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Knowledge, Attitudes, and Practices Towards Antimicrobial Stewardship Among Healthcare Workers in Hebron Governorate Governmental Hospitals

Fatima Ahmad Mohammad Abu-Sabha

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Prepared by:

Fatima Ahmad Mohammad Abu-Sabha

B.Sc. In Nursing-Ibn Sina College-Nablus/ Palestine

Supervisor: Prof. Maher Al-Khdour

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Thesis Approval

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Prepared by: Fatima Ahmad Mohammad Abu-Sabha

Registration No: 22112785

Supervisor: Prof. Maher Al-Khdour

Master's thesis submitted and accepted, Date: 12-4-2025

The names and signatures of the examining committee members are as follows:

1	Head of the Committee:	Prof. Maher khdour	Signature:	
2	Internal Examiner:	Dr. Hussain Hallak	Signature:	
3	External Examiner:	Prof. Sa'ed Zyoud	Signature:	

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Dedication

to my beloved parents, who have continuously provided their moral, spiritual, emotional, and financial support to me, providing me with inspiration and strength when I was considering giving up. Thank you also to my husband, brothers, sisters, relatives, mentors, friends, and classmates who have given me words of encouragement and advice.

With deep love,

Fatima Ahmad Mohammad Abu-Sabha

Declaration

I declare that this thesis resulted from my research effort unless otherwise indicated. It has been submitted only to one university for a master's degree, not for any other higher degree or other university or institution.

Name: Fatima Ahmad Mohammad Abu-Sabha

Signed: 

Date: 12-4-2025

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Abstract

Background: Antimicrobial resistance (AMR) is one of the world's most serious and urgent problems caused by the misuse, abuse, and overuse of antimicrobials. To prevent and limit the spread of AMR, the appropriate choice of antimicrobial drugs is critical to optimize the treatment of the infection. new strategies must be developed urgently, as several associations support adopting antimicrobial stewardship (AMS) programs within hospitals. Consequently, healthcare workers (HCWs) must possess high-quality knowledge, attitudes, and practices (KAPs) to improve future antimicrobial use and reduce AMR.

Aim: This study aimed to assess knowledge, attitudes, and practices toward antimicrobial stewardship among healthcare workers in Hebron Governorate Governmental Hospitals.

Methodology: This study was descriptive analytics, cross-sectional, questionnaire-based study conducted in the Hebron governorate governmental hospital for six months with a sample size of 285, which included Nurses, doctors, pharmacists, and lab technicians. The questionnaire included sociodemographic characteristics, 20 questions about knowledge, 9 questions about attitude, 15 about practice, and 10 about barriers to AMS implementation. Additionally, Statistical analysis of the data was performed using the statistical package for social sciences IBM (SPSS) version 20, by using Descriptive statistics, one-way analysis of variance (ANOVA) and the Tukey test, the t-test, and Cronbach's alpha.

Result: The study involved a sample of 285 HCWs, with a demographic breakdown showing a slight majority of females (53%) and a significant representation of nurses (60.4%). Also, most respondents were aged 31-40 years (40.7%) and married (71.6%). Most held a bachelor's degree (78.9%) and had 10-15 years of experience (40.4%). Overall, HCWs demonstrated a high level of knowledge, attitudes, and practices regarding AMS, with a mean score of 4.02. Knowledge was ranked highest with a mean of 4.30, followed by attitudes with a mean score of 4.05 and practices with a mean score of 3.85. Also, the study found no statistically significant differences in knowledge, attitudes, and practices based on gender, age, marital status, or years of experience. However, significant differences were noted based on profession (p value = 0.041), with nurses scoring higher than doctors, pharmacists, and laboratory technicians. In addition to that, the study identified several

barriers to implementing AMS, with a mean score of 3.92. Key barriers included public access to antimicrobials without prescriptions and limited acceptance of AMS by patients.

Conclusion: need for ongoing educational programs and institutional support to strengthen AMS practices among HCWs in Hebron governmental hospitals. By addressing the identified gaps and barriers, healthcare institutions can enhance the quality of care, reduce the incidence of AMR, and ultimately improve patient outcomes. The findings contribute valuable insights for policymakers and healthcare administrators aiming to develop effective strategies for antimicrobial stewardship.

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List of abbreviations

AMS: Antimicrobial stewardship

ASPs: Antimicrobial stewardship programs

AMR: Antimicrobial Resistance

KAP: knowledge, attitude, and practice

HCPs: Healthcare professionals

MDROs: Multi-drug-resistant organisms

MRSA: Methicillin-Resistant Staphylococcus Aureus

DDDs: Defined Daily Dose

APIC: Association for Professionals in Infection Control and Epidemiology

Chapter One

Introduction

1.1 Background

Antimicrobials are therapeutic substances used to prevent or treat infectious diseases by killing microorganisms or preventing their growth, which include antiseptics, antibiotics, antivirals, antifungals, and antiparasitic (Di Martino, 2022). A unique characteristic of antimicrobials is the ability to not only restore a patient's quality of life but also has been proven to save lives in severe infectious conditions(Al-Harthi et al., 2013).

Modern health care cannot be provided without antimicrobial agents; they should be used correctly, and overuse and misuse should be avoided when treating infections to prevent antimicrobial resistance (Hood & Khan, 2020). Nevertheless, the rate of misusing antibiotics in hospitals, including over-prescription and failure to de-escalate, has remained unchanged at 50%(Nathwani et al., 2019). However, worldwide extensive development of resistance to antimicrobial agents has been observed in recent decades, along with the slow growth of alternative non-antimicrobial treatment options(Grabe & Resman, 2019).

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi, and parasites no longer respond to antimicrobial medicines"(WHO, 2023). It is an escalating threat globally caused by the injudicious and irrational use of antimicrobials, incorrect clinical indication, dosing, and administration, and non-compliance of patients(Balliram et al., 2021). However, concerns arise about AMR in human and animal health, the food industry, and agriculture. AMR negatively affects treatment, increases morbidity and mortality, and requires more expensive treatments(Balliram et al., 2021).

Global public health has been threatened by a silent pandemic of antimicrobial-resistant bacteria during the 21st century, although it has been ranked third as the leading cause of death after cardiovascular diseases, necessitating urgent action (Salam et al., 2023). The rise in AMR has caused more than 2.8 million infections and 35,000 deaths annually from 2012 through 2017(IDSA, 2022). In addition to that, the World Bank estimates that there will be up to one trillion US dollars in global increases in healthcare costs by 2050 due to AMR(Porooshat, 2019).

To address the combined problems of the expanding AMR, the dwindling supply of antimicrobials, and the suboptimal use of antimicrobials in clinical practice, the AMS program has been proposed as a solution., and it includes policies, guidelines, surveillance, prevalence reports, education, and audit of practice(Dyar et al., 2017). These programs have been developed and implemented successfully, and they have had corresponding impacts in most high-income settings. The WHO released a global action plan in 2015 that combines AMS interventions. However, due to the lack of resources, it has not yet been fully implemented and tested in most low- and middle-income countries(Kpokiri et al., 2022).

Antimicrobial stewardship (AMS) is defined as "coordinated interventions designed to improve and measure the appropriate use of antimicrobial agents by promoting the selection of the optimal antimicrobial drug regimen, including dosing, duration of therapy, and route of administration"(Dyar et al., 2017). A three-fold goal of AMS. First, it is to facilitate the use of the most appropriate antimicrobial with the appropriate dose and duration in collaboration with healthcare practitioners. A second is to prevent overuse, misuse, and abuse of antimicrobials. A third goal is to prevent resistance from developing (Doron & Davidson, 2011).

Several issues determine the success of AMS programs, including the multidisciplinary approach; health care workers' (HCWs) knowledge, attitudes, and practices (KAP); health structure challenges; lack of policy implementation; and inadequate control systems and governance(Tembo et al., 2022). Accordingly, Health care professionals (HCPs), namely doctors, pharmacists, and nurses, are responsible for prescribing, dispensing, and administering antimicrobial medicines to patients. They must be knowledgeable and up-to-date about issues related to antimicrobials, AMR, and AMS(Balliram et al., 2021).

To evaluate hospital-wide AMS effectively, regular surveys of knowledge, beliefs, attitudes, and perceptions are essential(Setiawan et al., 2022). Also, It is critically important to conduct studies that address the knowledge, attitudes, and practices (KAPs) of antimicrobial users and prescribers to identify risky behaviors and target them for intervention(Kemp et al., 2021). So the KAP survey is an investigation of a specific population designed to gather information on knowledge, beliefs, and practices related to a particular subject(Firouzabadi & Mahmoudi, 2020).

1.2 Study problem:

Globally, AMR is among the top threats to public health and development. It is estimated that bacterial AMR had a direct effect on 1.27 million deaths in 2019 and contributed to 4.95 million deaths (Murray et al., 2022). This issue is responsible for 700,000 deaths a year and could reach 10 million by 2050 if sustained efforts to contain it are not taken(Talaat et al., 2022).

In Palestine, there were 346 deaths attributable to AMR and 1,400 deaths associated with AMR during 2019(Institute for Health Metrics and Evaluation, 2011). However, multidrug-resistant organisms (MDROs) were detected in 51.5% of gram-negative bacteria and 68.4% of gram-positive bacteria isolates in Palestine. Among the isolates of Pseudomonas aeruginosa, Acinetobacter baumannii was the most resistant to ciprofloxacin and carbapenems, with 16% cefepime and 24% ceftazidime showing resistance(Arman et al., 2022). In addition, in the two burn units of a teaching hospital in this country, Most of the pathogens isolated from patients and the environment were resistant to almost all antibiotics

except piperacillin-tazobactam, as well as 60% of patients had Methicillin-Resistant Staphylococcus aureus (MRSA)(WHO, 2020).

Containing and mitigating AMR requires AMS practices and principles, which have successfully enhanced antimicrobials' appropriate use(Majumder et al., 2020). However, the strengthening of these antimicrobial stewardship programs (ASPs) is challenging due to the frequent shortage of HCWs' knowledge and practice in AMS, the lack of electronic medical records, as well as the absence of national public health policies to cope with AMR (Pallares et al., 2022).

It has been reported that students in HCPs do not receive adequate education in the field of AMS, optimal antimicrobial use, and AMS. In the early stages of a health professional's career, education and training should be provided to shape their attitudes and behaviors, as well as prepare them with AMS principles and strategies (Castro-Sánchez et al., 2016). Hence, HCWs' knowledge, attitude, and practice of AMR and AMS must be assessed to develop these programs, as well as how to diagnose and treat infections in low-resource settings (Gulleen et al., 2022).

1.3 Study Justification:

The 1980s saw several advances in antimicrobial therapy, from third-generation cephalosporins to new fluoroquinolones. However, the widespread use of these drugs caused new problems in the 1990s (Ashraf et al., 2022). Then, as a result of their widespread use, AMR has caused mortality, morbidity, and financial losses (Firouzabadi & Mahmoudi, 2020).

In Palestine, 60% of Staphylococcus aureus isolated from patients were MRSA. In addition, Amoxicillin/clavulanic acid, ciprofloxacin, cefotaxime, and ceftriaxone resistance rates in E. coli were 12.2, 17.2, 11.1, and 11.1%, respectively. Furthermore, Resistance rates among human and poultry isolates were 59% and 51% for ampicillin, 31% and 10% for gentamicin, 59% and 80% for tetracycline, 59% and 45% for nalidixic acid, and 30% and 15% for ciprofloxacin, respectively(Nigeria Centre for Disease Control (NCDC), 2017). Additional information, According to a study conducted in the Gaza Strip, Staphylococcus aureus

isolates were highly resistant to amoxicillin (73.2%), and Streptococcus pneumonia isolates were highly resistant to penicillin (40.4%)(Arman et al., 2022).

A study about the AMR in the bacteria isolated from clinical samples and hospital environments in Gaza/Palestine showed that Several types of multidrug-resistant gram-negative bacteria were observed, including E. coli, Enterobacter spp., Klebsiella spp., Acinetobacter spp., and Pseudomonas aeruginosa. Also, Gram-positive bacteria included vancomycin-resistant enterococci and methicillin-resistant Staphylococcus aureus (Elmanama et al., 2021). Therefore, Numerous initiatives and plans have been created over time to reduce AMR and encourage the responsible and efficient use of antibiotics. AMS has been attracting considerable interest as one of the most important strategies for combating AMR(Ababneh et al., 2021).

Based on a study aimed to evaluate the effect of ASPs on antibiotic consumption, the costs of antibiotic expenditure, and the sensitivity of antimicrobials at An-Najah National University Hospital, and tertiary care hospital in the West Bank showed that the ASPs reduced costs and antimicrobial consumption while not statistically significantly affecting mortality(Aiesh et al., 2023).

