare workers, which may be influenced by factors such as education, training and work experience. The study is expected to identify both positive and negative attitudes and will provide insight into the factors that shape these attitudes, such as institutional culture, personal beliefs, and perceived barriers.

Expected outcomes include identification of gaps between knowledge and practice, as well as factors that contribute to non-compliance with standard protocols. This may include individual-level determinants (such as education, awareness, and motivation), institutional-level determinants (such as availability of resources, training programs, and leadership support), and contextual factors (such as workload and patient volume). These recommendations may include targeted training programs, policy changes, and strategies to promote compliance with hand hygiene and sanitization protocols.

1.7 Study Context

Founded in 1978 by Palestinians, Al-Quds university (AQU) is the only institution in the world situated behind a wall of separation. Abu Dis is home to the university's main campus. AQU provides community services and higher education in Jerusalem as well as the nearby towns, villages, and West Bank refugee camps.

Collegiate research university AQU has more than A broad range of scientific subjects, including medicine, biological sciences, arts and humanities, business and management, law and jurisprudence, engineering, and social sciences, are covered by the 100 undergraduate and graduate programs offered by its fifteen faculties. There are 12,000 full-time students enrolled there, comprising 2,500 graduates and 9,500 undergraduates. The percentage of female students is over 55% (Al-Quds at a Glance, 2022).

Chapter Two

Literature Review

2.1 Introduction

2.2 Global Studies on KAP

2.3 Summary

Chapter Two: Literature Review

2.1 Introduction

Scientific publications, previously published articles, and books that covered the same theme, goals, and keywords were examined and analyzed for this study. Including earlier research is not only a dedication to science but also a calculated move towards knowledge advancement. It offers a strong basis, prevents needless repetition, and permits the scientific community's understanding to advance. The database search was conducted using the following keywords: healthcare workers, hospitals, PHC, knowledge, attitude, practice, hand washing, disinfection and sterilization.

Reviewing scientific research literature is considered a basis for clarifying the researchers' approach to topics related to the subject of the study. Therefore, previous studies serve as the basis for developing scientific frameworks for research, as without them it is not possible to conduct scientific research. Below are the most important previous studies related to the subject of this research, some of which are directly related to it, and others are related to some variables in this research. In order to compare the basic objectives of the studies with the conclusions of the current research, focus was placed on the results of previous studies.

2.2 Global Studies on KAP

(Abuduxike, Vaizoglu, Asut, & Cali, 2020) , carried out cross-sectional research in Cyprus to evaluate healthcare professionals' knowledge, attitudes, and practices and to pinpoint pertinent variables. A questionnaire meant for self-administering was given to 233 healthcare professionals. 62.2% of the respondents, according to the statistics, were female. 30.9% of workers had a satisfactory adherence to standard precautions, 37.3% exhibited a satisfactory positive attitude, and 57.5% of employees demonstrated a satisfactory degree of accurate information. Support workers were 71% less likely than nurses and medical assistants to encounter NSIs, with 31.6% reporting having had one.

A study on nurses' understanding of HH and HAI in Romania was conducted by (Nedelcu, Zazu, Mazilu, Vernic, & Grintescu, 2020) in order to assess the need for further knowledge. The study was conducted between February and June 2018, with 236 male and female nurses participating in a course on primary health care management. The results showed that 39%

of nurses did not have sufficient knowledge, which may be an obstacle to avoiding healthcare-associated infections, and 67.8% of nurses did not have sufficient understanding of preventing healthcare-related infections. A study was conducted in Ethiopia by (Yosef1, 2023), The purpose of the study was to evaluate health care professionals' knowledge, attitudes, and practice (KAP) about intellectual property and related aspects at Manatee University Teaching Hospital (MTUTH) in southwest Ethiopia.

A survey was conducted from September 1 to September 15, 2021, 196 medical professionals participated in MTUTH in southwestern Ethiopia. The results indicated that there was a knowledge level of 71.9%, a positive attitude of 63.8%, and good practices of 53.6%. The knowledge of healthcare workers was enhanced through the provision of adequate personal protective equipment, intellectual property manuals and in-service training. In the same context, a study was conducted in Northwest Ethiopia by (Bayleyegn, Mehari, Damtie, & Negash, 2021), Assessed Knowledge, attitude, and practice of healthcare personnel at Gondar University Comprehensive Specialized Hospital in northwest Ethiopia regarding the prevention of diseases linked to healthcare and the variables that contribute to those disorders.

From January to June 2019, a cross-sectional study on healthcare workers was carried out in the hospital with the goal of preventing illnesses linked to healthcare. Every research subject was originally chosen using a simple random sample. Utilizing self-administered questionnaires, data were gathered. The study had a response rate of 100%, with a total of 236 participants. The results showed that, when it came to health care prevention, 90% of participants had adequate knowledge and 57.2% had a favorable attitude. The study yielded less than ideal results, since only 36% of the participants had effective habits for preventing infections related to healthcare. Degree A strong correlation was found between work experience and education and safe infection control practices and attitudes (P value < 0.005).

On the other hand, (Rutala & Weber, 2019) , who conducted his study in the United States, pointed out Every intrusive operation involves a surgical tool or medical equipment coming into touch with a patient's mucous membranes or sterile tissue. The object's intended usage determines the degree of sterilization or disinfection. Sterilization, high-level disinfection, and low-level disinfection are necessary for critical (items that come into contact with sterile tissue, like surgical instruments), semi critical (items that come into contact with mucous

membranes, like endoscopes), and noncritical (items that come into contact with only intact skin, like stethoscopes) items. High-level sterilization and disinfection must always come first. In addition to their many applications in surgical hand antisepsis and preoperative skin preparation, antiseptics are indispensable for preventing infections when used as part of a hand hygiene programed.

On the other hand**,** A study was conducted in Türkiye by (Demirel, 2019) , A comparison of the compliance rate before and after was covered in the study. enhancing hand hygiene compliance. 270 of the 348 medical personnel employed by the 61-bed private hospital were under observation. The hospital's infection control committee, which oversaw the implementation of the "Five Moments for Hand Hygiene" method for a year, conducted informed consent. After the initial half-year, he became better.

Working along with the hospital's quality department, the plan, check, and implement cycle was used to carry out the study. Istanbul, Turkey's private hospital served as the study's site. Florence Nightingale Hospital, Kadikoy, 2014. The findings showed that 153 acts were seen in 316 suitable circumstances throughout the first half of the year. The Physicians, nurses, and other healthcare workers had compliance rates of 35 percent, 54 percent, and 64 percent, respectively. 48% of people complied overall. In 306 cases, a total of 183 procedures were seen. following studies on education and improvement. There were 32%, 72%, and 86% compliance rates.

The average compliance rate was 60% overall. In order to enhance hand hygiene behaviors among healthcare providers, hospital managers, the infection control committee, and quality departments must work together to promote hand hygiene. Key words: hand cleanliness. While a study was conducted in Iran by (Sabermoghaddam, et al., 2015), In the Iranian province of Northern Khorasan, 371 healthcare professionals who worked in government institutions participated in this cross-sectional survey. Of the participants, 44% had been exposed to sharp items, and 31% had previously come into touch with patient bodily fluids or blood. Following their injuries, 82 healthcare professionals with needlestick injuries reported positive hepatitis B surface antibody titers.

On the other wise, a study was conducted in Pakistan by (Allegranzi, et al., 2013) , The impact of the WHO hand hygiene promotion approach was evaluated in five different countries. Between December 2006 and December 2008, we conducted a quasi-

experimental study at six pilot sites (55 departments in 43 hospitals) in Saudi Arabia, Italy, Costa Rica, Mali and Pakistan. The WHO method was implemented step by step over four to six months. In addition, a questionnaire was used to measure healthcare workers' compliance with hand hygiene regulations and their understanding of microbiological transmission and hand hygiene principles.

The percentage of pre-specified opportunities attained by hand hygiene practices (i.e., hand washing or hand scrubs) was used to express compliance. In April 2010, an evaluation of the fundamental strategic initiatives' long-term viability was conducted. In 1,423 pre-intervention sessions and 1784 post-intervention sessions, we recorded 21,884 hand hygiene opportunities and 23746 opportunities, respectively. Prior to the intervention, overall compliance was 51.0% (95% CI 45·1−56·9), but after it, it climbed to 67·2% (61·8−72·2). GNI per capita income and compliance were independently correlated. In low- and middle-income countries, the impact of the intervention was greater (odds ratio [OR] 4·67, 95% confidence interval [CI] 3·16–6·89; p<0·0001) than in high-income countries (2·19, 2·03–2·37; p<0·0001).

Utilization once key confounders were considered, it had a considerable impact on health care worker compliance at all sites (OR 2·15, 1·99-2·32). Following educational sessions, the mean scores of healthcare workers improved at all sites, ranging from 18·7 (95% CI 17·8–19·7) to 24·7 (23·7–25·6). Two years after the intervention, every location reported continuing hand hygiene initiatives that have improved or are still being improved upon, including nationwide scaling up. While the study was conducted by (Panta, Richardson, Shaw, & Coope, 2022), There was a countrywide survey undertaken. In Nepal's primary and secondary care public hospitals to assess healthcare personnel' attitudes and knowledge regarding the sterilization and reuse of medicinal supplies 219 (93.6%) of the 234 health care professionals who participated in the reprocessing of medical devices—including physicians, nurses, paramedics, and office assistants—returned the completed survey questionnaires. There were descriptive analyses done on the survey respondents' knowledge, attitudes, and demographic data. With a few exceptions, over 70% of healthcare professionals were appropriately knowledgeable about the various facets of sterilizing and reusing medical equipment.

Compared to nurses, paramedics and office assistants were less likely to possess the necessary knowledge in many areas. Compared to temporary employees, permanent staff

members were more likely to provide accurate responses to certain knowledge questions. Correct answers to certain knowledge items were favorably correlated with prior infection control training. When it came to various aspects of sterilizing and reusing medical devices, the majority of healthcare workers had favorable attitudes, with nurses being more likely than other staff types to have good attitudes. While In Najran of Saudi Arabia, a study was conducted by (Al-Qahtani, 2023).

In addition to determining compliance levels and identifying factors that contribute to non-compliance, the study sought to evaluate nurses' knowledge and attitudes regarding hand hygiene guidelines in Najran City and to offer recommendations for interventions aimed at improving hand hygiene practices and lowering the risk of healthcare-associated infections. In Najran, Saudi Arabia, a cross-sectional survey of nurses employed government hospitals was carried out. Using an online survey, a self-administered questionnaire was given to the targeted nurses. The sociodemographic questions on the questionnaire cover things like age, gender, and marital status. There are four questions to gauge the effect of COVID-19 on hand hygiene practices, ten things to gauge attitudes, six items to gauge practices, and twenty-five items to gauge knowledge. The findings showed that, out of the 386 nurses hired, 88.3% were women and 25.6% belonged to the age range of 31 to 35. Good practices, positive attitudes, and good knowledge were found to be at 42.5, 48.4, and 94% of the corresponding levels. Preventing the spread of infection was the prevalent factor affecting hand hygiene habits (88.1%).