According to a study that measured knowledge, perceptions, and attitudes of medical students in Palestinian universities towards antimicrobial resistance and stewardship recommended that there is a need to conduct more studies to improve students' awareness, perceptions, and attitudes towards antimicrobial resistance and antimicrobial stewardship (Abuawad et al., 2024). Another study made recommendations for the Palestinian Ministry of Health about the importance of obtaining periodic monitoring of the attitudes and practices of HCPs towards the prescription of antimicrobials in all governmental and private health institutions(Sbitan, 2018).

It is worth noting that in Palestine, there is just one published study about the KAP towards AMS among HCWs, which was done in one hospital, which is Beit Jala Hospital. Thus, this study will provide another perspective on this topic in many other governmental hospitals, also necessary to inform decision-makers about the KAP of HCWs about AMS at Hebron

governorate governmental hospitals, so that gaps can be identified and contained by educational intervention.

It is thought that the results of this study will help patients by identifying problems associated with the inappropriate use of antimicrobials, since there is a lack of similar studies in this area. Overall, the results of this study will support the development of effective strategies to reduce healthcare costs linked to AMR without adversely affecting patient safety and quality of care.

1.4 purpose of the study:

This study aimed to assess knowledge, attitudes, and practices toward antimicrobial stewardship among healthcare workers in Hebron governorate governmental hospitals.

1.5 Study Objectives:

a. To gather baseline information on the knowledge of healthcare workers about AMS.
b. To assess the attitude of healthcare workers regarding AMS.
c. To assess the level of practice of healthcare workers regarding antimicrobial stewardship.
d. To determine the correlation between knowledge and attitude, and practice of HCWs toward AMS.
e. To identify the correlation between AMS and demographic characteristics, including age, gender, social status, profession, degrees and certificates, and years of experience.
f. To provide information on needs, issues, and barriers related to the AMS.

1.6 Study Question

a. What is the level of knowledge, attitudes, and practices of healthcare workers regarding AMS in governmental hospitals within Hebron Governorate?
b. Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in

governmental hospitals within the Hebron Governorate attributed to the study variables (gender, age, marital status, profession, workplace, educational qualification, years of experience)?

c. What is the level of barriers to implementing antimicrobial management?

1.7 Study Hypotheses

a. There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the average ratings of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable gender.
b. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of age.
c. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of marital status.
d. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of (profession)
e. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable of workplace.
f. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable educational qualification.
g. There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable of years of experience.

Chapter Tow

Literature Review

2.1. Introduction:

Most countries have a problem with antimicrobial drugs that are available over the counter, and self-medication is very prevalent. Plus, Inappropriate prescription practices among physicians are widespread(Talaat et al., 2022). Worldwide antibiotic consumption increased by 65% between 2000 and 2015, and the use of last-resort antibiotics increased across all countries. Stewardship metrics are needed to improve the use of antibiotics throughout healthcare (Tacconelli & Pezzani, 2019).

The ASPs have become a fundamental pillar for optimizing antimicrobial use, improving patient care, and reducing resistant bacteria(Pallares et al., 2022). Globally, ASPs are being implemented by health systems, primarily in hospitals, to address the threat of AMR. Therefore, HCWs' knowledge, attitude, and behavior are critical in mediating antimicrobial use(Yau et al., 2021).

Many research articles discuss AMS programs and explain their importance and benefits for AMR. In this chapter, I will review the literature related to the topic, which includes international and regional studies that describe healthcare workers' knowledge, attitudes, and practices regarding AMS.

Researchers will review several aspects in this section, which include: first, antimicrobial resistance and AMS. Second, knowledge, attitudes, and practices of HCWs towards AMS. Finally, the barrier that faces the implementation of AMS.

2.2. Antimicrobial resistance and AMS:

A study conducted by Shlaes (1999), The Role of AMS in the Prevention and Control of Antibiotic Resistance, shows that computer-assisted antibiotic ordering systems and selective removal or use control of specific agents can effectively reduce resistance.

Paskovaty et al. (2005) prepared a study about the (Multidisciplinary Approach to Antimicrobial Stewardship: Evolution into the 21st Century) shows the impact of ASPs on AMR, which thus representing over seven years, the stewardship led to a significant decrease in the overall consumption of third-generation cephalosporins and aztreonam, from 24.7 to 6.2 defined daily dose (DDDs) per 1000 patient-days. This was associated with lower rates of nosocomial infections caused by ceftazidime-resistant Enterobacteriaceae. On the other hand, Multidisciplinary ASPs report favorable economic benefits related to decreased antibiotic consumption and shorter hospital stays. By reducing antimicrobial use, it is possible to control resistant organisms. And the restriction of cephalosporins significantly reduced multiple-resistant nosocomial Klebsiella

The Evidence Base and Case Studies study was conducted by Ohl & Ashley. (2011) about Antimicrobial Stewardship Programs in Community Hospitals. They conducted a case study on three different hospitals in types and sizes, and the result was that ASPs in these hospitals reduce antimicrobial use, improve patient outcomes, and have the potential to prevent and control the emergence of antimicrobial-resistant organisms. In addition to that. The evidence base showed that Several studies have found that effective antimicrobial stewardship can decrease antimicrobial resistance, which is a significant accomplishment. In detail, studies

show that restricted access to all cephalosporins reduces the incidence of cephalosporin-resistant Klebsiella spp. colonization and infection. Likewise, with restricted access to ceftriaxone and ceftazidime over 5 years It was effective in decreasing the use of these medications by 95% for ceftriaxone and 97% for ceftazidime at the community hospitals, and the prevalence of extended-spectrum b–lactamase–producing Escherichia coli and Klebsiella species decreased by a 22% at the community hospitals.

It was mentioned in an article written by File et al., (2014) about (Antimicrobial Stewardship: Importance for Patient and Public Health) that patients in hospitals are at risk from Clostridium difficile and the outbreak of the BI/NAP1 epidemic strain of Clostridium difficile has resulted in sharp increases in morbidity and mortality rates in the United States. Also, the CDC estimates that there are 250,000 C. difficile cases resulting in 14,000 deaths among hospitalized patients each year in the United States. Hence, AMS has proven highly effective in combating Clostridium difficile. In addition to that, several single-center studies in the United States show that stewardship programs have reduced Clostridium difficile rates significantly. More impressively, US national data indicate even greater reductions in Clostridium difficile associated with reducing the use of key antibiotics.

A study by Nathwani et al. (2019) entitled Value of Hospital AMS, a Systematic Review that evaluates the economic and clinical impact of ASPs. in this study, 22 studies out of one hundred forty-six studies measured relevant outcomes related to AMR, which showed that following implementation of a hospital ASP, 11 (61%) had statistically significant changes in AMR, and half reported a decrease in resistance for at least one microbial strain to an antimicrobial. In two (11%) of the studies, resistance to one antimicrobial decreased while resistance to another antimicrobial increased.

Zay Ya et al. (2023) in their systematic review and meta-analysis, aimed to synthesize current evidence regarding the association between AMS and the consumption of antibiotics globally. Their review included a 52-study and they found that the use of ASPs reduced antibiotic consumption in both hospital and non-hospital environments, antibiotic prescriptions were reduced by 10%, and antibiotic consumption was reduced by 28%. Furthermore, ASPs were associated with a 21% reduction in antibiotic consumption in

pediatric hospitals and a 28% reduction in antibiotics consumed by the World Health Organization watch list.

2.3. Second, knowledge, attitudes, and practices of HCWs towards AMS:

A study was conducted by Abbo et al. (2012) that aimed to assess clinical nurse practitioners' attitudes, perceptions, and knowledge toward antibiotic use, antimicrobial resistance, and antimicrobial stewardship interventions in a large, university-affiliated, tertiary care, urban hospital. Nearly all respondents agreed that antibiotic resistance is a local and national problem, expressed concern about local resistance when prescribing antibiotics, and determined that antibiotics should be used more appropriately to reduce resistance. Anaerobic infections and gram-negative bacteremia are poorly managed due to a lack of knowledge. Further, only 17% of respondents from nurses perceived the ASP as useful or very useful, while 66% were unfamiliar with it.

A study conducted in Australia by Cotta et al. (2014) with a sample size of 331. This study aimed to determine perceptions and attitudes toward AMR, antimicrobial use, AMS interventions, and willingness among all healthcare professionals in a large private hospital in Australia. Only half of the respondents reported a willingness to participate in the proposed AMR intervention. The percentage of respondents who believed antimicrobial resistance was a more serious problem was higher in other Australian hospitals than in the surveyed hospitals (62% vs. 45%, $P < 0.001$). Fifty-eight percent agreed that better antimicrobial prescribing in hospitals would reduce AMR. Twenty-nine percent of respondents had been exposed to AMS, and pharmacists and physicians were more likely than surgeons, anesthesiologists, and nurses to have heard of AMS ($P = 0.016$ and $P < 0.001$, respectively).

A cross-sectional study was conducted by Al-Harthi et al. (2015) in university, public, and private hospitals in Jeddah, Saudi Arabia, using a self-administered questionnaire. That aimed to understand the perceptions, attitudes, and prescribing practices of clinicians regarding AMS. The results of the study indicated that only 13.2% of residents and 4.3% of specialists granted patients' or parents' requests for the selection of antimicrobials, whereas 33% of general practitioners did so. Moreover, general practitioners prescribe costly

antimicrobials at a higher rate (70.4%) than residents and specialists (26.4% and 30.4%, respectively). On the other hand, no appreciable variations were found in knowledge and opinions on the present application and misuse of antimicrobial agents.

Buckel et al. (2016) performed a cross-sectional study about AMS Knowledge, Attitudes, and Practices among Health Care Professionals at Small Community Hospitals. The primary objectives of this study were to compare clinical resources for infectious diseases and to describe AMS knowledge, attitudes, and practices among prescribers, pharmacists, and administrators in a large hospital network. They administered a 48-item antimicrobial stewardship KAP survey to pharmacists, prescribers, and administrators on a random sample. A total of 588 (14%) respondents (390 of whom were from large community hospitals and 198 from small community hospitals) completed the survey. Most respondents were aware of the term AMS and considered it necessary. Pharmacists and prescribers generally agreed that antimicrobials are overused in their hospitals. However, pharmacists and prescribers at smaller community hospitals were more likely to disagree that antibiotic resistance is a serious problem. Smaller community hospital practitioners were less familiar with the guidelines of the Infectious Diseases Society of America and less likely to rely on infectious disease specialists than their larger community hospital counterparts. Most respondents strongly agreed that antimicrobial education is needed. They also suggested that providing prescribers with education about AMS and its benefits, as well as improving access to infectious disease counseling and AMS, is important to improve patient care. In addition, more evidence on the direct impact of AMS programs on patient safety and quality is also needed. Furthermore, these results should contribute to improved treatment of infectious diseases.

A study published by Tegagn et al. (2017) was a prospective cross-sectional study of KAPs and their predictors of healthcare workers' antimicrobial stewardship at Fitche Hospital, with a total sample size of 107. The results of this study showed that 68.2% of the participants had a strong understanding of antimicrobial stewardship, 16% had a positive attitude toward antimicrobial stewardship, and 78% of the healthcare workers had a good antimicrobial stewardship procedure in place. Occupation ($p=0.52$), years of experience ($p=0.125$), and age ($p=0.354$, SD=0.4) had no significant effect on healthcare professionals' knowledge, attitudes, and behaviors regarding antimicrobial stewardship.

A cross-sectional questionnaire-based study with a sample size of 300 aims to explore the perceptions of KAP of antimicrobial agent use and its resistance among medical professionals in a tertiary teaching care hospital in India, carried out by Badar et al. (2018). As a result, 54% of participants preferred the Internet, Journals, and workshops for updating their knowledge. Also, 99% of participants had heard of bacteriostatic and bactericidal antimicrobial agents and narrow and broad-spectrum antimicrobial agents, but only 44% knew about AMS. Regarding the attitude, for selecting antimicrobial agents 86% of participants used clinical judgment and clinical and experimental evidence 62% followed hospital infection control committee suggestions. For practice, 95.6% of participants in this study do not prescribe antimicrobial agents at the request of patients and always explain the uses and adverse effects of antimicrobial agents. 86.6% of participants have created awareness among colleagues, patients, and students. in general, they had good knowledge, and positive attitudes and followed a rational and fair practice about antimicrobial stewardship. and the recommendation was that adequate training should be given about antimicrobial therapy and its usage. It should routinely monitor prescribers and bulk users of antibiotics and therapy and its usage and also monitor proper prescribing, dispensing, and usage of antimicrobial agents to promote judicious use of antimicrobial agents.

In China, Xia et al. (2019) conducted a cross-sectional survey in 2012 and 2016 that aimed to explore doctors' knowledge, willingness, concerns, and countermeasures to China's most stringent AMS regulations. s. 807 physicians fully responded to the online survey, with most respondents (78.9% in 2012 and 89.1% in 2016) indicating that they “accept” or “greatly accept” the regulations. The majority of respondents (93.2%) expressed concern about the prognosis of patients who would have been prescribed antimicrobials before the stewardship regulations were implemented, with more than 65% (65.7% in 2012 and 66.9% in 2016) of physicians saying they “often” or “always” do so. Furthermore, from 2012 to 2016, the number of physicians prescribing restricted antimicrobials or recommending that patients self-medicate with restricted antimicrobials decreased, and the percentage of physicians prescribing restricted antimicrobials decreased to 22.6%. Despite the mandatory AMS training, knowledge of three. Less than half (46.2%) of respondents correctly answered all three knowledge questions. In addition, AMS regulations implemented in China in 2012 improved the appropriate clinical use of antibiotics, and physician attitudes and behaviors toward the regulations improved from 2012 to 2016.

In South Africa, Balliram et al. (2021) performed a study from November 2017 to January 2018, a cross-sectional online questionnaire survey of physicians, pharmacists, and nurses was conducted to assess KAPs of physicians, pharmacists, and nurses and identify gaps for educational interventions. The study found that a higher percentage of nurses (52.40%) had a confidence level below 50% on their knowledge of all three topics compared to pharmacists (45.3%) and physicians (39.3%). Next, an ANOVA test showed a statistically significant difference between physicians, pharmacists, and nurses in their level of knowledge about antimicrobials, AMR, and AMS ($p = 0.0001, 0.00001, 0.009$). Regarding attitudes, physicians (64.1%), pharmacists (68.7%), and nurses (65.5%) were opposed to antimicrobials being commonly prescribed. The majority of respondents (96.29%) agreed that prescribing antimicrobials to patients who do not need them has long-term negative effects on patient health. In practice, the mean practice scores of physicians, pharmacists, and nurses ranged from 0 (bad practice) to 100 (best practice), with a mean of 57.68% ± 16.42%, 43.14% ± 16.53%, and 54% ± 14.34%. The practice scores of the other three groups of HCPs were statistically significantly different ($p < 0.05$) according to the ANOVA test.

El Baida & Mina. (2022), they performed a cross-sectional study of nurses' knowledge, attitudes, and practices regarding antibiotic stewardship in North Lebanon using a self-administered questionnaire distributed to 120 nurses working in four hospitals in North Lebanon. Results showed that of the 100 staff nurses (33.3%) who responded to the survey, 60% knew the meaning of antibiotic stewardship and 57% had received training on the subject, but gaps in knowledge were identified. Most nurses (97%) believed that they should participate in antibiotic stewardship interventions. There was no association between the level of education or years of experience and knowledge of ASPs. The researchers recommend future studies that explore the impact of nurse education and involvement in the ASP team on nurses' knowledge and attitudes about AMS..

A multicenter cross-sectional study was conducted in six public hospitals in Ghana among key HCPs to assess their level of KAP towards AMS using a self-administered electronic questionnaire performed by Sefah et al. (2023). It was found that 51.3% of participants had never been exposed to structured AMS training, and 65.5% had not been exposed to AMS continuous professional development training. On the other hand, both knowledge (8.9%) and practice levels (35.4%) of AMS were low, while attitudes toward AMS were positive

(78.8%). When they made a Comparison between the knowledge, attitude, and practice scores by the type of healthcare professional they found a statistically significant difference in the mean score of the attitude ($p < 0.001$) and practice ($p < 0.001$) of AMS among the HCPs according to the one-way ANOVA test, also There was a statistically significant difference in the median score of the knowledge of AMS ($p = 0.009$) among the HCPs. In addition to that, pharmacists had a better understanding of AMS than nurses ($p = 0.015$). Therefore, they recommend that, as part of ongoing strategies in the National Action Plan to reduce AMR, concentrated efforts are needed to address current poor knowledge and practices regarding AMS among health professionals in Ghana.

In Palestine, Abuawad et al. (2024), performed a cross-sectional study with a sample size of 384 among Palestinian university medical students to investigate their knowledge, perceptions, and attitudes toward AMR and AMS. The association between student variables and knowledge, perceptions, and attitudes was also investigated. The results showed that medical students in the clinical phase had higher knowledge of AMR than those in the preclinical phase, with a mean score of 89.7±15.9 compared to 74.0±26.4, respectively ($p<0.05$). Thus, the mean score for AMR awareness was higher for clinical interns (85.7%) compared to 72.6% for clinical interns. Regarding knowledge of AMS, the clinical interns scored 54.5 ± 31.5 compared to 63.4 ± 28.5 for the clinical interns. Regarding attitudes, the clinical students scored 67.6/32.6 compared to 61.1/34.6 for the preclinical students. Therefore, further research is recommended to determine how best to increase medical students' understanding, awareness, and attitudes regarding antimicrobial resistance.

2.4. Third: the barrier that faces the implementation of AMS.

Pharmd et al. (2014) conducted a qualitative study about Facilitators and barriers to implementing AMS strategies, which aimed to identify the factors related to the implementation of ASP strategies. According to this qualitative study, culture and resources were identified as major facilitators and barriers to ASP implementation. Communication, relationships, and conflict management were subthemes related to culture. Thus, ASPs may be better able to implement their stewardship strategies if they promote a non-confrontational image and, when possible, talk to their members face-to-face. It was also found that interprofessional networks and collaborations, including committee work and

guideline composition, were important when trying to acquire some providers' buy-in. As far as resources are concerned, there is a lack of adequate personnel, Information Technology, and data reporting capability. In terms of personnel, many ASPs experienced difficulties in implementing their strategies due to a lack of consistent ASP personnel and insufficient numbers of employees dedicated to ASP activities. Furthermore, many programs suffered from the lack of a dedicated and engaged physician champion. In addition to IT systems, ASPs also needed an improved infrastructure to track interventions and outcomes, plan new strategies, and provide local data to providers and administrators for ASP initiatives.

Alghamdi et al. (2020) conducted a qualitative study based on face-to-face semi-structured interviews with healthcare professionals about barriers to implementing antimicrobial stewardship programs in three Saudi Arabian hospitals. The results showed that many things prevented AMS from achieving its goals, including poor adherence to guidelines, disruption, poor communication, education and training needs, lack of AMS program team members, lack of medical information technology, and physician fears and concerns.

Pauwels et al., (2021) conducted a global survey found that the most significant barriers to implementing AMS programs were lack of time (52.7%), lack of knowledge of appropriate prescribing (42.0%), lack of dedicated funds (39.9%), lack of prescribing guidelines, lack of laboratory capacity, and lack of access to laboratory services Insufficient.

Chapter three:

Conceptual Framework:

3.1 KAP study:

A KAP survey provides information on what is known, believed, and done concerning a particular topic within a population (*A Guide To Developing Knowledge, Attitude and Practice Surveys*, n.d.). By using the KAP survey, you can: Measure the extent of an existing situation, confirm or disprove a hypothesis, and gain new insights into the situation, enhancement knowledge, attitudes, and practices related to specific topics; identify what is currently known and being done on various health-related topics, Help in determine the baseline value for future assessments and measure the effectiveness of health education activities, and Suggest a strategy for intervention that reflects specific local conditions and cultural factors; plan activities that are appropriate to the specific population (USAID, 2011).

3.2 Antimicrobial stewardship:

according to the Association for Professionals in Infection Control and Epidemiology (APIC), AMS " is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms".

3.3 study dependent variable:

1. Knowledge: A person's awareness, understanding, or information that has been gained through experience or study, and that is both inside and outside their minds(Cambridge University, n.d.)
2. Attitudes: are enduring and general assessments of objects, people, groups, issues, and concepts on a continuum from negative to positive. Also, it provides a summary evaluation of a target object and is associated with specific beliefs, emotions, and past behavior(American Psychological Association, 2018).
3. Practice: action rather than thought or ideas(Cambridge University, n.d.).

According to (Badran, 1995), knowledge was defined as " a capacity to acquire, retain, and use information; a mixture of comprehension, experience, discernment, and skills." And attitudes refer to the " inclination to react in a certain way to a certain situation; to see and interpret event according to certain predisposition, or to organize opinion to coherent and interrelated structures". Practice is" the application of rules and knowledge that lead to action, good practice is an art linked to the progress of knowledge and technology and is executed ethically".

Operationally, knowledge, attitudes, and practices regarding AMS among HCWs are individually measured by a set of questions in the self-administered questionnaire in this study as explained in the method chapter.

3.4 Independent variable:

Sociodemographic factors include:

1. Gender.
2. Age.
3. Marital status.
4. profession.
5. Place of work.
6. Certificate.

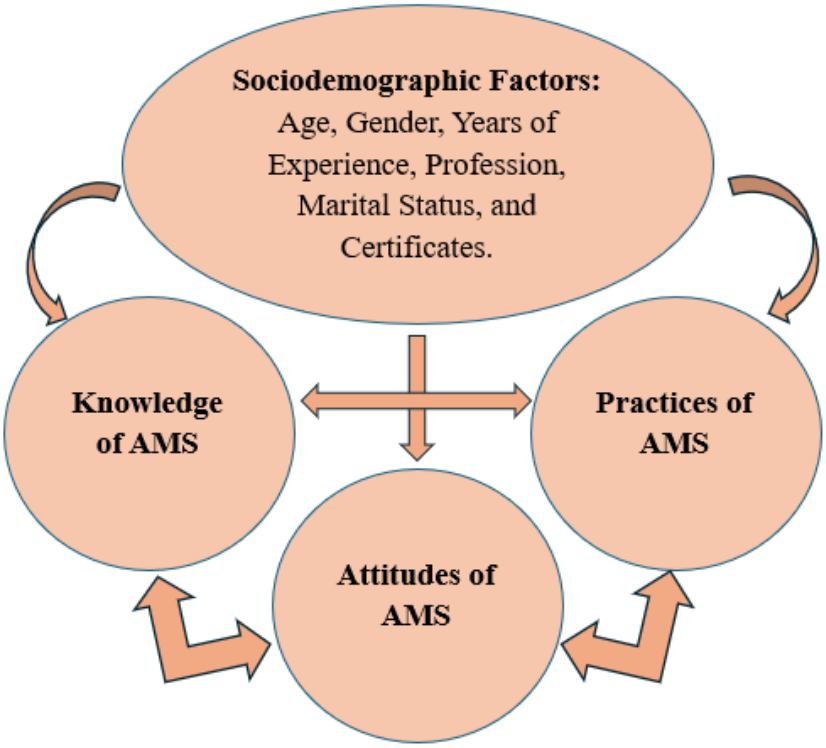

Figure 3. 1: Factors Affecting Knowledge, Attitude, and Practices. The relationship between knowledge, attitudes, and practices of HCWs towards AMS

Chapter Four

Methodology

4.1 Introduction

A method for assessing basic knowledge and attitudes about antimicrobial stewardship among healthcare workers in Hebron governmental hospitals is presented in this chapter. To implement this study, we followed the steps in Al Quds University's thesis preparation guideline for high school students. It details the study design, population, sample method, description of the research setting, ethical considerations, the study tool, its validity and reliability, piloting, data collection process, and data analysis.

4.2 Study Design:

A quantitative descriptive analytics cross-sectional study was conducted via a self-administered questionnaire to healthcare providers within the Hebron Governorate governmental hospital.

4.3 Setting:

This research was conducted at five governmental hospitals in the Hebron governorate. These include, Hebron Governmental Hospital (Alia), Mohammad Ali Al-Mohtaseb Hospital, AL-Shahed Abu-Alhasan al-Qasem (Yatta) Hospital, Dora Govermental Hospital, and Mahmoud Abas Hospital (Halhol).

4.4 Population:

Doctors, nurses, pharmacists, and lab technicians attending governmental hospitals in Hebron governorate during the study period and who met the inclusion criteria were included in the study. the total population was 1097.

4.5 Sampling:

sample frame: HCWs (nurses, doctors, pharmacists, lab technicians), who work in Hebron governorate governmental hospitals (Hebron Governmental Hospital (Alia), Muhammad Ali Al Muhtaseb Hospital, Al Shaheed Abu- Al Hasan Alqasem hospital (Yatta), Mahmoud Abas hospital (Halhol), Dora Governmental Hospital).

sampling technique: A stratified random sampling was employed, proportionately allocated to each stratum.

sample size: According to Raosoft's online sample size calculator (http://www.raosoft.com/samplesize.html), the minimum sample size was **285** HCWs (doctors, nurses, pharmacists, and lab teachers) required with a margin of error of 5%, a 95% confidence level and a total population of 1097.