The greatest possible score was the average overall knowledge score. The greatest attainable score was achieved by the average overall attitude score. The overall training score average was the maximum that could be achieved. A higher score denotes a higher degree of hand hygiene knowledge and behavior (KAP). Growing older was one of the factors linked to higher KAP. The knowledge score and the attitudes score ($r = 0.556$), the knowledge score and the practices score ($r = 0.303$), and the attitudes score and the practices score ($r = 0.481$) all showed a very statistically significant positive association. In the same context, a study was conducted in Qassim by (Abalkhail, et al., 2021). In Qassim, Saudi Arabia, health care workers' (HCWs') knowledge, attitude, and practice (KAP) of conventional infection control precautions was evaluated in this study. A standardized questionnaire was used to perform an online cross-sectional survey among HCWs. Good (80% accurate answer) knowledge, attitude, and practice were found in 67.6%, 61.5%, and 73.2% of respondents, respectively.

The HCWs' age (>34 years) (adjusted odds ratio: 30.5, $p < 0.001$) and training (13.3, $p < 0.001$) were the predictors of strong knowledge. Positivity at work was significantly predicted by having over 6 years of work experience (5.5, $p < 0.001$). On the other hand, training (3.5, p 0.01), prior exposure to HAIs (2.5, p 0.05), and having more than six years of experience (2.9, p 0.01) were the indicators of effective practice. On the other hand, knowledge was inversely correlated with being older (>34 years) (0.34, $p < 0.01$) and female (0.22, $p < 0.001$).

The findings suggest that providing HCWs with training could help them become more knowledgeable about common infection control procedures and is also anticipated to encourage good behavior. While a study was conducted in Rabat by (Arai, et al., 2022). The purpose of the study was to assess how well nursing staff members in various intensive care units adhered to hand cleanliness and to identify the variables influencing this behavior. Using a questionnaire and an observation network, a quantitative descriptive study involving all nursing staff members working in all intensive care units at the university hospital was carried out. According to the study, there was an 80% rate of hand contamination and a 21.3% percentage of adherence to hand hygiene. It also demonstrated the several explanations for non-compliance, which are not always connected to training or the accessibility of tangible resources. But it is related to hidden causes and unseen factors, which are often more important. (The amount of work and the workspace).

2.3 Summary

The knowledge, attitude, and practice (KAP) of healthcare workers (HCWs) with regard to hand washing, disinfection, and sterilization in clinical settings is examined in this study. In order to ensure patient safety and prevent healthcare-associated infections (HAIs), certain procedures are crucial. The studies find several factors that influence HCWs' compliance with advised standards and procedures. The studies conclude that improving HCWs' KAP regarding hand washing, disinfection, and sterilization requires a multifaceted approach. This includes enhancing educational programs, ensuring the availability of necessary resources, fostering a positive organizational culture, and addressing workload issues. By understanding and addressing these factors, healthcare institutions can significantly reduce the incidence of HAIs and improve overall patient safety.

Chapter Three

Study Conceptual Framework

3.1 Introduction

3.2 Definitions

3.3 Study conceptual model

Chapter Three: Study Conceptual Framework

3.1 Introduction

In this chapter, the study conceptual frame and study operational definitions were presented.

3.2 Definitions

3.2.1 Introduction

Improving infection control measures requires an understanding of the factors that influence healthcare workers' knowledge, attitudes, and behaviors (KAP) about hand washing, disinfecting, and sterilizing (Abalkhail, et al., 2021). This study is to investigate these variables in the Jericho Governorate to improve healthcare services quality and lower healthcare-associated infections (HAIs). Current studies highlight the value of KAP studies in identifying gaps and creating focused strategies to successfully reduce HAIs.

3.2.2 Knowledge

Effective infection control procedures depend on healthcare personnel having a basic understanding of hand washing, disinfection, and sterilization. Knowledge includes being aware of the proper methods, how important they are in preventing HAIs, and the standards established by health authorities. According to a recent study by (MEHTA, GUPTA, TRIPATHI, & BANSAL, 2022), ongoing education and training greatly improve healthcare personnel' understanding of and adherence to infection control procedures. As a result, this study will evaluate the present state of knowledge among Jericho's healthcare professionals and pinpoint any educational gaps that require closing.

3.2.3 Attitude

Individual convictions, perceived significance, and organizational culture all have an impact on attitudes regarding hand washing, disinfecting, and sterilizing. Maintaining a positive mindset is essential for consistently applying knowledge in day-to-day practice. According to recent research by (Yosef, 2023), healthcare professionals who have a favorable attitude towards infection control measures are more likely to follow procedures and encourage colleagues to follow suit. To find out how these opinions impact their adherence to advised practices, this study will look into the attitudes of healthcare professionals in Jericho.

3.2.4 Practice

Healthcare personnel' actual hand washing, disinfecting, and sterilizing habits are a direct reflection of their attitudes and level of knowledge. In healthcare settings, stopping the spread of illnesses requires effective practice. According to (Moralejo, El Dib, Prata, l Barretti, & Corrêa, 2023) study, frequent audits and feedback systems help healthcare professionals practically adhere to infection control protocols. This study will look at Jericho's current procedures, finding obstacles to their successful use and areas for development.

3.2.5 Determinants of KAP

Draw flow chart that shows the KAP of hand washing, disinfection and sanitization practices for healthcare professionals is determined by several factors (institutional policies, workload, training and education opportunities, resource availability, and general health care environment) and achieving the outcome of reducing infections in health care.

3.2.6 Summary

The purpose of this study is to present a thorough examination of the variables influencing healthcare professionals' awareness, perspective, and behavior in relation to hand washing, sterilization, and disinfection in the Jericho Governorate. We can enhance infection control procedures and lower the number of HAIs in this area by recognizing and addressing these causes. The results will benefit the field of patient safety and healthcare quality improvement more broadly by offering legislators and healthcare administrators useful information.

3.3 Study conceptual model

The following domains are part of the conceptual model, and each one covers elements that influence HCWs' KAP with reference to hand washing, disinfection, and sterilization:

3.3.1 Demographic and Professional Characteristics:

Age, gender, job title, institution name, department name, years of experience, and educational level.

3.3.2 Knowledge

Knowledge of appropriate procedures, comprehension of infection control recommendations, and appreciation of the significance of hand hygiene, disinfection, and sterilization.

3.3.3 Attitudes

Perceptions of the value of infection control practices, one's own vulnerability to HAIs, the seriousness of HAIs, the advantages of compliance, and perceived obstacles (such as lack of resources or time restrictions).

3.3.4 Social and Organizational Influences

Institutional policies and support, peer pressure, organizational culture, and the accessibility of resources (such as soap, disinfectants, and sterilizing equipment) are all important factors.

Environmental and Situational Factors: The amount of work, the number of patients, and the architectural design of the medical facility (such as the location of hand sanitizers and sinks).

3.3.5 Summary

This conceptual model helps in the development of focused interventions to enhance infection control procedures and lower HAIs by offering an organized framework for comprehending the complex factors influencing healthcare workers' KAP in the Jericho Governorate.

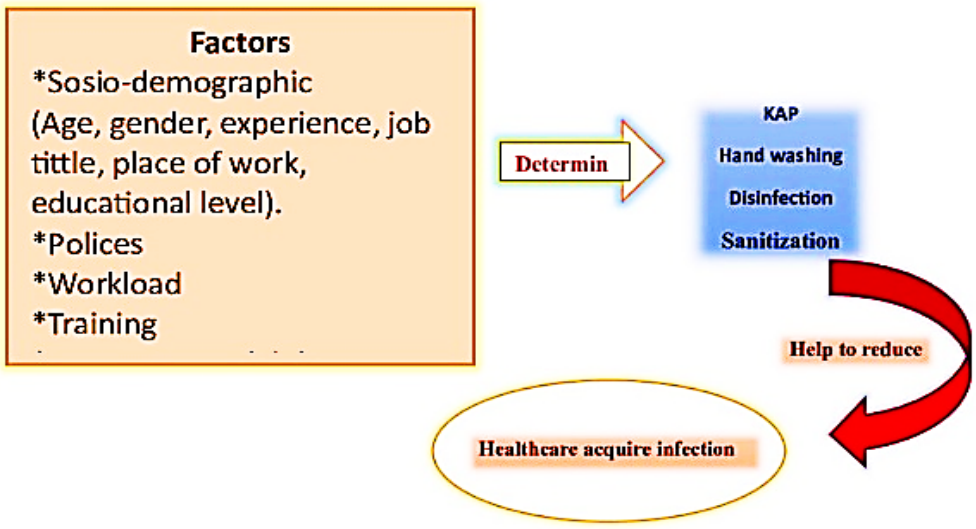

Figure 3.1: Theoretical and conceptual framework

Chapter Four

Methodology

4.1 Introduction

4.2 Setting

4.3 Study design

4.4 Sample frame and Sampling method

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Chapter Four: Methodology

4.1 Introduction

In this chapter, methods were presented to answer the aim of the study. This is reflected in the study, study setting, sample frame, sampling methods and sample size were presented. Also, study tools, and statistical analysis were described.

4.2 Setting

Palestinian Ministry of Health is responsible of Palestinian health through primary healthcare and public health directorate and hospitals facilities by providing policies, supplies, staff and logistic. This study was conducted in all governmental health facilities in Jericho Governorate in both primary healthcare clinics and hospitals.

4.3 Study design

A cross-sectional descriptive study, data were collected from participants using a convenient sampling method from (doctors, nurses, laboratory technicians, radiology technicians, and pharmacists) who work in the health centers under study, while the study was conducted on all health centers affiliated with the Ministry of Health in Jericho Governorate.

4.4 Sample frame and Sampling method

All health staff were included, including general doctors, specialist doctors, nurses, pharmacists, anesthesia technicians, and radiology technicians working at Jericho Governmental Hospital and the Primary Health Care Center. Table (4.1) shows the distribution of demographic data (general doctors, specialist doctors, nurses, pharmacists, anesthesia technicians and radiology technicians working at Jericho Governmental Hospital and Primary Health Care Center (WAFA, 2022)

Table 4.1: Number of health care worker in Jericho Hospital and primary health care

Health care worker	No of pop in hospital	No of pop PHC	Total
General doctor	26	18	44
Specialist doctor	25	4	29
Nurses	82	34	116
Lab technician	13	12	25
Pharmacist	3	7	10
Radiologist	9	4	13
Total	158	79	237

- **Inclusion criteria**

All health staff, including general doctors, specialist doctors, nurses, pharmacists, radiology technicians, and laboratory technicians, who work in Jericho Hospital and in primary health care, regardless of job title, and who have more than a year of work experience.

- **Exclusion criteria**

Health workers who do not work in Jericho Hospital and primary health care centers affiliated with the Palestinian Ministry of Health. and whose work experience is less than one year.