For each hospital, the required sample size was calculated using a proportional sampling method based on the total number of eligible healthcare workers as follows by using this formula:

$n_h = (N_h / N) * n$

n_h= ***Sample size for h^{th} stratum***

N_h= ***Population size for h^{th} stratum***

N = ***Size of the entire population***

n = ***Size of the entire sample***

Table 4. 1:the sample size required from each hospital

Name of hospital	**Total number of HCWs**	**The required sample**
Hebron Governmental Hospital (Alia)	588	153
Muhammad Ali Al Muhtaseb Hospital	107	28
Al Shaheed Abu- Al Hasan Alqasem hospital (Yatta)	187	49
Mahmoud Abas hospital (Halhool)	55	14
Dora Governmental Hospital	160	41
total	1097	285

Likewise, the same formula was used to determine the number of health professionals or health workers needed in each hospital. Which was presented as follows:

Table 4. 2: Distribution of the study population across hospitals

Hospital name	**Profession**	**Total number of professions**	**A sample size of the profession**
Hebron Governmental Hospital (Alia)	doctors	196	91
	nurses	350	51
	pharmacist	12	3
	Lab technician	30	8
	total	588	153
Muhammad Ali Al Muhtaseb Hospital	doctors	35	9
	nurses	61	16
	pharmacist	4	1
	Lab technician	7	2
	total	107	28
Al Shaheed Abu- Al Hasan Alqasem hospital (Yatta)	doctors	55	14
	nurses	113	30
	pharmacist	6	2
	Lab technician	13	3
	total	187	49
Mahmoud Abas hospital (Halhool)	doctors	10	2
	nurses	39	10
	pharmacist	1	1
	Lab technician	5	1
	total	55	14
Dora Governmental Hospital	doctors	42	11
	nurses	100	25
	pharmacist	7	2
	Lab technician	11	3
	Total	160	41
Total		1097	285

The researcher relied on the available sample of the study, where the questionnaires were distributed, and only 285 questionnaires were retrieved, representing a rate of 100%. Table 4.3 shows the demographic characteristics of the sample:

Table 4. 3: The Sociodemographic Characteristics

VARIABLE	VARIABLE LEVELS	NO	PERCENTAGES (%)
Sex	**Male**	134	**47.0**
	Female	151	**53.0**
Total Percentages		285	**100.0**
Age	**20-30 Year**	108	**37.9**
	31-40 Year	116	**40.7**
	41-50 Year	53	**18.6**
	More Than 50 Year	8	**2.8**
Total Percentages		285	**100.0**
Marital Status	**Married**	204	**71.6**
	Single	76	**26.7**
	Widower	2	**0.7**
	Divorced	3	**1.1**
Total Percentages		285	**100.0**
Jobe	**Nurses**	172	**60.4**
	Doctors	87	**30.5**
	Pharmacist	9	**3.2**
	Lab Technician	17	**6.0**
Total Percentages		285	**100.0**
Place Of Work	**Hebron Hospital (Alia**	153	**53.7**
	Mohammad Ali Al -Mohtasib	28	**9.8**
	Al Shahed Abu-Alhasan Alqasem	49	**17.2**
	Dora Governmental Hospital	41	**14.4**
	Mahmoud Abbas Governmental Hospital	14	**4.9**
Total Percentages		285	**100.0**
Certificate	**Diploma**	28	**9.8**
	Bachelor's Degree	225	**78.9**
	Master’s Degree	29	**10.2**
	Phd	3	**1.1**
Total Percentages		285	**100.0**
Year Of Experience	**Less Than One Year**	18	**6.3**
	4-1	68	**23.9**
	5-9	84	**29.5**
	10-15	115	**4.0**
	More Than 15 Year	---	**---**
Total Percentages		**285**	**100.0**

It is clear from Table 4.3 that the distribution of the study sample by gender was the percentage of female respondents ranked first, accounting for (52.98%) with a total of (151) individuals from the study population, while males ranked second, with a percentage of

(47.02%) totaling (134) individuals from the study population. Figure (4.1) illustrates the distribution of the members of the study population according to the gender variable.

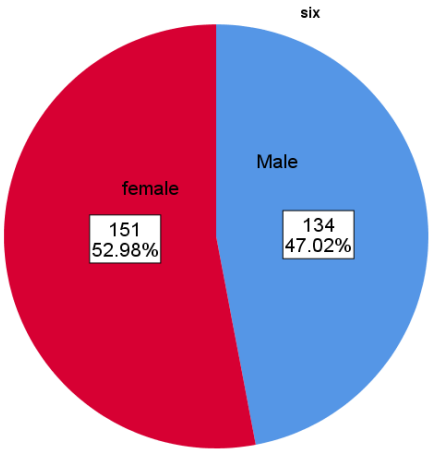

Figure 4. 1: Distribution of Study Sample by Sex

As can be seen from Table 4.3, the distribution of the study sample according to age is as follows: The respondents in the age group (31-40) years ranked first with a percentage of (40.7%) of the study population, amounting to (116) individuals. Meanwhile, respondents in the age group (20-30) years ranked second with a percentage of (37.9%) of the study population, totaling (108) individuals. Respondents in the age group (41-50) years came in third place with a percentage of (18.6%), amounting to (53) individuals. Lastly, those over 50 years old ranked last with a percentage of (2.8%), totaling (8) individuals, and Figure (4.2) shows the distribution of the study population according to the age variable.

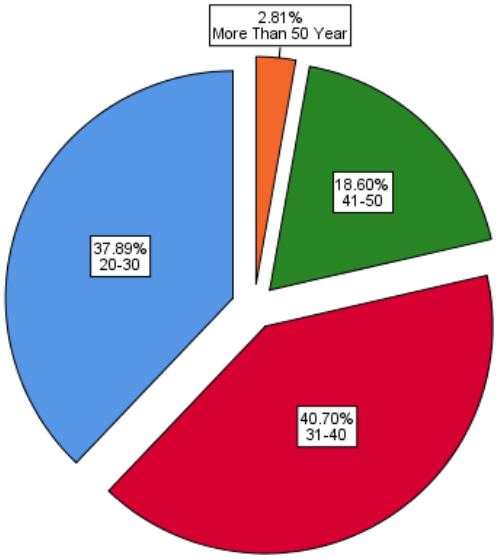

Figure 4. 2: distribution of the study population according to the age variable

Furthermore, the distribution of the study sample according to marital status is as follows: Married respondents ranked first with a percentage of (71.6%) of the study population, totaling (204) individuals. Meanwhile, single respondents ranked second with a percentage of (26.7%) of the study population, amounting to (76) individuals. Divorced respondents came in third place with a percentage of (1.1%), totaling (3) individuals. Lastly, widowed respondents ranked last with a percentage of (0.7%), amounting to (2) individuals, and Figure (4.3) shows the distribution of the study population according to marital status.

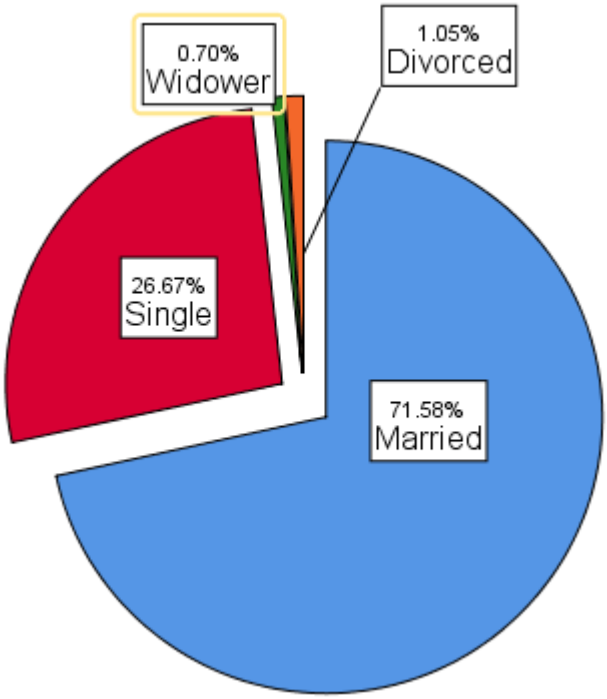

Figure 4. 3: distribution of the study population according to marital status

Also, Table 4.3 showed the distribution of the study sample according to occupation is as follows: Nurse respondents ranked first with a percentage of (60.4%) of the study population, totaling (172) individuals. Meanwhile, doctor respondents ranked second with a percentage of (30.5%) of the study population, amounting to (87) individuals. Laboratory technician respondents came in third place with a percentage of (6.0%), totaling (17) individuals. Lastly, pharmacist respondents ranked last with a percentage of (3.2%), amounting to (9) individuals.Figure (4.4) shows the distribution of the study population according to occupation.

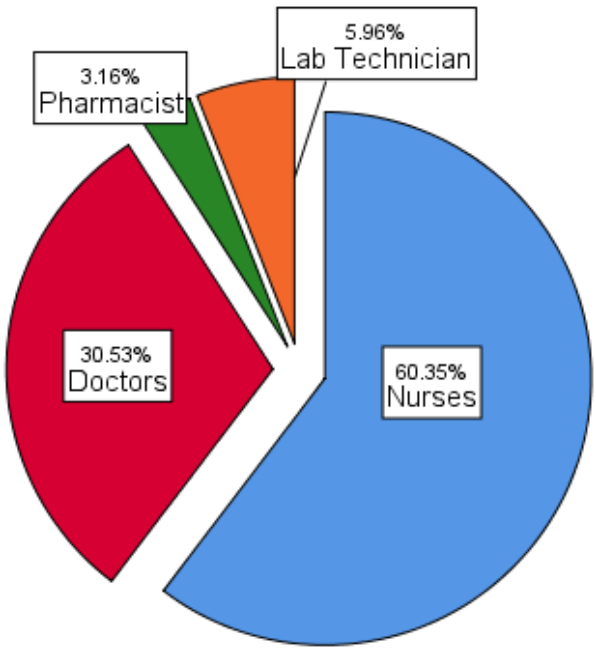

Figure 4. 4: distribution of the study population according to occupation

In addition to that, the distribution of the study sample according to the workplace is as follows: Respondents working at the Hebron Government Hospital (Alia) ranked first with a percentage of (53.7%) of the study population, totaling (153) individuals. Meanwhile, respondents working at the Al-Shheed Abu Al-Hassan Qasim Hospital (Yatta) ranked second with a percentage of (17.2%) of the study population, amounting to (49) individuals. Respondents working at the Dura Government Hospital came in third place with a percentage of (14.4%), totaling (41) individuals. In fourth place are the respondents working at the Muhtasib with a percentage of (9.8%), amounting to (28) individuals. Lastly, the Mahmoud Abbas Government Hospital (Halhul) ranked last with a percentage of (4.9%), totaling (14) individuals, and Figure (4.5) shows the distribution of the study population according to the workplace.

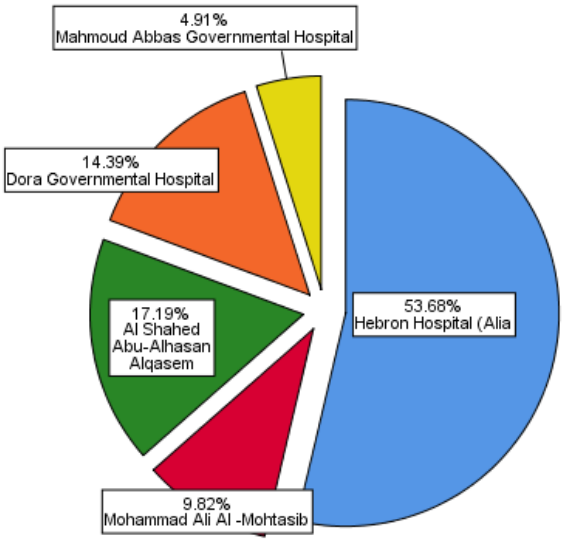

Figure 4. 5: distribution of the study population according to workplace

From Table 4.3 Bachelor's degree holders ranked first with a percentage of (78.9%) of the study population, accounting for (225) individuals, while master's degree holders ranked second with a percentage of (10.2%) of the study population, accounting for (29) individuals. Diploma holders ranked third with a percentage of (8%) and (9.8) individuals. Lastly, PhD degree holders ranked in last place with a percentage of (1.1%), accounting for (3) individuals. Figure (4.6) shows the distribution of the study population according to the variable of educational qualification.

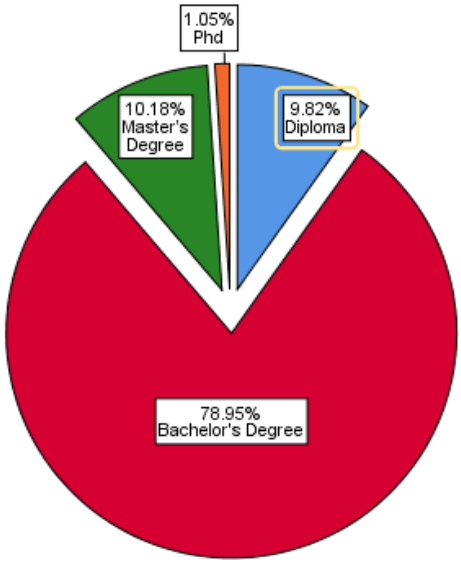

Figure 4. 6: distribution of the study population according to the variable of educational qualification

Similarly, it is evident from Table 4.3 that the distribution of the study sample according to the variable of years of experience is as follows: Respondents with (10-15) years of experience ranked first with a percentage of (40.4%) of the study population, accounting for (115) individuals, while respondents with (5-9) years of experience ranked second with a percentage of (29.5%) of the study population, accounting for (84) individuals. Respondents with (1-4) years of experience ranked third with a percentage of (23.9%), accounting for (68) individuals, and those with less than one year of experience ranked last with a percentage of (6.3%), accounting for (18) individuals. Figure (4.7) illustrates the distribution of the study population according to the variable of years of experience.

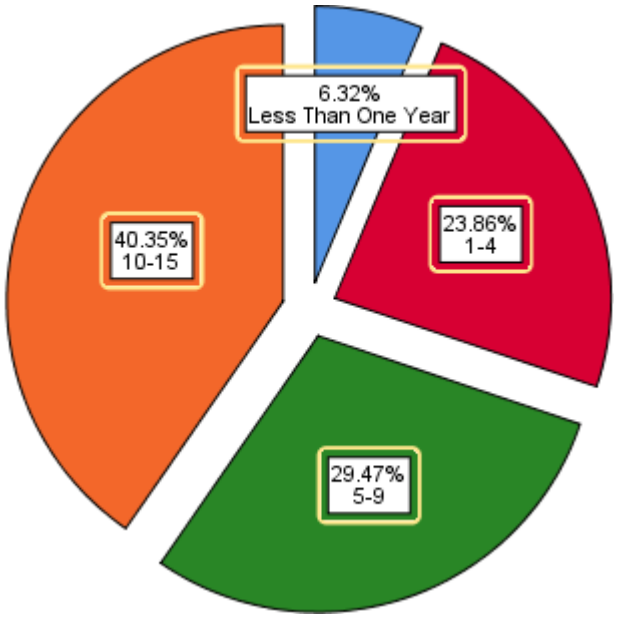

Figure 4. 7: distribution of the study population according to the variable of years of experience

4.6.Study Instrument

An online, self-administered questionnaire was used with voluntary informed consent to collect the data. The questionnaire had six sections, including open-ended, closed-ended (yes or no), and five-point agreement Likert scale questions (strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1)).

The first section collected participants' sociodemographic data, containing six questions about Gender, Age, Marital status, Profession, Place of work, and Certificate. Then, the second section evaluated the participants' knowledge about AMS, including twenty questions. These were graded as yes, no, or I don't know (with yes receiving a score of 1, no, and I don't know receiving a score of 0). The third, fourth, and fifth sections were Likert scale questions, the participants' attitudes about antimicrobial stewardship were evaluated in the third section which included nine questions, the fourth section contained fifteen practice-related questions, and the final section included many questions (ten questions) that aimed to evaluate the barriers that facing the implementation of the AMS.

4.7. Validity Of the Instrument

The validity of the instrument was verified before its application to the study sample by presenting it to a panel of experts, consisting of (_2_) judges with experience. The judges provided a set of observations on the instrument's items. An agreement criterion of 85% was adopted among the judges to retain an item. The judges' comments were taken into account, and some items were rephrased and modified before finalizing the instrument. The final version of the instrument consisted of 54 items, as shown in Appendix (_B_).

Validity of Factor Analysis: The validity of the instrument was verified by calculating the Pearson Correlation coefficient for each item of the domain it belongs, with the total score of the domain. This was applied to the exploratory sample, as shown in Table (4.4).

Table 4. 4.A: Results of the Pearson Correlation Coefficient for the correlation matrix of the study tool items with the total score for each domain.

Item's	Pearson Correlation	Sig.	Item's	Pearson Correlation	Sig.	Item's	Pearson Correlation	Sig.
Knowledge								
1	**0.261	0.000	8	**0.824	0.000	15	****0.752**	0.000
2	**0.155	0.009	9	**0.538	0.000	16	**0.749	0.000
3	0.056	0.345	10	**0.816	0.000	17	**0.727	0.000
4	**0.820	0.000	11	**0.534	0.000	18	**0.758	0.000
5	**0.794	0.000	12	**0.818	0.000	19	**0.724	0.000
6	**0.792	0.000	13	**0.720	0.000	20	**0.799	0.000
7	**0.844	0.000	14	**0.781	0.000			
Attitude								
1	**0.494	0.000	4	**0.684	0.000	7	**0.654	0.000
2	**0.595	0.000	5	**0.474	0.000	8	**0.696	0.000
3	**0.664	0.000	6	**0.703	0.000	9	**0.709	0.000

Table 4. 5.B: Results of the Pearson Correlation Coefficient for the correlation matrix of the study tool items with the total score for each domain.

Item's	Pearson Correlation	Sig.	Item's	Pearson Correlation	Sig.	Item's	Pearson Correlation	Sig.
Practice								
1	**0.518	0.000	6	**0.661	0.000	11	**0.743	0.000
2	**0.670	0.000	7	**0.685	0.000	12	**0.742	0.000
3	**0.573	0.000	8	**0.643	0.000	13	**0.667	0.000
4	**0.632	0.000	9	**0.693	0.000	14	**0.711	0.000
5	**0.676	0.000	10	**0.757	0.000	15	**0.682	0.000
The Barrier								
1	**0.651	0.000	5	**0.807	0.000	9	**0.654	0.000
2	**0.762	0.000	6	**0.793	0.000	10	**0.758	0.000
3	**0.735	0.000	7	**0.816	0.000			
4	**0.692	0.000	8	**0.759	0.000			

* Statistically significant at the level of ($\alpha \leq 0.05$).

** Highly statistically significant at the level of ($\alpha \leq 0.01$).

The data presented in table 4.4 indicate that most of the item correlation values with the total score for each dimension are statistically significant, which suggests that the tool possesses high validity and that it effectively measures (the knowledge, attitudes, and practices of healthcare workers regarding the rational use of antibiotics in public hospitals within Hebron Governorate).

4.8. Reliability:

A pilot study was performed to determine tool reliability by testing the Cronbach Alpha coefficient, which is the minimum score must be 0.70. The results shown in the Table below indicate that the instrument is reliable, whereas the total score of Cronbach's Alpha was 0.942.

Table 4. 6: Cronbach's alpha coefficient for the reliability of the study tool

NO	SECTION	NO OF ITEMS	CRONBACH ALPHA
1	Knowledge	**20**	**0.947**
2	Attitudes	**9**	**0.798**
3	practice	**15**	**0.912**
4	barriers	**10**	**0.908**
TOTAL SCORE		**54**	**0.942**

It is clear from Table (4) that the value of the reliability coefficient using Cronbach's alpha for the scale dimensions reached (0.947) for the dimension of Knowledge, (0.789) for Attitudes, (0.912) for Practice, and (0.908) for Barriers. Meanwhile, the overall reliability coefficient for the areas reached (94.2), which indicates that the tool possesses a high degree of reliability.

4.9. Scale Correction:

The questionnaire is of the Likert type, with options for each item ranging from Strongly Agree to Strongly Disagree. The items of the scale are constructed based on a five-point scale, where Strongly Agree is assigned (5 points), Agree (4 points), Neutral (3 points), Disagree (2 points), and Strongly Disagree (1 point). The total number of items in the questionnaire is (54); the lowest score an individual can achieve is (54), which occurs if they respond to all items with Strongly Disagree, while the highest score possible is (270), which occurs if they respond to all items with Strongly Agree. Therefore, the highest mean score that can be obtained is (5), and the lowest mean score that can be obtained is (1), calculated by dividing the individual's total score by the total number of items.

To understand the estimates of the sample participants and determine the degree of (knowledge, attitudes, and practices of healthcare workers regarding the rational use of antibiotics in public hospitals within Hebron Governorate), the range was calculated as (5-1=4). This range was then divided by (5) to obtain the correct cell length ((4/5 = 0.8). Subsequently, this value was added to the lowest value on the questionnaire (or the starting point of the questionnaire, which is one) to determine the upper limit of this cell. Thus, the lengths of the cells became as follows:

Table 4. 7: Correction Keys

Mean	Degree
1.80 – 1.00	Very Low
2.60 – 1.81	Low
3.40 – 2.61	Medium
4.20 – 3.41	High
5.00 – 4.21	Very High

4.10 Ethical Consideration

The Al-Quds University Research Ethics Committee reviewed and approved this study as shown in Appendix (C). Also, the researcher had permission from the Palestinian MOH to collect data from HCWs who work in targeted hospitals. In addition to that, an informed consent form was attached to the questionnaire, all participants were asked if they agreed or disagreed to fill it. Participants are assured that anonymity and confidentiality are always maintained and that the data provided by them will be used only for research purposes.

4.11. Data Collection

A data collection process was carried out between February 2024 and June 2024, which started with a meeting of hospital directors and infection control coordinators in the target hospitals at the beginning to ask for permission to collect data from HCWs. During this period, the researcher visited the study area several times to obtain the required sample size, these visits took place during different shifts to recruit HCWs for both morning and evening shifts. Consequently, the questionnaire link was distributed to all HCWs found throughout the targeted hospitals via WhatsApp messages or emails during visit time. After that, a Google Form questionnaire was continuously monitored until the sample size was reached.

4.12.Data Analysis

Statistical analysis of the data was performed using the statistical package for social sciences IBM (SPSS) version 20, to analyze the data collected in this study, and to answer the research questions and test its hypotheses, a set of statistical methods was utilized by following these processes:

1. Descriptive statistics were used to extract numbers, percentages, means, and standard deviations for the individuals in the sample and their responses to the tools.
2. The study hypotheses were examined using one-way analysis of variance (ANOVA) to compare means and the t-test to determine the differences between the means of two independent samples.
3. The Tukey test was used for post-hoc comparisons of mean scores.

4. The Cronbach's alpha reliability coefficient was used to calculate the reliability of the tool, and the Pearson correlation coefficient was used to verify the construct validity of the study tool.

Chapter five

Results

This chapter presents a complete and detailed description of the study's results, in order to answer the study's questions and evaluate its hypotheses.

5.1. Results of the first (main) study question:

What is the level of knowledge, attitudes, and practices of HCWs regarding AMS in governmental hospitals within Hebron Governorate?

Showed that knowledge, attitudes, and practices of HCWs toward the AMS in public hospitals within Hebron Governorate. Overall, these were at a high level across all areas, with a mean score of (4.02) and a standard deviation of (0.456). The ranking from most important to least important is as follows:

1. The section (Knowledge) had the statement "Excessive use and misuse of antimicrobials can lead to antimicrobial resistance" in first place.

2. The section (Attitude) had the statement "I feel that obtaining approval for the use of restricted antimicrobials makes the team think more carefully about the selection" in the first place.
3. The section (Practice) had the statement "Healthcare workers should avoid unnecessary use of broad-spectrum antibacterial agents" in first place.

Table 5. 1: The means and standard deviations of the knowledge, attitudes, and practices of healthcare workers regarding AMS in governmental hospitals within Hebron Governorate.

The Scale	Mean	Std. Deviation	Degree
knowledge, attitudes, and practices of healthcare workers regarding AMS in governmental hospitals within Hebron Governorate	4.02	0.456	**High**

We notice from the previous table and through the data presented in the table that the knowledge, attitudes, and practices of HCWs regarding AMS in governmental hospitals within Hebron Governorate were at a high level, with a mean of (4.02) and a standard deviation of (0.456).

As for the degree of knowledge, attitudes, and practices of HCWs regarding the AMS in government hospitals within the Hebron Governorate for each of its fields, the researcher calculated the means and standard deviations for each field as follows:

5.1.1. The first section (Knowledge) :

What is the level of knowledge of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate?

To answer of previous question, the means and standard deviations were extracted for the level of knowledge of HCWs regarding AMS in governmental hospitals within Hebron Governorate, as shown in Table (5.2).