4.5 Sample Size

To select participants relevant to the research design, a non-probability convenience sampling technique was used by all health workers at Jericho Governmental Hospital and the Jericho Health Directorate. With a confidence level of 95% and a margin of error of 5%. Based on the sample size formula, 140 participants were reached (Raosoft sample size calculator, available at raosoft.com/sample size). So, 30 of them were included in an experimental study, and their results were not included in the study results, and 110 were the study sample.

4.6 Study Tool

The study tool translated into Arabic was used to collect data. Informed consent was provided in English and Arabic. Participation in this study was voluntary. Participants were provided with information about the purpose of this study and were informed that they could withdraw from the study at any time. It was emphasized that the privacy of the study was maintained and that it was for scientific research purposes throughout the study period.

Part One: Demographic characteristics were discussed (Age, gender, job title, institution name, department name, years of experience, and educational level).

Part Two: The healthcare worker's knowledge, attitude and practice regarding hand washing, disinfection and sterilization (KAP) was discussed as follows:

- Knowledge (12) questionnaire sentences.
- Attitude (9) Questionnaire sentences.
- Practice (12) questionnaire sentences.
- Practice (12) questionnaire sentences.

4.7 Validity

The degree to which a test or measuring instrument properly assesses what it is meant to measure is known as validity. (Middleton., 2023). The questionnaire was sent in its first form to the supervisor of the thesis and to the public health team at (Al-Quds University), which evaluated the adequacy of the tool to measure what it planned to measure. The validity of the tool has been verified. A pilot study was conducted on an external sample of the original study sample, consisting of (30) health workers, in order to ensure the internal consistency of the training and job performance scales. Pearson correlation coefficients were found between the statements and the total score for each scale, as shown in the tables below

- **Internal consistency for knowledge scale.**

Table 4.2: Validity of internal consistency for knowledge scale.

N	Items	R-value	Sig.
1	I understand the importance of handwashing in preventing healthcare-associated infections (HAIs).	0.87	0.000**
2	I am aware of the recommended duration for handwashing with soap and water.	0.85	0.000**
3	I know the proper technique for handwashing, including key areas to focus on.	0.62	0.001**
4	I am familiar with the indications for using alcohol-based hand rub (ABHR) versus soap and water.	0.81	0.000**
5	I understand the difference between cleaning, disinfection, and sterilization	0.87	0.000**
6	I am aware of the appropriate disinfectants to use for different surfaces and equipment	0.86	0.000**
7	I know the recommended contact time for disinfectants to effectively kill pathogens.	0.56	0.004**
8	I receive adequate training on disinfection protocols in my workplace.	0.67	0.000**
9	I understand the difference between disinfection and sterilization.	0.89	0.000**
10	I am familiar with the recommended sterilization methods for different medical equipment and instruments	0.77	0.000**
11	I know the appropriate sterilization cycle parameters (e.g., time, temperature, pressure) for different types of sterilizers.	0.71	0.000**
12	I receive adequate training on sterilization protocols in my workplace.	0.68	0.000**

** Significant correlation at ($p \leq 0.01$).

The results in Table (4.2) showed that all items were statistically and significantly related to the total score of the cognitive scale, and the correlation values ranged between ($r = 0.56$-0.89; $p \leq 0.01$). These results confirm that the cognitive scale achieves what it aims to measure.

- **Internal consistency for attitude scale.**

Table 4.3: Validity of internal consistency for attitude scale.

N	Items	R-value	Sig.
1	I believe that handwashing is one of the most effective measures for preventing the spread of infections in healthcare settings.	0.78	0.000**
2	I feel responsible for ensuring that I and my colleagues adhere to proper hand hygiene practices.	0.77	0.000**
3	I believe that there is a need for ongoing education and reminders to reinforce the importance of hand hygiene.	0.84	0.000**
4	I believe that proper disinfection procedures are essential for preventing healthcare-associated infections (HAIs).	0.81	0.000**
5	I feel confident in my ability to perform disinfection procedures correctly.	0.74	0.000**
6	I believe that there should be regular audits and monitoring of disinfection practices in our healthcare facility.	0.89	0.000**
7	I believe that proper sterilization procedures are essential for preventing healthcare-associated infections (HAIs).	0.73	0.000**
8	I feel confident in my ability to perform sterilization procedures correctly.	0.78	0.000**
9	I believe that regular audits and monitoring of sterilization practices should be conducted in our healthcare facility.	0.75	0.000**

** Significant correlation at ($p \leq 0.01$).

The results in table (4.63) showed that all items were statistically and significantly correlated with the total score of attitude scale, and the values of correlation ranged between (r= 0.73-0.89; $p \leq 0.01$). These results emphasis that the attitude scale achieve what it is intended to measure.

- **Internal consistency for practice scale**

Table 4.4: Validity of internal consistency for practice scale.

N	Items	R-value	Sig.
1	Washing hands with soap and water before and after patient contact.	0.79	0.000**
2	Using alcohol-based hand rub (ABHR) when soap and water are not readily available.	0.65	0.000**
3	Adhering to the recommended duration for handwashing.	0.82	0.001**
4	Encouraging patients and visitors to practice hand hygiene.	0.79	0.000**
5	Cleaning and disinfecting patient care areas between each patient.	0.84	0.000**
6	Using personal protective equipment (PPE) when handling and applying disinfectants.	0.65	0.000**
7	Ensuring proper ventilation in areas where disinfectants are used to prevent exposure to fumes	0.69	0.004**
8	Following manufacturer instructions for dilution and application of disinfectants	0.77	0.000**
9	Monitoring and documenting sterilization cycle parameters.	0.81	0.000**
10	Proper packaging and labeling of items before sterilization.	0.75	0.000**
11	Performing biological and chemical indicators to ensure sterilization efficacy.	0.74	0.000**
12	Ensuring proper storage and handling of sterilized items to prevent contamination.	0.79	0.000**

** Significant correlation at ($p \leq 0.01$).

The results in table (4.4) showed that all items were statistically and significantly correlated with the total score of practice scale, and the values of correlation ranged between (r= 0.65-

0.84; $p \leq 0.01$). These results emphasis that the practice scale achieve what it is intended to measure.

4.8 Data collection

The study tool was used, which are questionnaire questions about Factors determining healthcare worker's knowledge, attitude and practice regarding hand washing, disinfection and sterilization (Rutala, Boyce, & Weber, 2023). The questionnaire was distributed via the researcher's email.

4.9 Statistical Analysis

Data were analyzed using SPSS V26 by applying wizard Descriptive statistics include means, standard deviations, and percentages. The data was also analyzed through the Pearson correlation coefficient to determine the relationship between the two study measures, and to determine its validity. Stepwise multiple linear regression was also used to determine the effect of knowledge and attitude as independent variables on practice as a dependent variable. One Way ANOVA was done to determine the differences between the two study measures according to the independent study variables, and the LSD test was used as a post-test when needed. The partial eta squared was done to determine the size of the effect of the independent variables on the study measures according to guidelines (Cohen, 1988). Using Cronbach's alpha equation to determine the stability of the study measures.

4.10 Definition of main outcomes

level of knowledge: among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was high (4.19). In addition, the highest response was on item (1) "I understand the importance of handwashing in preventing healthcare-associated infections (HAIs)", as the mean of response on it was very high (4.81).

level of attitude: among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was very high (4.48). In addition, the responses of the study sample on all items were very high and the means were ranged between (4.28- 4.60). furthermore, the highest response was on item (7) "**I believe that proper sterilization procedures are essential for**

preventing healthcare-associated infections (HAIs)"as the mean of response on it was very high (4.60).

level of practice: among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was very high (4.41). In addition, the highest response was on item (1) "**Washing hands with soap and water before and after patient contact**", as the mean of response on it was very high (4.56).

Chapter Five

Results

5.1 Introduction

5.2 Participants' Characteristics

5.3 Level of knowledge, attitude, and practice regarding hand washing, disinfection, and sterilization.

5.4 Level of knowledge of hand washing, disinfection, and sterilization by the socio-demographic variables

5.5 Attitude level toward hand washing, disinfection, and sterilization by socio-demographic

5.6 Level of practice by socio-demographic

5.7 Knowledge and Attitude, and Practice regarding hand washing, disinfection, and sterilization

5.8 All Results

Chapter Five: Results

5.1 Introduction

In this chapter, the sociodemographic characteristics of the study participants are described. This chapter also discussed the level of (KAP) knowledge, behavior, and practices among health care workers in Jericho Governorate regarding hand washing, disinfection, and sterilization. In addition, the impact of KAP among healthcare workers in Jericho Governorate regarding hand washing, disinfection and sterilization was discussed. The relationship between KAP among health care workers with regard to hand washing, disinfection and sterilization, and demographic variables of the participants was also discussed.

5.2 Participants' Characteristics

To ascertain the distribution of the variable values, the data was divided into ratios and numbers and submitted to a descriptive analysis. In a descriptive analysis, "frequency" refers to the total number of replies that participants provided. According to the results shown in Table (5.1), 53.6% of the study participants were male, while 46.4% of the participants were female. In addition, it was found that 45.5% of the study participants belonged to the age group of 30-40 years. The study also showed that 62.7% of the sample were in favor of the health worker obtaining a bachelor's degree. While the highest response rate was 48.2% from health staff who had more than ten years of experience in government hospitals and primary healthcare. The data also showed that the highest response rate (55.5%) was for those whose job title was nursing. The results also showed that 53.6% of health workers in hospitals had the highest response.

5.3 Level of knowledge, attitude, and practice regarding hand washing, disinfection, and sterilization.

To explore the Factors determining healthcare worker's knowledge, attitude, and practice regarding hand washing, disinfection, and sterilization in Jericho Governorate, descriptive statistics were calculated including the arithmetic means and standard deviation for each measure and its items as shown in Table (5.2). To interpret the results, five-point Likert scale means were used as shown in Table (5.2):

Table 5.1: Characteristics of the study sample (n= 110).

Independent variables	Level of Variable	F	%
Age	≤ 30 years	25	22.7
	30- 40 years	50	45.5
	≥ 40 years	35	31.8
	Total	**110**	**100%**
Gender	Male	59	53.6
	Female	51	46.4
	Total	**110**	**100%**
Years of experience	1-5 years	30	27.3
	6-10 years	27	24.5
	≥10 years	53	48.2
	Total	**110**	**100%**
Job title	Nurses	61	55.5
	Physician	30	27.3
	Lab Technicians and others	19	17.2
	Total	**110**	**100%**
Place of work	Hospital	59	53.6
	Health care center	51	46.4
	Total	**110**	**100%**
Educational level	Diploma	14	12.7
	Bachelor's degree	69	62.7
	Higher studies	27	24.6
	Total	**110**	**100%**

Table 5.2: 5-point Likert scale

Likert scale	Interval	Difference	Description
1	1.80 ≥	.08	Very low level
2	1.81-2.60	0.8	Low level
3	2.61-3.40	0.8	Moderate level
4	3.41-4.20	0.8	High level
5	4.21 ≤	0.8	Very high level

The results in table (5.3) indicated that the level of knowledge among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was high (4.19). In addition, the highest response was on item (1) "I understand the importance of handwashing in preventing healthcare-associated infections (HAIs)", as the mean of response on it was very high (4.81). Whereas, the lowest response was on item (12) "I receive adequate training on sterilization protocols in my workplace", as the mean of response on it was high (3.52).

Table 5.3: The level of knowledge among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization (n= 110).

N	Items	Mean	SD	Level
1	I understand the importance of handwashing in preventing healthcare-associated infections (HAIs).	4.81	0.39	Very high
2	I am aware of the recommended duration for handwashing with soap and water.	4.55	0.55	Very high
3	I know the proper technique for handwashing, including key areas to focus on.	4.53	0.55	Very high
4	I am familiar with the indications for using alcohol-based hand rub (ABHR) versus soap and water.	4.31	0.75	Very high

5	I understand the difference between cleaning, disinfection, and sterilization	4.40	0.65	Very high
6	I am aware of the appropriate disinfectants to use for different surfaces and equipment	4.26	0.77	Very high
7	I know the recommended contact time for disinfectants to effectively kill pathogens.	4.01	0.83	High
8	I receive adequate training on disinfection protocols in my workplace.	3.64	0.94	High
9	I understand the difference between disinfection and sterilization.	4.40	0.59	Very high
10	I am familiar with the recommended sterilization methods for different medical equipment and instruments	4.03	0.77	High
11	I know the appropriate sterilization cycle parameters (e.g., time, temperature, pressure) for different types of sterilizers.	3.77	0.90	High
12	I receive adequate training on sterilization protocols in my workplace.	3.52	0.98	High
Total score of knowledge		**4.19**	**0.45**	**High**

* Maximum response is (5) points

Table 5.4: The level of attitude among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization (n= 110).

N	Items	Mean	SD	Level
1	I believe that handwashing is one of the most effective measures for preventing the spread of infections in healthcare settings.	4.57	0.53	Very high
2	I feel responsible for ensuring that I and my colleagues adhere to proper hand hygiene practices.	4.44	0.61	Very high
3	I believe that there is a need for ongoing education and reminders to reinforce the importance of hand hygiene.	4.59	0.51	Very high
4	I believe that proper disinfection procedures are essential for preventing healthcare-associated infections (HAIs).	4.55	0.54	Very high
5	I feel confident in my ability to perform disinfection procedures correctly.	4.38	0.62	Very high
6	I believe that there should be regular audits and monitoring of disinfection practices in our healthcare facility.	4.53	0.62	Very high
7	I believe that proper sterilization procedures are essential for preventing healthcare-associated infections (HAIs).	4.60	0.56	Very high
8	I feel confident in my ability to perform sterilization procedures correctly.	4.28	0.73	Very high
9	I believe that regular audits and monitoring of sterilization practices should be conducted in our healthcare facility.	4.43	0.66	Very high
Total score of attitude		**4.48**	**0.39**	**Very high**

* Maximum response is (5) points.

The results in table (5.4) indicated that the level of attitude among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was very high (4.48). In addition, the responses of the study sample on all items were very high and the means were ranged between (4.28- 4.60). Furthermore, the highest response was on item (7) "**I believe that proper sterilization procedures are essential for preventing healthcare-associated infections (HAIs**)"as the mean of response on it was very high (4.60). Whereas the lowest response was on item (8)

"**I feel confident in my ability to perform sterilization procedures correctly**", as the mean of response on it was very high (4.28).

The results in table (5.5) indicated that the level of practice among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high, as the mean of response for the total score was very high (4.41). In addition, the highest response was on item (1) "**Washing hands with soap and water before and after patient contact**", as the mean of response on it was very high (4.56). Whereas, the lowest response was on item (9) "**Monitoring and documenting sterilization cycle parameters**", as the mean of response on it was high (4.13).

Table 5.5: The level of practice among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization (n= 110).

N	Items	Mean	SD	Level
1	Washing hands with soap and water before and after patient contact.	4.56	0.63	Very high
2	Using alcohol-based hand rub (ABHR) when soap and water are not readily available.	4.45	0.63	Very high
3	Adhering to the recommended duration for handwashing.	4.45	0.57	Very high
4	Encouraging patients and visitors to practice hand hygiene.	4.45	0.71	Very high
5	Cleaning and disinfecting patient care areas between each patient.	4.50	0.71	Very high
6	Using personal protective equipment (PPE) when handling and applying disinfectants.	4.35	0.66	Very high
7	Ensuring proper ventilation in areas where disinfectants are used to prevent exposure to fumes	4.44	0.61	Very high
8	Following manufacturer instructions for dilution and application of disinfectants	4.35	0.71	Very high
9	Monitoring and documenting sterilization cycle parameters.	4.13	0.80	High
10	Proper packaging and labeling of items before sterilization.	4.45	0.64	Very high
11	Performing biological and chemical indicators to ensure sterilization efficacy.	4.35	0.71	Very high
12	Ensuring proper storage and handling of sterilized items to prevent contamination.	4.41	0.65	Very high
Total score of practice		**4.41**	**0.48**	**Very high**

* Maximum response is (5) points

5.4 Level of knowledge of hand washing, disinfection, and sterilization by the socio-demographic variables

one- way ANOVA and eta squared as an effect size test were used. The results in table (5.6) showed that there were no statistically significant differences at ($p \leq 0.05$) in the level of knowledge among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization according to the variables of (age, years of experience, job title, and educational level. There were statistically significant differences at ($p \leq 0.05$) in the level of knowledge among healthcare workers in Jericho Governorate according to the

variables of gender (male and female) in favor of female, and the place of work (hospital vs. primary health care centers) in favor of primary health care centers as illustrated in the figure (2) & figure (3). The most important effect size on the level of knowledge was for gender variable, as the value of eta squared was medium (0.07). In contrast, the age variable had a negligible effect size on the level of knowledge, as the value of eta squared was (0.003).

Table 5.6: Results of one-way ANOVA test for the differences in the level of knowledge among healthcare workers in Jericho Governorate according to the independent variables (n= 110).

Independent variables	**Level of Variable**	**N**	**Mean± SD**	**F**	**P-value**	**Partial eta²**
Age	≤30 years	25	4.16± 0.48	0.14	0.873	0.003 Negligible
	30- 40 years	50	4.21± 0.45			
	≥ 40 years	35	4.17± 0.44			
Gender	Male	59	4.08± 0.44	8.96	0.003*	0.07 Medium
	Female	51	4.32± 0.41			
Years of experience	1-5 years	30	4.13± 0.45	0.86	0.428	0.01 Negligible
	6-10 years	27	4.12± 0.46			
	≥ 10 years	53	4.24± 0.44			
Job title	Nurses	61	4.25± 0.40	2.09	0.128	0.04 Small
	Physician	30	4.05± 0.45			
	Lab Technicians and others	19	4.18± 0.57			
Place of work	Hospital	59	4.10± 0.47	4.76	0.031*	0.04 Small
	Health care center	51	4.28± 0.40			
Educational level	Diploma	14	4.24± 0.23	1.24	0.292	0.02 Small
	Bachelors	69	4.22± 0.42			
	Higher studies	27	4.08± 0.54			

* Significant differences at ($p \leq 0.05$).

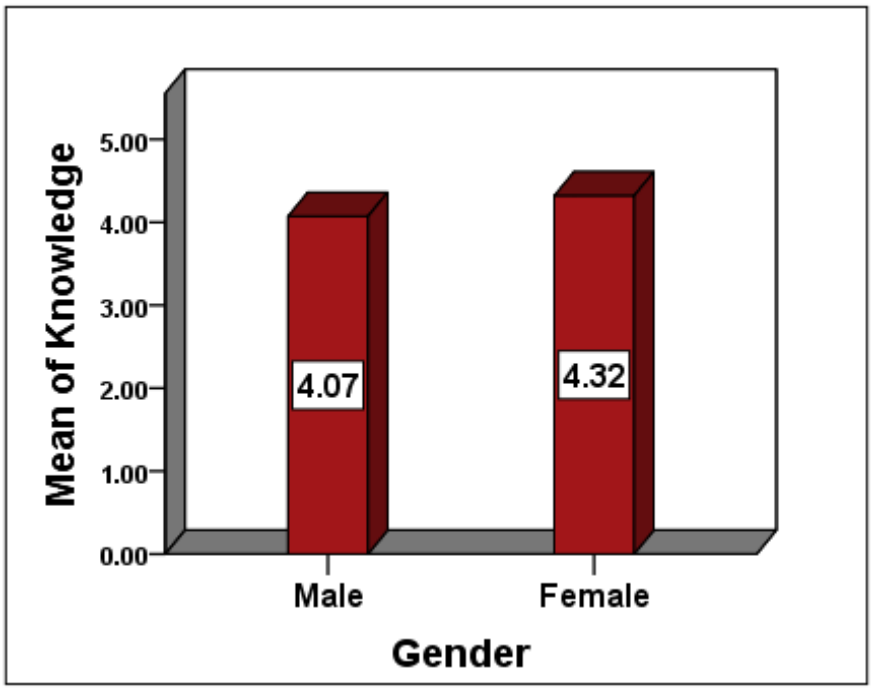

Figure 5.1: Means of response on knowledge scale among healthcare workers according to gender variable.

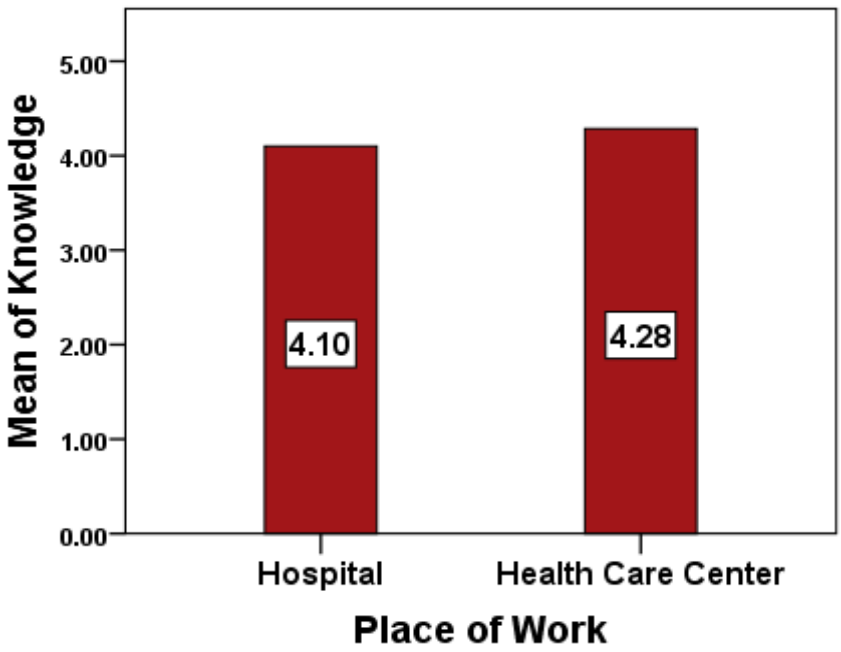

Figure 5.2: Means of response on knowledge scale among healthcare workers according to place of work variable.