Table 5. 2.A: The means and standard deviations of the level of knowledge of healthcare workers about the AMS in government hospitals within Hebron Governorate

No	Item	Mean	Std. Deviation	Degree
1.	Overuse, misuse, and abuse of antimicrobials can lead to AMR.	4.30	1.123	Very high
2.	Antimicrobial resistance decreases the effectiveness of existing drugs, making it harder to eradicate infections from the body, and it is a serious problem.	4.28	1.131	Very high
3.	There are risks associated with the irrational use of antimicrobials.	4.28	1.131	Very high
4.	It is important to teach patients and their families how to correctly use the prescribed antimicrobial.	4.28	1.134	Very high
5.	Restricting antimicrobial usage is necessary to reduce antimicrobial resistance.	4.27	1.133	Very high
6.	Better patient care, reduced antimicrobial usage, and cost-effective health care are positive side effects of antimicrobial stewardship.	4.27	1.135	Very high
7.	Inappropriate antimicrobial use gives an additional burden of medical costs to the patient.	4.25	1.140	Very high
8.	An individual who is allergic to antibiotics can have a profound impact on the antibiotic selection process, often resulting in polypharmacy or the use of second-line therapies, and may receive inappropriate or prolonged antibiotic therapy.	4.25	1.112	Very high
9.	Microbiology guides antimicrobial therapy by doing the culture.	4.25	1.105	Very high
10.	The 5" D" s of antimicrobial therapy are the right Drug, correct Dose, right Drug-route, suitable Duration, and timely De-escalation to pathogen-directed therapy.	4.24	1.033	Very high
11.	Using antimicrobial agents inappropriately across human, animal, and environmental sectors is among the most significant causes of antimicrobial resistance.	4.20	1.145	High
12.	Pharmacists have a responsibility to take a prominent role in ASP.	4.19	1.129	High
13.	Surgical prophylaxis should be administered at least 30 minutes, but no greater than 60 minutes before the skin incision.	4.15	1.031	High
14.	Antimicrobial stewardship programs (ASPs) establish empiric antibiotic recommendations for infections that are commonly encountered.	4.12	1.049	High
15.	If medically appropriate, IV antibiotics should be stepped down to an oral alternative after 3 days.	4.12	1.081	High
16.	Cumulative antibiograms can inform the empiric antibiotic therapy recommendations and also provide a broad overview of local antibiotic resistance over time.	4.11	1.061	High

Table 5. 3.B: The means and standard deviations of the level of knowledge of healthcare workers about the AMS in government hospitals within Hebron Governorate

No	Item	Mean	Std. Deviation	Degree
17.	It is 7 to 10 times more likely that people will develop Clostridium difficile (C difficile) while on antibiotics.	4.08	.934	High
18.	Always begin treatment with broad-spectrum antibiotics regardless of the severity of the infection.	3.88	.989	High
19.	It is not necessary to use the correct dose of an antimicrobial to reduce the chances of antimicrobial resistance to the drug.	3.74	.968	High
20.	It is not necessary to complete an antimicrobial regimen as prescribed.	3.70	.968	High
Knowledge of healthcare workers regarding the rational use of antibiotics in public hospitals within the Hebron Governorate		4.15	0.792	high

From Table (5.2) and the data presented, we observe that the level of knowledge among HCWs regarding the AMS in governmental hospitals within Hebron Governorate was high, with a mean of (4.15) and a standard deviation of (0.792).

As Table (5.2) shows, “Overuse, misuse, and abuse of antimicrobials can lead to AMR” ranked first with a mean score (4.30 points) and standard deviation (1.123 points). This was followed by “Antimicrobial resistance decreases the effectiveness of existing drugs, making it harder to eradicate infections from the body, and it is a serious problem.

With a mean score (4.28 points) and standard deviation (1.131 points). Next was “There are risks associated with irrational use of antimicrobials” with a mean score of (4.28) and a standard deviation of (1.131). Next was “It is important to teach patients and their families how to correctly use the prescribed antimicrobial,” with a mean score (4.28 points) and standard deviation (1.134 points). This was followed by “restricting antimicrobial usage is necessary to reduce antimicrobial resistance,” with a mean score (4.27 points) and standard deviation (1.133 points). This was followed by “Better patient care, reduced antimicrobial usage, and cost-effective health care are positive side effects of AMS,” with a mean score (4.27 points) and standard deviation (1.135 points). On the other hand, “It is not necessary to complete an antimicrobial regimen as prescribed” was at the bottom of the list, with a mean score of (3.70) and a standard deviation of (0.968).

5.1.2. The second section (attitudes):

What is the level of attitudes of HCWs regarding the rational use of antibiotics in public hospitals within the Hebron Governorate?

To answer this question, the means and standard deviations were calculated for the level of attitudes among HCWs regarding AMS in governmental hospitals within Hebron Governorate, as shown in Table (5.3).

Table 5. 4: The means and standard deviations of HCWs attitudes towards AMS in government hospitals within Hebron Governorate.

No	Item	Mean	Std. Deviation	Degree
1.	I feel that gaining approval for restricted antimicrobials makes the team think more carefully about the choice	4.45	0.779	Very high
2.	I feel that an antimicrobial stewardship program increases my knowledge of appropriate antimicrobial use.	4.30	0.721	Very high
3.	Prescribing antimicrobials to a patient who does not really need them may ultimately have a negative impact on their health.	4.29	0.853	Very high
4.	I would be willing to participate in any activities to improve the quality of antimicrobial use at my hospital.	4.18	0.914	high
5.	In order to maintain an appropriate use of antimicrobials and implementation of ASP, I would like to receive more education.	4.16	0.917	High
6.	Antimicrobial resistance is a serious public health issue, and it's a great problem in my hospital.	3.92	0.916	High
7.	I believe that a patient skipping or missing one or two doses of antimicrobials contributes to the development of antimicrobial resistance.	3.90	0.974	High
8.	Overuse of Antimicrobials is popular in my hospital.	3.83	0.976	High
9.	From my point of view, prescribing physicians are the only professionals who need to understand antimicrobial stewardship.	3.41	1.121	High
Attitudes of healthcare workers regarding the rational use of antibiotics in public hospitals within the Hebron Governorate		**4.05**	**0.572**	**High**

From Table (5.3) and based on the data presented, we notice that the attitudes of healthcare workers regarding the AMS in government hospitals within the Hebron Governorate were at a high level, with a mean of (4.05) and a standard deviation of (0.572).

Table (4.3) shows that “I feel that gaining approval for restricted antimicrobials makes the team think more carefully about the choice” ranked first with a mean (4.45) and standard deviation (0.779), and “I feel that an AMS program increases my knowledge of appropriate antimicrobial use” ranked second with a mean (4. It ranked second with a mean (4.30) and standard deviation (0.721). Next was “Prescribing antimicrobials to a patient who does not really need them may ultimately have a negative impact on their health,” with a mean (4.29) and standard deviation (0.853). Next was “I would be willing to participate in any activities to improve the quality of antimicrobial use at my hospital,” with a mean (4.18) and standard deviation (0.914).

On the other hand, the statement " From my point of view, prescribing physicians are the only professionals who need to understand AMS" was ranked last with a mean of (3.41) and a standard deviation of (1.121).

5.1.3. The third section (practice):

What is the level of HCWs' practice regarding the AMS in governmental hospitals within the Hebron Governorate?

To answer this question, the means and standard deviations were calculated for the level of practice among HCWs regarding AMS in governmental hospitals within Hebron Governorate, as shown in Table (5.4).

Table 5. 5: The means and standard deviations of healthcare workers' practice towards AMS in government hospitals within Hebron Governorate

No	Item	Mean	Std. Deviation	Degree
1	Healthcare providers avoid unnecessary use of broad-spectrum antibacterial agents.	4.17	0.927	High
1.	Healthcare providers educate patients about the dose, duration, and frequency of administration of their prescribed antimicrobials.	4.12	0.968	High
2.	If medically appropriate, IV antibiotics should be stepped down to an oral alternative if possible.	4.02	0.944	High
3.	Healthcare providers switch to the correct antibacterial agents when susceptibility testing indicates resistance or to a cheaper or more cost-effective antibacterial that is also compatible with the clinical presentation.	4.01	1.038	High
4.	Healthcare providers document in the patient's clinical records the clinical indication, route, dose, duration, and review date of antimicrobials.	3.96	.9990	High
5.	The antimicrobials are prescribed empirically (based on observation and experience).	3.93	1.114	High
6.	Before initiating antimicrobial therapy, samples taken for microbiology testing inform the need for and/or choice of antimicrobial therapy.	3.91	0.998	High
7.	Healthcare providers appropriately choose one of the five antibacterial prescribing decisions 48 hours after initiating antimicrobial treatment such as stopping the antibacterial if there is no evidence of infection, switching the antibacterial from intravenous to oral administration, changing antibacterial – ideally to a narrower spectrum or broader if required, continue and review again at 72 hours.	3.85	1.032	High
8.	Healthcare providers use only single doses of antibacterial for surgical and other procedures for which prophylaxis is effective unless the duration of the operation/procedure is prolonged, there has been excessive blood loss, or published national recommendations suggest otherwise.	3.82	.9650	High
9.	The laboratory uses rapid methods to detect MDROs like ESBL, MRSA, VRE, or CRE.	3.80	1.076	High
10.	There is an assessment of how often patients are discharged on the correct antibiotics or other antimicrobials for the recommended duration.	3.68	1.093	High
11.	In your hospital, there is a track of antibiotic use and resistance.	3.66	1.051	High
12.	The hospital has a pharmacist responsible for leading implementation efforts to improve antibiotic use.	3.65	1.083	High
13.	Your facility produces an antibiogram (cumulative antibiotic susceptibility report)	3.64	1.090	High
14.	There are plans in your hospital to implement an ASP.	3.60	1.059	High
healthcare workers' practice regarding the AMS in governmental hospitals within the Hebron Governorate		3.85	0.691	High

We notice from Table (5.4) that the practices of HCWs regarding the AMS in governmental hospitals within Hebron Governorate were at a high degree, with a mean of (3.85) and a standard deviation of (0.691).

As Table (4.4) reveals, “Healthcare providers avoid unnecessary use of broad-spectrum antibacterial agents” ranked first with a mean score of 4.17 points and a standard deviation of 0.927 points. The next paragraph, “Healthcare providers educate patients about the dose, duration, and frequency of administration of their prescribed antimicrobials,” followed with a mean score (4.12 points) and standard deviation (0.968 points). Next came the following paragraph: “If medically appropriate, IV antibiotics should be stepped down to an oral alternative, if possible,” with a mean (4.02) and standard deviation (0.944). It then said, “Healthcare providers switch to the correct antibacterial agents when susceptibility testing indicates resistance or to a cheaper or more cost-effective antibacterial that is also compatible with the clinical presentation,” with a mean (4.01) and standard deviation (1.038). The next paragraph reads, “Healthcare providers document in the patient's clinical records the clinical indication, route, dose, duration, and review date of antimicrobials,” with a mean of (3.96) and a standard deviation of (0.999).

Meanwhile, the statement “There are plans in your hospital to implement an ASP” came last with a mean score of (3.60) and a standard deviation of (1.059).

5.2. Result of Sub-research question:

Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the study variables (gender, age, marital status, profession, workplace, educational qualification, years of experience)?

This question gave rise to the null hypothesis which stated: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the average assessments of the sample individuals regarding the knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variables

(gender, age, marital status, profession, workplace, educational qualification, years of experience).

First null hypothesis: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the average ratings of the sample individuals' KAP of HCWs regarding the AMS in government hospitals within Hebron Governorate attributed to the variable (gender).

A t-test was used to evaluate the gender differences in the mean estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding AMS in government hospitals in Hebron Governorate to test the hypotheses' validity. The results are shown in Table (5.5).

Table 5. 6: Results of the T-test for differences in mean ratings of sample individuals' knowledge, attitudes, and of healthcare workers regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable of gender.

section	Gender	No	Mean	Stander deviation	df	t test	statistically significant
Knowledge	Male	134	4.12	.8720	283	0.549	0.583
	Female	151	4.17	.7150			
Attitude	Male	134	4.09	.5780		1.157	0.248
	Female	151	4.01	.5650			
Practice	Male	134	3.93	.6470		1.637	0.103
	Female	151	3.79	.7230			
Total	Male	134	4.05	.4510		0.988	0.324
	Female	151	3.99	.4610			

The data presented in Table (5.5) shows that there is no statistically significant difference at the level ($\alpha \leq 0.05$) due to the gender variable of the overall score of the scale in the mean estimates of the sample members' knowledge, attitudes and practices of HCWs regarding AMS in government hospitals within Hebron province. This is because the null hypothesis was accepted. After all, the p-value for this variable is 0.324, which is greater than the α (0.05).