5.5 Attitude level toward hand washing, disinfection, and sterilization by socio-demographic

The results in Table (5.7) showed that There were no statistically significant differences at ($p \leq 0.05$) in the level of attitude among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization according to the variables of (age, years of experience, job title, and educational level).

Also, the results indicated that There were statistically significant differences at ($p \leq 0.05$) in the level of attitude among healthcare workers in Jericho Governorate according to the variables of gender (male and female) in favor of female, and the place of work (hospital and primary health care centers) in favor of primary health care centers as illustrated in the figure (4) & figure (5). and the effect size of the variables (gender, years of experience, and place of work) on the level of attitude was small, as the value of eta squared were (0.04, 0.03, and 0.04) respectively. Whereas, the variables of age, job tittle, and educational level had negligible effect sizes on the level of attitude, as the value of eta squared was less than (0.02).

Table 5.7: One-way ANOVA test for the differences in the level of attitude among healthcare workers in Jericho Governorate according to the independent variables (n= 110).

Independent variables	Level of Variable	N	Mean± SD	F	P-value	Eta²
Age	≤ 30 years	25	4.41± 0.45	0.62	0.540	0.01 Negligible
	30- 40 years	50	4.50± 0.35			
	≥ 40 years	35	4.51± 0.41			
Gender	Male	59	4.41± 0.39	4.54	0.035*	0.04 Small
	Female	51	4.57± 0.37			
Years of experience	1-5 years	30	4.39± 0.42	1.39	0.254	0.03 Small
	6-10 years	27	4.49± 0.39			
	≥ 10 years	53	4.54± 0.37			
Job title	Nurses	61	4.48± 0.40	0.29	0.752	0.005 Negligible
	Physician	30	4.46± 0.37			
	Lab Technicians and others	19	4.54± 0.39			
Place of work	Hospital	59	4.42± 0.42	4.06	0.046*	0.04 Small
	Health care center	51	4.56± 0.34			
Educational level	Diploma	14	4.43± 0.48	0.17	0.846	0.003 Negligible
	Bachelors	69	4.49± 0.39			
	Higher studies	27	4.50± 0.38			

* Significant differences at ($p \leq 0.05$).

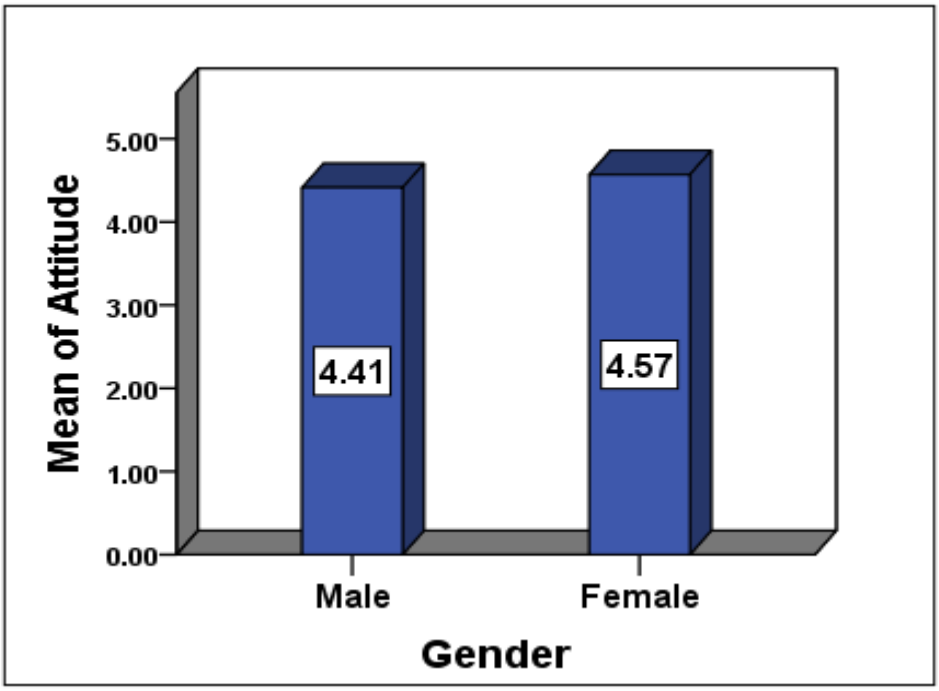

Figure 5.3: Means of response on attitude scale among healthcare workers according to gender variable.

Figure 5.4: Means of response on attitude scale among healthcare workers according to place of work variable.

5.6 Level of practice by socio-demographic

The results in table (5.8) showed that there were no statistically significant differences at ($p \leq 0.05$) in the level of practice among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization according to the variables of (age, years of experience, place of work and educational level).

There were statistically significant differences at ($p \leq 0.05$) in the level of practice among healthcare workers in Jericho Governorate according to gender variable (male and female) in favor of female as illustrated in the figure (6). Also, statistically significant differences were found in the level of practice according to job tittle variable as show in table (5.9).

The effect size of the variables of gender and job tittle on the level of attitude was medium, as the value of eta squared were (0.10, and 0.06) respectively. Whereas, the variables of age, years of experience, place of work, and educational level had negligible effect sizes on the level of practice, as the value of eta squared were less than (0.02).

Table 5.8: One-way ANOVA test for the differences in the level of practice among healthcare workers in Jericho Governorate according to the independent variables (n= 110).

Independent variables	Level of Variable	N	Mean± SD	F	P-value	Eta²
Age	≤ 30 years	25	4.38± 0.43	0.11	0.895	0.002 Negligible
	30- 40 years	50	4.43± 0.51			
	≥ 40 years	35	4.39± 0.43			
Gender	Male	59	4.26± 0.48	12.48	0.000*	0.10 Medium
	Female	51	4.57± 0.42			
Years of experience	1-5 years	30	4.34± 0.35	0.82	0.441	0.01 Negligible
	6-10 years	27	4.36± 0.53			
	≥ 10 years	53	4.47± 0.47			
Job title	Nurses	61	4.45± 0.43	3.37	0.038*	0.06 Medium
	Physician	30	4.23± 0.53			
	Lab Technicians and others	19	4.54± 0.47			
Place of work	Hospital	59	4.35± 0.48	1.97	0.163	0.01 Negligible
	Health care center	51	4.48± 0.47			
Educational level	Diploma	14	4.49± 0.37	0.23	0.797	0.004 Negligible
	Bachelor's	69	4.39± 0.48			
	Higher studies	27	4.40± 0.53			

* Significant differences at ($p \leq 0.05$).

On the other hand, the results shown in table (5.9) indicated that here were statistically significant differences at ($p \leq 0.05$) in the level of practice among healthcare workers in Jericho Governorate according to job tittle variable between (nurses and Physician) in favor of (nurses), and between (doctors and lab technicians and others) in favor of (lab technicians and others). Whereas, no statistically significant differences in the level of practice between (nurses and lab technicians and others) as shown in figure (7).

Table 5.9: LSD post-hoc test for the differences in the level of practice among healthcare workers according to job tittle variable (n= 110).

variable	Means	Nurses	Doctors	Lab technicians and others
Practice	4.45	-	0.22*	-0.09
	4.23		-	-0.31*
	4.54			-

* Significant differences at ($p \leq 0.05$).

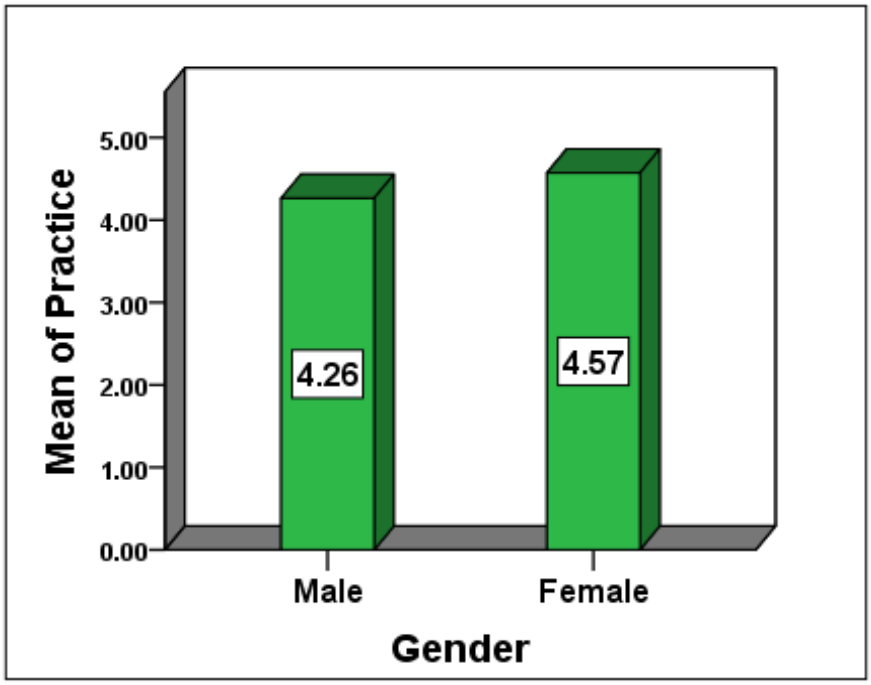

Figure 5.5: Means of response on practice scale among healthcare workers according to gender variable.

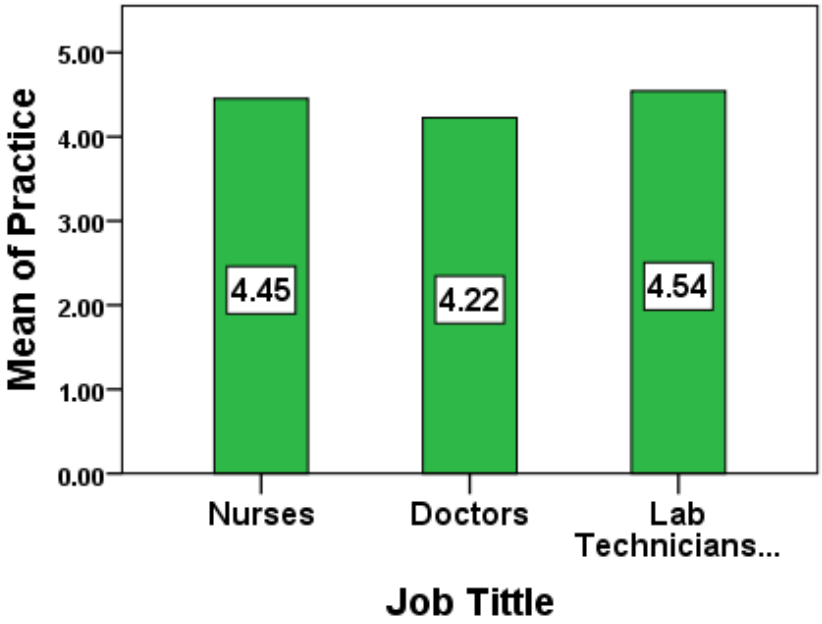

Figure 5.6: Means of response on practice scale among healthcare workers according to job tittle variable.