Moreover, the data in the previous table also indicate that there are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the gender variable, in each of the domains (Knowledge, Attitude, Practice).

Second null hypothesis : There are no statistically significant differences at the level (α≤0.05) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of age.

To test the validity of the mentioned hypotheses, a one-way (ANOVA) test was used to analyze the differences in mean ratings of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in the Hebron Governorate, for the sample individuals due to the variable (age). The results are shown in Table (5.6).

Table 5. 7: Results of the One-Way ANOVA Test for Differences in Mean Estimates of Sample Members' Knowledge, Attitudes, and Practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (age)

Sections	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge	Between Groups	1.262	3	.421	.668	.572
	Within Groups	176.861	281	.629		
	Total	178.123	284			
Attitude	Between Groups	1.084	3	.361	1.106	.347
	Within Groups	91.803	281	.327		
	Total	92.888	284			
Practice	Between Groups	3.137	3	1.046	2.221	.086
	Within Groups	132.296	281	.471		
	Total	135.433	284			
Total	Between Groups	1.372	3	.457	2.226	.085
	Within Groups	57.752	281	.206		
	Total	59.124	284			

The data presented in Table (5.6) show that there is no statistically significant difference at the level (α≤0.05) in the mean estimates of the sample individuals due to the variable (age) in the knowledge, attitudes, and practices of HCWs regarding AMS in governmental hospitals in Hebron governorate. This is because the p-value for this variable is (0.085), which is greater than the (α≤0.05), thus, the null hypothesis was accepted.

Furthermore, the data in Table (5.6) show that for all three dimensions (knowledge, attitude, and practice), there is no statistically significant difference at level (α≤0.05) in the sample individuals' mean estimates of HCWs' knowledge, attitude, and practice regarding AMS in

government hospitals in the Hebron governorate due to the age variable, this is further illustrated in Table (5.7), which shows the counts, means, and standard deviations:

Table 5. 8: Numbers, means, and standard deviations of the differences in average assessments of sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the age variable

Sections	Age	No	Mean	Std. Deviation
Knowledge	**20-30 Years**	108	4.22	0.745
	31-40 Years	116	4.08	0.857
	41-50 Years	53	4.16	0.728
	More Than 50 Years	8	4.04	0.883
Attitude	**20-30 Years**	108	4.11	0.535
	31-40 Years	116	4.05	0.574
	41-50 Years	53	3.97	0.653
	More Than 50 Years	8	3.83	0.407
Practice	**20-30 Years**	108	3.96	0.682
	31-40 Years	116	3.85	0.672
	41-50 Years	53	3.70	0.740
	More Than 50 Years	8	3.55	0.546
Total	**20-30 Year**	108	4.10	0.443
	31-40 Years	116	3.99	0.461
	41-50 Years	53	3.94	0.469
	More Than 50 Years	8	3.81	0.342

The table (5.7) indicates that there are no differences in the responses of the study sample regarding knowledge, attitudes, and practice of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate, attributed to the age variable, which confirms the validity of the previous hypothesis.

Third null hypothesis : There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of (marital status).

To test the validity of the mentioned hypotheses, a one-way (ANOVA) test was used to analyze the differences in the mean estimates of the sample members' HCW knowledge,

attitudes, and practices regarding AMS in government hospitals in Hebron Governorate due to the variable (marital status). The results are shown in Table (5.8).

Table 5. 9: Results of the one-way ANOVA test for the differences in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (marital status)

Sections	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge	**Between Groups**	.178	3	.059	.094	.963
	Within Groups	177.945	281	.633		
	Total	178.123	284			
Attitude	**Between Groups**	1.203	3	.401	1.229	.299
	Within Groups	91.685	281	.326		
	Total	92.888	284			
Practice	**Between Groups**	.613	3	.204	.426	.734
	Within Groups	134.820	281	.480		
	Total	135.433	284			
Total	**Between Groups**	.452	3	.151	.722	.540
	Within Groups	58.672	281	.209		
	Total	59.124	284			

The data presented in Table (5.8) show that there is no statistically significant difference at the level ($\alpha \leq 0.05$) in the mean rating of the sample individuals' knowledge, attitudes, and practices of HCWs regarding AMS in government hospitals in the Hebron governorate, due to the variable (marital status). the P-value for this variable was (0.540), which is greater than (0.05). so, the null hypothesis was accepted.

Furthermore, the data presented in Table (4.8) show that in all three domains (knowledge, attitude, and practice) of HCWs' knowledge, attitude, and practice regarding AMS in governmental hospitals in Hebron governorate, there is a statistically significant difference at level ($\alpha \leq 0.05$) in the mean rating of the sample individuals due to the variable (marital status), with The results indicate that there is no This is further illustrated in table (5.9), which presents the values, means and standard deviations.

Table 5. 10: The numbers, means, and standard deviations of the differences in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (marital status).

Section	Marital status	N	Mean	Std. Deviation
Knowledge	Married	204	4.14	.802
	Single	76	4.18	.790
	Widower	2	3.97	.530
	Divorced	3	4.23	.340
Attitude	Married	204	4.07	.562
	Single	76	4.02	.603
	Widower	2	3.33	.157
	Divorced	3	3.96	.449
Practice	Married	204	3.86	.655
	Single	76	3.86	.790
	Widower	2	3.33	.471
	Divorced	3	3.71	.567
Total	Married	204	4.02	.447
	Single	76	4.02	.487
	Widower	2	3.55	.033
	Divorced	3	3.97	.425

Table (5.9) shows that there is no difference in the responses of the survey sample with respect to the mean estimates of AMS knowledge, attitudes, and practices of HCWs in government hospitals in Hebron governorate. This confirms the validity of the previous hypothesis.

Fourth null hypothesis : There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of (profession).

To test the validity of the aforementioned hypotheses, a one-way (ANOVA) test was used to analyze the differences in the sample individuals' mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron governorate due to the variable (profession). The results are shown in Table (5.10).

Table 5. 11: Results of the One-Way ANOVA Test for Differences in Mean Ratings of Sample Individuals' Knowledge, Attitudes, and Practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate, Attributed to the Variable (Profession).

Sections	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge	**Between Groups**	2.569	3	.856	1.371	.252
	Within Groups	175.554	281	.625		
	Total	178.123	284			
Attitude	**Between Groups**	1.747	3	.582	1.796	.148
	Within Groups	91.140	281	.324		
	Total	92.888	284			
Practice	**Between Groups**	2.129	3	.710	1.496	.216
	Within Groups	133.304	281	.474		
	Total	135.433	284			
Total	**Between Groups**	1.704	3	.568	2.779	.041
	Within Groups	57.420	281	.204		
	Total	59.124	284			

The data presented in Table (5.10) shows that there is a statistically significant difference at the level ($\alpha \leq 0.05$) in the mean estimates of HCWs' knowledge, attitudes, and practices of the sample members regarding AMS in government hospitals in Hebron Governorate due to the variable (occupation). This is because the p-value for this variable was (0.041), which is less than the alpha value (0.05), so the null hypothesis was rejected.

The data in Table (5.10) also indicate that there are no statistically significant differences in the mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals within Hebron governorate at the level ($\alpha \leq 0.05$) attributable to the variable (years of experience) across all dimensions of the scale (knowledge, attitudes, and practices).

To identify the sources of differences, the results of the Tukey test for post hoc comparisons of the sample members' mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron province due to the variable (occupation) were extracted for the total scores of the study scale, as shown in Table (4.11).

Table 5. 12: Results of the Tukey test for post-hoc comparisons in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributable to the variable (Profession)

section	Profession	Nurses	Doctors	pharmacist	Lab technician
Total	Nurses		*0.16796	0.02711	0.00897-
	Doctors			0.14085	*0.17694-
	pharmacist				-0.03608
	Lab technician				

The data presented in Table (5.11) indicates that the differences were between individuals in the study sample from nurses and doctors, with the differences favoring the nurses. The study also showed differences between doctors and laboratory technicians, with the differences favoring the laboratory technicians.

This is evident in Table (5.12), which illustrates the numbers, means, and standard deviations:

Table 5. 13: The numbers, means, and standard deviations of the differences in average ratings of sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (Profession).

Section	Profession	N	Mean	Std. Deviation
Knowledge	Nurses	172	4.22	0.747
	Doctors	87	4.02	0.858
	pharmacist	9	4.16	0.804
	Lab technician	17	4.05	0.849
Attitude	Nurses	172	4.07	0.487
	Doctors	87	3.96	0.739
	pharmacist	9	4.16	0.405
	Lab technician	17	4.27	0.389
Practice	Nurses	172	3.92	0.659
	Doctors	87	3.73	0.791
	pharmacist	9	3.81	0.317
	Lab technician	17	3.91	0.524
Total	Nurses	172	4.07	0.419
	Doctors	87	3.90	0.540
	pharmacist	9	4.04	0.330
	Lab technician	17	4.08	0.301

Table (4.12) shows that there are differences in the responses of the survey sample with respect to the mean estimates of AMS knowledge, attitudes, and practices of HCWs in

government hospitals in Hebron governorate, which are attributed to the profession variable in the total score of the scale, supporting the validity of the previous hypothesis.

The fifth null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable of (workplace)

To test the validity of the fifth hypothesis, a one-way analysis of variance test was used to investigate the differences in the mean estimates of the sample members' HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron Governorate, due to the variable (workplace). The results are shown in Table (5.13).

Table 5. 14: Results of the one-way ANOVA test for differences in the average estimates of the sample members' knowledge, attitudes, and of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate, attributed to the variable (workplace).

Sections	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Knowledge	**Between Groups**	106.863	4	26.716	104.974	.000
	Within Groups	71.260	280	.255		
	Total	178.123	284			
Attitude	**Between Groups**	2.391	4	.598	1.850	.120
	Within Groups	90.497	280	.323		
	Total	92.888	284			
Practice	**Between Groups**	4.374	4	1.093	2.336	.056
	Within Groups	131.059	280	.468		
	Total	135.433	284			
Total	**Between Groups**	8.436	4	2.109	11.650	.000
	Within Groups	50.688	280	.181		
	Total	59.124	284			

The data presented in Table (5.13) show that there is a statistically significant difference at level ($\alpha \leq 0.05$) in the sample mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron Governorate, due to the variable (workplace). This is because the p-value for this variable was (0.000) and it is smaller than the alpha value (0.05), thus the null hypothesis was rejected.

As indicated by the data presented in Table (4.13), there are no statistically significant differences at the level (α≤0.05) in the average estimates of the sample individuals regarding the knowledge, attitudes, and practices of HCWs about AMS in governmental hospitals within Hebron Governorate attributed to the variable (work place) in both dimensions (Attitude, Practice).

Furthermore, As the data presented in Table (4.13) indicates, there are statistically significant differences at the level (α≤0.05) in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs about AMS in governmental hospitals within Hebron Governorate, attributed to the variable (work place) in the dimension of (Knowledge)

To identify sources of differences, as shown in Table (5.14), the results of the Tukey post hoc test for differences in the sample mean estimates of HCWs' knowledge, attitudes, and variables (workplace) regarding AMS in government hospitals in Hebron Governorate, due to the total score of the survey instrument and extracted by focusing on the knowledge dimension

Table 5. 15: : Results of the Tukey test for post-hoc comparisons of the average scores of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (workplace).