5.7 Knowledge and Attitude, and Practice regarding hand washing, disinfection, and sterilization

To study the effect of knowledge and attitudes at the $p \leq 0.05$ level on the practice of healthcare workers regarding hand washing, disinfection, and sterilization, the Pearson correlation coefficient was used in the first step as shown in Table (5.10). In the second step,

stepwise multiple regression was used by specifying knowledge and attitude as the independent variable and practice as the dependent variable, as shown in Table (5.11). The results shown in table (5.10) revealed that there was a significant and positive relationship between the knowledge, attitude and practice among healthcare workers in Jericho Governorate (r= 0.58, and 0.65; $p \leq 0.01$) respectively. Also, a significant and positive correlation was found between the attitude and practice among healthcare workers in Jericho Governorate (r= 0.75; $p \leq 0.01$).

Table 5.10: The relationship between knowledge, attitude, and practice among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization (n= 110).

Variables	**Knowledge**	**Attitude**	**Practice**
Knowledge	-	0.58**	0.65**
Attitude		-	0.75**
Practice			-

** Significant correlation at ($p \leq 0.01$).

The results shown in Table (5.11) indicated that there is statistically significant effect of Knowledge and attitude on the practice among healthcare workers in Jericho Governorate regarding hand washing, disinfection, and sterilization (R2 = 634; $p \leq 0.05$). These results emphasis that knowledge was an important factor contributing to explain (56.30%) of practice among healthcare workers, and the connection between knowledge and attitude was the second main factor contributing to explain (63.40%) of practice among them as shown in the figure (8).

Table 5.11: Summary of stepwise multiple regression to determine the effect of knowledge and attitude on the practice among healthcare workers (n= 110).

Model		Unstandardized Coefficients		Standardized Coefficients	**T- value**	P- value	R^2
		B	**Std. error**	**Beta**			
1	(constant) Knowledge	0.27 0.92	0.35 0.08	0.75	0.76 11.80	0.444 0.000*	0.563
2	Constant Knowledge + Attitude	-0.14 0.69 0.35	0.34 0.09 0.08	0.56 0.33	-0.43 7.80 4.56	0.0.670 0.000* 0.000*	0.634

* Significant effect at ($p \leq 0.05$).

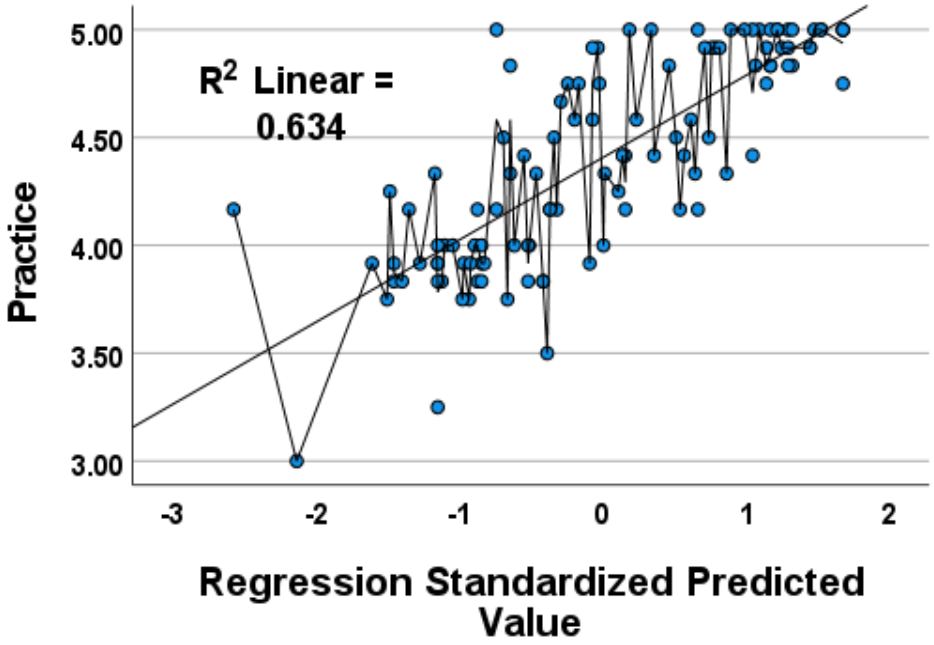

Figure 5.7: The effect of knowledge and attitude on the practice among healthcare workers regarding hand washing, disinfection, and sterilization.

5.8 All Results

The study concludes that healthcare professionals in the Jericho Governorate have a good degree of understanding of hand washing, disinfection, and sterilization. Positively, this high level of knowledge indicates that healthcare personnel are knowledgeable of the fundamental procedures needed for efficient infection control. Though information is a vital starting point, it's also critical to make sure that it is constantly applied in real-world situations.

Healthcare facilities should concentrate on promoting practical implementation through ongoing training, regular supervision, and encouraging policies in order to take use of this solid body of information. Maintaining high standards of patient care and lowering the risk of diseases linked to healthcare must depend on healthcare professionals' knowledge of and regular application of appropriate hand hygiene, disinfection, and sterilization practices. Therefore, even while the high degree of knowledge is impressive, Jericho Governorate will need to continue working to close any gaps between knowledge and practice to achieve the best possible infection control results.

Furthermore, the survey shows that healthcare professionals in the Jericho Governorate have a positive attitude towards sterilization, disinfection, and hand washing. It is encouraging to see such a positive attitude towards important infection control procedures since it shows a

strong commitment to upholding the highest standards of cleanliness and patient safety. Healthcare personnel must have a positive attitude in order to consistently apply the right-hand hygiene, disinfection, and sterilization procedures. It implies that healthcare professionals are driven to follow these procedures in addition to being aware of their significance so healthcare facilities should keep promoting a culture of safety and support and offer resources and frequent training to promote these behaviors in order to capitalize even more on this optimistic outlook.

Healthcare facilities in the Jericho Governorate can increase adherence to infection control procedures and raise the standard and safety of care by maintaining and expanding upon this optimistic outlook. Maintaining patient safety and reducing the risk of infections linked to healthcare are dependent on high levels of practice in these areas. It exhibits a dedication to upholding strict hygienic standards in day-to-day clinical activities in addition to a solid understanding of appropriate procedures.

It is critical that healthcare facilities continue to maintain this high standard of practice by offering consistent training, sufficient funding, and ongoing monitoring. Healthcare facilities in the Jericho Governorate can uphold their excellent standards and even enhance the caliber of care given to patients by reiterating these procedures and addressing any new difficulties. These findings emphasize the need of all-encompassing teaching programs that not only provide necessary knowledge but also cultivate favorable attitudes towards infection control procedures.

Healthcare institutions can improve patient outcomes by improving adherence to hand hygiene, disinfection, and sterilization standards by prioritizing both knowledge acquisition and attitude improvement. It is crucial to establish continuing training programs, promote positive attitudes, and create welcoming cultures that enable adherence to best practices in order to close the knowledge gap between theory and practice. Increasing the effectiveness and durability of the infection control plan in the medical facilities of the Jericho Governorate will be possible by fortifying these elements.

Chapter Six

6.1 Introduction and Results Summary

6.2 Conclusions

6.3 Study Limitation

6.4 Recommendations

Chapter Six: Discussion, Conclusion and Recommendations

6.1 Introduction and Results Summary

The prevention of healthcare-associated infections (HAIs) is largely dependent on hand washing, disinfection and sterilization practices. Notwithstanding its significance, healthcare workers' (HCWs') compliance may not always be at its best due to a variety of circumstances. In light of the Jericho Governorate, this conversation examines the factors that influence health care workers' (HCWs') knowledge, attitude, and practices (KAP) with regard to hand cleanliness. The results of this study indicated that the level of knowledge and behavior (KAP) among health care workers in Jericho Governorate regarding hand washing, disinfection, and sterilization was high.

The rationale is that one of the fundamental elements influencing health care workers' knowledge is their education and training. It is thought that continuing professional development is crucial to keeping medical professionals up to date on the most recent advancements. In addition, the results showed that the level of knowledge of health workers in the Jericho Health Directorate about hand washing, disinfection, and sterilization was higher than that of Jericho Hospital. This is because all primary health care staff have equal opportunities to attend training courses, workshops, as well as conferences on infection control. There are fewer possibilities for all workers to receive infection control training in hospitals due to the nature of work pressure.

The Palestinian Ministry of Health implements this strategy as part of its plan to create its own protocol for health workers and integrate them with regular refresher courses. Techniques and recommendations for hand hygiene. This finding was supported by a study carried out by (Panta G. , Richardson, Shaw, & Coope, 2022)in Nepal, which found a favorable correlation between accurate answers to some cognitive aspects and prior training in infection management. Because of their prior training, nurses were more likely than other staff members to have favorable views towards the various aspects of sterilization and reuse of medical devices.

Overall, most health care personnel had positive attitudes towards these topics. Another study by (Vashkar & Mowla, 2015) also confirmed shown that HCWs with regular training exhibit higher knowledge scores and better compliance. Health care workers' attitudes

toward hand hygiene are shaped by their awareness of its importance. If healthcare workers believe that hand hygiene directly impacts patient outcomes, they are more likely to adopt positive practices. Awareness campaigns and a person's self-confidence and ability to emphasize the consequences of poor hand hygiene can reinforce this perception. The results of the study (Yosef ,2023) agreed with the results of the current study.

The study indicated that healthcare professionals in Jericho Governorate demonstrated a high level of hand washing, disinfection and sterilization, including washing hands with soap and water before and after contact with the patient and tracking and recording sterilization cycle parameters. The Ministry of Health sought to implement a sterilization and disinfection policy, within a protocol, which is a well-defined policy that all medical personnel adhere to. While the results of a study conducted by (Shobowale, Adegunle, & Onyedibe, 2016) differed from the results of the current study, which showed low rates of workers' practices in hand hygiene, disinfection, and sterilization, and suggested that one of the reasons for this may be the absence of an educational program on hand hygiene, it is unfortunate that health care workers in developing countries.

The results showed that there is a positive relationship between knowledge and both attitude and practice among health care workers in Jericho Governorate ($r = 0.58, 0.65$; $p \geq 0.01$), respectively. A significant and positive correlation was also found between attitude and practice among health care workers in Jericho Governorate ($r = 0.75$; $p \geq 0.01$). enhanced understanding, confidence, professionalism, continuous improvement, and a supportive organizational culture that is reinforced by the knowledge found among all government medical personnel in Jericho Governorate are the driving forces behind the positive relationship between knowledge and both attitudes and practice among health care workers in the governorate.

The results of a study by (Shacho, Ambelu, & Yilma2, 2023) were consistent with the current study, as it reported that there is a positive relationship between knowledge, attitudes, and practice among health workers regarding hand hygiene, disinfection, and sterilization. the results showed that there are statistically significant disparities in the KAP level of health care workers in Jericho Governorate, with a bias towards females. Female in Palestine are under social pressure to demonstrate their competence due to cultural norms, which could encourage them to meet more demanding cognitive requirements. The results of the current study were consistent with a study by (Shacho, Ambelu, & Yilma2, 2023), which indicated

that the level of KAP in females is higher than in males. The results indicated that the level of attitudes among health care workers in Jericho Governorate in primary health care centers is higher than in the hospital, and the reason is that Primary care facilities provide a more intimate, neighborhood-focused atmosphere that allows medical staff to develop enduring bonds with their patients. Continuity of care can improve positive attitudes and job satisfaction.

In contrast, hospitals are typically high-stress, fast-paced settings that priorities acute care. Health care professionals' views may be less optimistic due to the high levels of stress and intensity associated with their employment in hospitals. The results indicated that there are statistically significant differences in the level of practice among health care workers in Jericho Governorate according to the job title variable between (nurses and doctors) in favor of (nurses), and between (doctors and laboratory technicians and others) in favor of. (Laboratory technicians and others).

There are no statistically significant differences in the level of practice between (nurses and laboratory technicians and others), The type of training received, the specialized nature of the positions, and the frequency of practical tasks performed are likely to have an impact on the variations in practice levels among healthcare personnel in the Jericho Governorate based on job title. Due to their routine patient care responsibilities, nurses have a high level of practice; lab technicians and other professionals are proficient in particular technical tasks; and doctors, despite their high level of skill, devote more of their time to treatment planning and diagnosis than to routine procedural tasks.

6.2 Conclusions

The purpose of this study was to investigate the variables affecting healthcare professionals' knowledge, attitude, and practice (KAP) in the Jericho Governorate in relation to hand washing, disinfecting, and sterilizing. this study has revealed a number of important factors influencing these vital areas of infection control, which are essential for both patient safety and the general standard of healthcare. Knowledge was strongly correlated with educational attainment and ongoing professional development. Healthcare professionals with higher educational backgrounds and regular training program participation showed a superior comprehension of proper hand hygiene, disinfection, and sterilization practices.

This emphasizes how crucial continuing education and training initiatives are to upholding strict infection control guidelines. The institutional rules and the presence of role models had a significant impact on the attitude of healthcare professionals towards hand cleanliness and sterilization. Staff members became more proactive and accountable when they followed the hospital's strict, well-defined procedures and received positive reinforcement from their supervisors. This emphasizes how important it is for healthcare facilities to develop a culture of safety and compliance as well as to create and implement thorough infection control strategies.

The institutional rules and the presence of role models had a significant impact on the attitude of healthcare professionals towards hand cleanliness and sterilization. Staff members became more proactive and accountable when they followed the hospital's strict, well-defined procedures and received positive reinforcement from their supervisors. This emphasizes how important it is for healthcare facilities to develop a culture of safety and compliance as well as to create and implement thorough infection control strategies. A multidimensional strategy is needed to improve the knowledge, attitude, and practice of healthcare workers in the Jericho Governorate.

Important elements include resource provision, a pleasant workplace culture, strong institutional policies, and educational activities. Healthcare institutions can greatly enhance their infection control procedures and protect the health of their patients and staff by taking these things into consideration. In order to evaluate the long-term effects of these treatments and investigate other variables that can affect healthcare professionals' knowledge of infection control practices, future research should concentrate on longitudinal studies.

6.3 Study Limitation

Even though this study on the variables influencing healthcare professionals' knowledge, attitudes, and practices about hand washing, disinfecting, and sterilizing in Jericho Governorate was thorough, there are a few limitations that should be noted:

- **Sample size and generalizability:** The results cannot be applied to all healthcare professionals in other regions due to the small sample size. Results may not be generalizable to a broader range of West Bank governorates due to the unique work settings and demographics of participants.

- **Self-Reported Data:** A significant portion of the study's data comes from self-reports, which are prone to response bias. People may exaggerate their knowledge, attitudes, and behaviors because of social desirability bias or because they are afraid of the consequences.
- **Cross-Sectional Design:** The study's cross-sectional design only offers a moment in time and is unable to prove a causal relationship between the variables under investigation and the results. Studies with a longitudinal design would be required to identify causal links.
- **Different Healthcare environments:** Healthcare professionals work in a range of environments, each with its own resources and problems, including clinics, hospitals, and primary care facilities. The findings' applicability to other kinds of healthcare facilities may be impacted by this diversity.
- **Restricted Scope of Investigation:** Organizational policies, training initiatives, patient loads, and other factors that may also have a major impact on healthcare workers' behavior are not included in this study, which concentrates on facets of knowledge, attitude, and practice.

Summary

up order to contextualize the results, direct future research to fill up these gaps and expand on the knowledge obtained from this study, it is imperative that these limitations be acknowledged

6.4 Recommendations

Healthcare facilities in the Jericho Governorate can enhance patient safety and lower the risk of infections linked to healthcare by putting these recommendations into practice and improving the knowledge, attitudes, and hand washing, disinfection, and sterilization practices of their staff. The recommendations can be divided into several levels:

First, At the Ministry of Health level.

- Implement Continuous Training and Education Programs by Develop required, regularly scheduled training programs concentrating on hand washing, disinfection,

and sterilization. These programs should be updated routinely to reflect the newest evidence-based standards and best practices.

- Considering the current political climate facing the Palestinian health sector, the Ministry of Health in Palestine should work with local institutions to establish committees from the same governorate to oversee the implementation of monitoring systems to track resource availability, promptly address shortages of soap, alcohol, and disinfection devices, and maintain them.
- Given the results that showed that the level of knowledge of employees in the Jericho Health Directorate is higher than the level of knowledge of health workers in hospitals, the Ministry of Health must implement rotation between employees of the Jericho Health Directorate and Jericho Hospital in order to exchange knowledge, especially in light of the current political circumstances facing the Ministry Palestinian Health, where implementing training programs is difficult.

Second: At the hospital management level

- To improve awareness among healthcare professionals, hospital administrations should impose mandatory ongoing training courses for all medical staff on hand hygiene, disinfection and sterilization procedures.
- Establish a system that includes direct monitoring and routine auditing to ensure that hand washing, disinfection and sterilization procedures are followed. On the basis of these observations, useful criticisms are offered.
- The hospital administration must not monopolize training courses for employees with authority, everyone must be involved in these training courses.

Third: At the level of quality control

- regular surveillance and monitoring are required in order to spot and address any inconsistencies or deviations from the Palestinian Ministry of Health's established norms, whether at the Jericho Health Directorate or Jericho Hospital,
- The Quality Control Committee must ensure the implementation of all protocols in force in the Ministry of Health, and ensure any shortage in resources that serve infection control in hospitals in particular.

Fourth: At the level of further studies

- It is highly recommended to conduct more studies and research based on surveys and observations to shed light on the factors that determine health care workers' knowledge, attitudes and practices regarding hand washing, disinfection and sterilization in public and private hospitals in Palestine.

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Annexes

Annex "A": Consent form

جامعـــة القـــدس

دعوة للمشاركة في الدراسة: العوامل التي تحدد معرفة واتجاهات وممارسات العاملين في الرعاية الصحية فيما يتعلق بغسل اليدين والتطهير والتعقيم في محافظة أريحا

السلام عليكم ورحمة الله وبركاته،

أخي/ أختي المشارك/ة:

أنا الباحث "أحمد فيصل محاليس" طالب ماجستير في مكافحة العدوى والوقاية منها يسرني أن أدعوك/ي إلى المشاركة في بحثي بعنوان "العوامل التي تحدد معرفة واتجاهات وممارسات العاملين في الرعاية الصحية فيما يتعلق بغسل اليدين والتطهير والتعقيم في محافظة أريحا" ولك/ي كامل الحرية والإرادة في المشاركة في هذا البحث، ولك/ي الحق في أخذ الوقت الكافي للتفكير في المشاركة من عدمها، وسؤال الباحث اذا كان لديك/ي أي استفسار، والتحدث لأي شخص أو جهة عن هذا البحث مع العلم ان المشاركة طوعية وفي حال قمت/ي بالمشاركة، يحق لك الانسحاب في أي وقت.

كما يمكنك الاستفسار من الباحث عن أي جزء يتعلق في البحث الآن أو فيما بعد، وستجد/ين الوقت والإجابة الكافيتين.

رقم هاتف الباحث: 0568861998

البريد الالكتروني: Ahmad.mhalees@gmail.com

هذا ويضمن البحث سرية المعلومات المتعلقة بالمشاركة

نموذج الموافقة على المشاركة بالدراسة

عزيزي المشارك،

قبل الموافقة على المشاركة يجب أن تكون على علم بالآتي:

المشاركة في هذه الدراسة تطوعية ويمكنك الانسحاب من المشاركة في أي وقت دون أبداءً الأسباب.

الدراسة تعتمد على الاستجابة لهذه الاستبانة فقط، ولا يوجد أي تدخل علاجي أو سحب لأي عينة.

ستراعى الخصوصية التامة ولن تستخدم البيانات لأي غرض آخر غير هذه الدراسة.

توقيع المشارك/ _____ التاريخ --/ --/----
توقيع جامع البيانات / _____ التاريخ --/ --/----

Annex "B": English questionnaire

جامعـــة القـــدس

العوامل التي تحدد معرفة واتجاهات وممارسات العاملين في الرعاية الصحية فيما يتعلق بغسل اليدين والتطهير والتعقيم في محافظة أريحا 2024

Demographic characteristics
Gender
Male
Female
Age

Job title
Physician
Nures
Pharmacist
X-Ray radiologist
laboratory technician

Institution name
Primary health care gouvernante.
Jericho Governmental Hospital

Years of Experience

Educational level
diploma
Bachelor's
Postgraduate (Master or PHD)

Study questionnaire

Domain	Statement	Strongly agree	agree	Neutral	Dis agree	Strongly dis agree
KNOWLEDGE	1--I understand the importance of handwashing in preventing healthcare-associated infections (HAIs).					
	2- I am aware of the recommended duration for handwashing with soap and water.					
	3--I know the proper technique for handwashing, including key areas to focus on.					
	4--I am familiar with the indications for using alcohol-based hand rub (ABHR) versus soap and water					
	5- I understand the difference between cleaning, disinfection, and sterilization.					
	6- I am aware of the appropriate disinfectants to use for different surfaces and equipment					
	7--I know the recommended contact time for disinfectants to effectively kill pathogens.					
	8- I receive adequate training on disinfection protocols in my workplace.					
	9- I understand the difference between disinfection and sterilization.					
	10- I am familiar with the recommended sterilization methods for different medical equipment and instruments					
	11- I know the appropriate sterilization cycle parameters (e.g., time, temperature, pressure) for different types of sterilizers.					
	12--I receive adequate training on sterilization protocols in my workplace.					
	1- I believe that handwashing is one of the most effective measures for preventing the					

Attitude	spread of infections in healthcare settings.					
	2- I feel responsible for ensuring that I and my colleagues adhere to proper hand hygiene practices.					
	3- I believe that there is a need for ongoing education and reminders to reinforce the importance of hand hygiene.					
	4--I believe that proper disinfection procedures are essential for preventing healthcare-associated infections (HAIs).					
	5- I feel confident in my ability to perform disinfection procedures correctly.					
	6--I believe that there should be regular audits and monitoring of disinfection practices in our healthcare facility.					
	7- I believe that proper sterilization procedures are essential for preventing healthcare-associated infections (HAIs).					
	8- I feel confident in my ability to perform sterilization procedures correctly.					
	9- I believe that regular audits and monitoring of sterilization practices should be conducted in our healthcare facility.					
PRACTICSE	1- Washing hands with soap and water before and after patient contact.					
	2- Using alcohol-based hand rub (ABHR) when soap and water are not readily available.					
	3- Adhering to the recommended duration for handwashing.					
	4- Encouraging patients and visitors to practice hand hygiene. 5- Cleaning and disinfecting patient care areas between each patient.					
	6- Using personal protective equipment (PPE) when handling and applying disinfectants.					
	7--Ensuring proper ventilation in areas where disinfectants are used to prevent exposure to fumes					
	8- Following manufacturer instructions for dilution and application of disinfectants					
	9- Monitoring and documenting sterilization cycle parameters.					

	10- Proper packaging and labeling of items before sterilization.					
	11- Performing biological and chemical indicators to ensure sterilization efficacy.					
	12--Ensuring proper storage and handling of sterilized items to prevent contamination.					

Annex “C”: Faculty of Graduate studies approval & IRB approval

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 13/2/2024
الرقم: REF.8/24

عزيزي الطالب احمد محاليس المحترم
برنامج ماجستير الوقاية وضبط الامراض المعدية

الموضوع: موافقة لجنة اخلاقيات البحث العلمي

قامت اللجنة الفرعية لأخلاقيات البحث التابعة لكلية الصحة العامة بمراجعة مشروع الرسالة بعنوان:

"Factors determining Healthcare workers' knowledge, attitude, and practice regarding disinfection and sterilization in Jericho Governorate"

المقدم من (مشرف البحث/د. اسعد رملاوي).

يعتبر مشروعك مستوفيًا لمتطلبات أخلاقيات البحث في جامعة القدس.

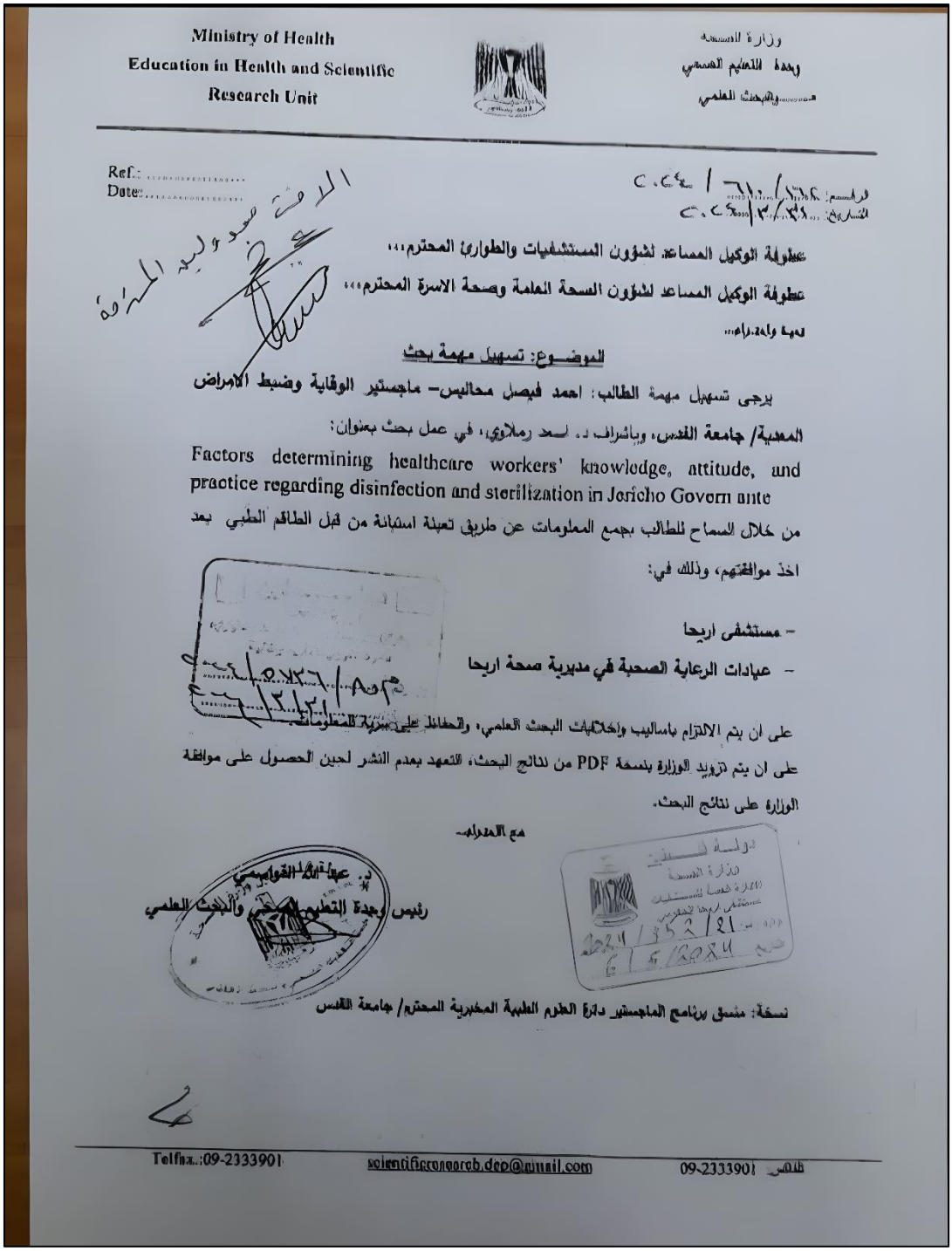
نتمنى لكم كل التوفيق في تسيير المشروع.

ملاحظة: في حالة الحاجة الى موافقة من اللجنة المركزية في الجامعة، تستطيع التقدم باستخدام هذه الموافقة على الرابط: https://research.alquds.edu/en/ethics/48-how-to-apply.html

رئيسة اللجنة الفرعية لاخلاقيات البحث
كلية الصحة العامة
د. نهى الشريف

نسخة/ أعضاء لجنة البحث
نسخة/ الملف

Annex"D": Task facility of the General Administration of Health Education and Scientific Research



Ministry of Health
Education in Health and Scientific
Research Unit

وزارة الصحة
وحدة التعليم الصحي
والبحث العلمي

Ref.:
Date:

عطوفة الوكيل المساعد لشؤون المستشفيات والطوارئ المحترم،،،

عطوفة الوكيل المساعد لشؤون الصحة العامة وصحة الاسرة المحترم،،،

تحية واحترام،،،

الموضوع: تسهيل مهمة بحث

يرجى تسهيل مهمة الطالب: احمد فيصل محاليس- ماجستير الوقاية وضبط الامراض المعدية/ جامعة القدس، وبإشراف د. اسعد رملاوي، في عمل بحث بعنوان:

Factors determining healthcare workers' knowledge, attitude, and practice regarding disinfection and sterilization in Jericho Govern orate

من خلال السماح للطالب بجمع المعلومات عن طريق تعبئة استبانة من قبل الطاقم الطبي بعد اخذ موافقتهم، وذلك في:

- مستشفى اريحا
- عيادات الرعاية الصحية في مديرية صحة اريحا

على ان يتم الالتزام بأساليب وأخلاقيات البحث العلمي، والحفاظ على سرية المعلومات.

على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة الوزارة على نتائج البحث.

مع التقدير،،،

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

نسخة: منسق برنامج الماجستير دائرة العلوم الطبية المخبرية المحترم/ جامعة القدس

Telfax.:09-2333901 scientificresearch.dep@gmail.com 09-2333901 تلفاكس

العوامل التي تحدد معرفة واتجاهات وممارسات العاملين في الرعاية الصحية فيما يتعلق بغسل اليدين والتطهير والتعقيم في محافظة أريحا

إعداد: أحمد فيصل عبد الرحمن محاليس

إشراف: د. أسعد رملاوي

الملخص

المقدمة: من أجل ضمان سلامة المرضى وخفض عدد الإصابات المرتبطة بالرعاية الصحية(HAIs) ، تعد إجراءات الوقاية من العدوى ومكافحتها (IPC) ضرورية لتوفير الرعاية الصحية. إن إجراءات IPC الأساسية بما في ذلك غسل اليدين والتطهير والتعقيم تقلل بشكل كبير من فرصة انتقال العدوى في بيئات الرعاية الصحية. ومع ذلك، فإن معرفة المتخصصين في الرعاية الصحية ومواقفهم وممارساتهم (KAP) لها تأثير كبير على مدى نجاح هذه القياسات. الهدف من هذه الدراسة هو تقييم العوامل التي تؤثر على معرفة واتجاهات وممارسات العاملين في مجال الرعاية الصحية والمستشفيات (KAP) فيما يتعلق بغسل اليدين والتطهير والتعقيم في محافظة أريحا.

منهجية البحث: في دراسة وصفية مقطعية، شملت على 110 عينة من العاملين الصحيين (الأطباء والممرضات وفنيي المختبرات وفنيي الأشعة والصيادلة). تم استخدام تقنية أخذ العينات الملائمة. وتم الحصول على كافة الموافقات اللازمة (لجنة الأخلاقيات في جامعة القدس "IRB" ومن الإدارة العامة للتثقيف الصحي والبحث العلمي في وزارة الصحة). قبل البدء بتوزيع أي أداة. تم استخدام التحليل الوصفي (الوسائل والانحراف المعياري) باستخدام برنامج SPSS V26، حيث تم استخدام معامل ارتباط بيرسون، لدراسة العلاقات كما تم استخدام اختبار سيداك هوك واختبار ANOVA أحادي الاتجاه.

النتائج: أشارت النتائج إلى أن مستوى المعرفة والسلوك والممارسات بين العاملين في مجال الرعاية الصحية في مديرية صحة اريحا ومستشفى اريحا الحكومي في مدينة أريحا فيما يتعلق بغسل اليدين والتطهير والتعقيم مرتفع. كما أشارت النتائج إلى وجود علاقة إيجابية بين المعرفة والاتجاه والممارسة لدى العاملين في مجال الرعاية الصحية في محافظة أريحا ($r = 0.58$).

التوصيات: يفتقر الطاقم الصحي في مستشفى أريحا إلى المعرفة الكافية في مجال التطهير والتعقيم. ولذلك فمن المهم إجراء التدريبات وورش العمل فيما يتعلق بموضوع مكافحة العدوى في المستشفيات بشكل منظم.

الكلمات المفتاحية: KAP، الوقاية من العدوى ومكافحتها (IPC)، العاملون الصحيون، المستشفى، الرعاية الصحية الأولية، غسل اليدين. تطهير، تعقيم، فلسطين