Section	**Place of work**	Hebron Hospital (Alia)	Mohammad Ali Al -Mohtasib	Al Shahed Abu-Alhasan Alqasem	Dora	Mahmoud Abbas
Knowledge	Hebron Hospital (Alia		*1.7146	-0.13157	*0.31865	*1.71639
	Mohammad Ali Al -Mohtasib			*-1.7146	-1.39595 *	0.00179
	Al Shahed Abu-Alhasan Alqasem				*0.45022	*1.84796
	Dora					*1.39774
	Mahmoud Abbas					
Total	Hebron Hospital (Alia		*0.45228	-0.13333	-0.04589	*0.38515
	Mohammad Ali Al -Mohtasib			-*0.58561	-0.49817 *	-0.06713
	Al Shahed Abu-Alhasan Alqasem				0.08744	*0.51848
	Dora					*0.43104
	Mahmoud Abbas					

The data presented in Table (5.14) indicates that the differences were between individuals in the study sample working at Hebron Government Hospital (High) and those at Muhammad Ali Al-Muhtasib Hospital, with the differences favoring the employees at Hebron Government Hospital (High). Additionally, there were differences between the employees of Hebron Government Hospital (High) and those at Dura Government Hospital, again favoring the employees at Hebron Government Hospital (High). Furthermore, there were differences between employees of Al- Hebron Government Hospital (High) and those at Mahmoud Abbas Government Hospital, with the differences still favoring the employees at Hebron Government Hospital (High). It also showed differences between the employees at Alshahed Abu Al-Hassan Al-Qasem Hospital (Yatta) and those at Muhammad Ali Al-Muhtasib Hospital, with the differences favoring Alshahed Abu Al-Hassan Al-Qasem Hospital (Yatta). Likewise, there were differences between the employees at Dura Government Hospital and those at Muhammad Ali Al-Muhtasib Hospital, with the differences favoring Dura Government Hospital. This is evident from Table (5.15), which shows the numbers, means, and standard deviations:

Table 5. 16: The numbers, means, and standard deviations of the differences in the average ratings of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (place of work).

section	Place of work	No	Mean	standard deviations
Knowledge	Hebron Hospital (Alia	153	4.42	.396
	Mohammad Ali Al -Mohtasib	28	2.71	.621
	Al Shahed Abu-Alhasan Alqasem	49	4.56	.287
	Dora governmental hospital	41	4.10	.892
	Mahmoud Abbas Governmental Hospital	14	2.71	.304
Attitude	Hebron Hospital (Alia	153	3.97	.606
	Mohammad Ali Al -Mohtasib	28	4.23	.617
	Al Shahed Abu-Alhasan Alqasem	49	4.11	.531
	Dora governmental hospital	41	4.12	.481
	Mahmoud Abbas Governmental Hospital	14	4.15	.348
Practice	Hebron Hospital (Alia	153	3.76	.718
	Mohammad Ali Al -Mohtasib	28	3.86	.757
	Al Shahed Abu-Alhasan Alqasem	49	3.89	.607
	Dora governmental hospital	41	4.07	.626
	Mahmoud Abbas Governmental Hospital	14	4.14	.550
Total	Hebron Hospital (Alia	153	4.05	.455
	Mohammad Ali Al -Mohtasib	28	3.60	.414
	Al Shahed Abu-Alhasan Alqasem	49	4.18	.352
	Dora governmental hospital	41	4.10	.439
	Mahmoud Abbas Governmental Hospital	14	3.67	.258

Table (5.15) shows that there is no difference in the responses of the study sample with respect to the mean estimates of AMS knowledge, attitudes, and practices of HCWs in government hospitals in Hebron province.

Sixth null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable (educational qualification).

To test the validity of the sixth hypothesis, a one-way (ANOVA) test was used to examine differences in mean estimates of HCW knowledge, attitudes, and practices of sample members regarding AMS in government hospitals in Hebron Governorate due to the variable (educational qualification). The results are shown in Table (5.15).

Table 5. 16: Results of the one-way ANOVA test for the differences in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (educational qualification).

Section	Sum Of Squares	Df	Mean Square	F	Sig.	Sum Of Squares
Knowledge	**Between Groups**	3.282	3	1.094	1.758	.155
	Within Groups	174.841	281	.622		
	Total	178.123	284			
Attitude	**Between Groups**	4.162	3	1.387	4.393	.005
	Within Groups	88.726	281	.316		
	Total	92.888	284			
Practice	**Between Groups**	.784	3	.261	.546	.652
	Within Groups	134.649	281	.479		
	Total	135.433	284			
Total	**Between Groups**	.657	3	.219	1.053	.369
	Within Groups	58.466	281	.208		
	Total	59.124	284			

The data presented in Table (5.15) show that there is no statistically significant difference at the level (alpha ≤ 0.05) in the mean estimates of HCW knowledge, attitudes, and practices of the sample individuals regarding AMS in government hospitals within Hebron Govern due to the variable (educational qualification). This is because the P-value reached (0.369), which is greater than the alpha value (0.05), thus, the null hypothesis was accepted.

As the data presented in Table (5.15) shows, there were no statistically significant differences in the mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron province at the level (α≤0.05) attributable to the variable (educational qualification) for both knowledge and practice components.

Furthermore, the results show that there is a statistically significant difference in the mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron Governorate at the level (α ≤ 0.05) attributable to the "attitude" variable (educational qualification).

To understand the causes of the differences, we extracted the results of the Tukey test post hoc comparison of mean estimates of HCWs' knowledge, attitudes, and practices regarding AMS in government hospitals in Hebron Governorate, as shown in Table (5.16), for the sample individuals due to the attitude component variable (educational qualification).

Table 5. 17: Results of the Tukey test for post-hoc comparisons in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributable to the variable (educational qualification).

Section	**certificate**	**diploma**	bachelor's degree	**Master's degree**	**PhD**
Attitude	**diploma**		-0.20074	*-0.47318	*-0.75926
	bachelor's degree			-0.27244	*-0.55852
	Master's degree				-0.28608
	PhD				

The data presented in Table (5.16) indicate that the differences were between the HCWs who have a diploma and those who have a master's degree and a PhD. The differences favored

those who have a master's degree and a PhD. The results showed there are differences between holders of a bachelor's degree and holders of a PhD, with differences favoring holders of the PhD.

This is evident from Table (5.17), which illustrates the numbers, the mean averages, and the standard deviations:

Table 5. 18: The numbers, mean averages, and standard deviations of the differences in the average ratings of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to educational qualification

Section	Certificate	N	Mean	Std. Deviation
Knowledge	**diploma**	28	3.96	.767
	Bachelor's degree	225	4.19	.764
	Master's degree	29	4.09	.958
	PhD	3	3.37	1.130
Attitude	**diploma**	28	3.83	.349
	Bachelor's degree	225	4.03	.582
	Master's degree	29	4.31	.578
	PhD	3	4.59	.357
Practice	**diploma**	28	3.86	.590
	Bachelor's degree	225	3.84	.674
	Master's degree	29	3.87	.892
	PhD	3	4.36	.749
Total	**diploma**	28	3.89	.402
	Bachelor's degree	225	4.02	.447
	Master's degree	29	4.09	.568
	PhD	3	4.10	.353

The data in Table (5.17) indicate that the mean estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding AMS in government hospitals in Hebron province, due to the variable (educational qualification), do not differ statistically significantly at the level ($\alpha \leq 0.05$) in the total score of the scale, which confirms the validity of the results.

The seventh null hypothesis : There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' KAP of HCWs regarding the AMS in governmental hospitals in Hebron Governorate attributed to the variable of years of experience.

To verify the validity of the previous hypothesis, a one-way (ANOVA) test was used for the differences in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate, attributed to the variable (years of experience). The researcher reached the results as illustrated in Table (5.18).

Table 5. 19: Results of the one-way analysis of variance test for the differences in the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable (years of experience).

Section	Sum Of Squares	df	Mean Square	F	Sig.	Sum Of Squares
Knowledge	**Between Groups**	2.168	3	.723	1.154	.328
	Within Groups	175.955	281	.626		
	Total	178.123	284			
Attitude	**Between Groups**	1.409	3	.470	1.443	.231
	Within Groups	91.479	281	.326		
	Total	92.888	284			
Practice	**Between Groups**	3.048	3	1.016	2.157	.093
	Within Groups	132.385	281	.471		
	Total	135.433	284			
Total	**Between Groups**	1.424	3	.475	2.311	.076
	Within Groups	57.700	281	.205		
	Total	59.124	284			

The data presented in Table (4.18) show that there is no statistically significant difference at the level (alpha ≤ 0.05) attributable to the variable (years of experience) in the mean estimates of HCW knowledge, attitudes, and practices of the sample members regarding AMS in government hospitals within Hebron governorate. This is because the P- P-value associated with this variable was (0.076), which is greater than the alpha value (0.05), thus, the null hypothesis is accepted.

Furthermore, the data in table (4.18) also indicate that there are no statistically significant differences at the level (α≤0.05) in the mean estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (years of experience) in both dimensions (Knowledge, Attitude, Practice).

This is clarified by table (5.19), which shows the numbers, means, and standard deviations:

Table 5. 20: Numbers, means, and standard deviations of the differences in the mean estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate attributed to the variable (years of experience).

Section	Years of experience	N	Mean	Std. Deviation
Knowledge	Less than 1 year	18	4.47	.304
	4-1	68	4.16	.830
	9-5	84	4.10	.783
	15-10	115	4.12	.824
Attitude	More than 15 years	18	4.09	.417
	Less than 1 year	68	4.17	.527
	4-1	84	4.01	.605
	9-5	115	4.00	.589
Practice	15-10	18	3.84	.629
	More than 15 years	68	4.02	.635
	Less than 1 year	84	3.74	.689
	4-1	115	3.84	.721
Total	9-5	18	4.13	.339
	15-10	68	4.12	.443
	More than 15 years	84	3.95	.498
	Less than 1 year	115	3.99	.440

Table (5.19) indicates that there are no differences in the responses of the study sample regarding the average estimates of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within the Hebron Governorate that can be attributed to the variable of years of experience in the overall measure. This reinforces the validity of the previous hypothesis.

5.3. Sub-question two:

What are the levels of barriers to implementing antimicrobial management?

To answer the previous question, the means and standard deviations of the level of barriers to implementing antimicrobial management were extracted, as shown in Table (5.21).

Table 5. 21: Means and standard deviations of the level of barriers to implementing antimicrobial management

No	Item	Mean	Std. Deviation	Degree
1.	Public access to antimicrobials, such as antibiotics, without prescriptions in the community.	4.08	0.938	**high**
2.	Limited public/patient acceptance of antimicrobial stewardship.	4.00	0.931	**high**
3.	Problems with data and information technology systems.	3.96	0.963	**high**
4.	Limited infrastructure and administrative support for antimicrobial stewardship programs or interventions.	3.95	0.909	**high**
5.	fear that withholding antimicrobials, and especially antibiotics, will lead to poor outcomes.	3.95	0.902	**high**
6.	limited access to data, including antimicrobial prescribing trends, at a facility, and data regarding the prevalence of AMR in the community.	3.94	0.898	**high**
7.	limited or lack of communication between healthcare providers.	3.87	0.988	**high**
8.	limited or unreliable access to quality-assured antimicrobial	3.86	0.998	**high**
9.	limited access to reliable clinical diagnostic or microbiologic testing, including antibiogram.	3.84	0.871	**high**
10.	opposition from clinicians to antimicrobial stewardship.	3.79	1.089	**high**
Barriers to implementing AMS		**3.92**	**0.703**	**high**

We observe from Table (5.20) and the data contained within it that the level of barriers to implementing antimicrobial stewardship was high, with a mean of (3.92) and a standard deviation of (0.703). It is clear from Table (5.20) that the item Public access to antimicrobials, such as antibiotics, without prescriptions in the community) ranked first, with a mean of (4.08) and a standard deviation of (0.938). This was followed by the item (limited acceptance by patients and the public in general of the rational use of antimicrobials), with a mean of (4.00) and a standard deviation of (0.931). The next item was (Problems with data and information technology systems), with a mean of (3.96) and a standard deviation of (0.963). This was followed by the item (limited infrastructure and administrative support for the antimicrobial stewardship program), with a mean of (3.95) and a standard deviation of (0.909), and then the item (fear that stopping antimicrobials, especially antibiotics, will lead to negative outcomes), with a mean of (3.95) and a standard deviation of (0.898). Meanwhile, the item (doctors' opposition to the antibiotic stewardship program) came in last, with a mean of (3.79) and a standard deviation of (1.089).

Chapter Six

6.1 Discussion

This chapter presents a summary of the study's results, discusses them, and interprets them as provided by the researcher, as well as some recommendations and suggestions that arose from the study.

6.1.1 Discussion of the Results:

6.1.1.1 Discussion of the results of the first (main) research question: What is the level of knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within Hebron Governorate?

The results indicated that the level of knowledge among of HCWs regarding the AMS in governmental hospitals within Hebron Governorate was at a high level, with a mean score of (5.15) and a standard deviation of (0.792). Among the most important items:

1. Overuse, misuse, and abuse of antimicrobials can lead to AMR.

2. Antimicrobial resistance decreases the effectiveness of existing drugs, making it harder to eradicate infections from the body, and it is a serious problem.
3. There are risks associated with the irrational use of antimicrobials.
4. It is important to teach patients and their families how to correctly use the prescribed antimicrobial.
5. Restricting antimicrobial usage is necessary to reduce antimicrobial resistance.
6. Better patient care, reduced antimicrobial usage, and cost-effective health care are positive side effects of antimicrobial stewardship

The previous results indicate a high level of knowledge among HCWs regarding AMS in governmental hospitals within the Hebron Governorate. The low standard deviation value also suggests that most participants share a consensus regarding their knowledge of the AMS topic.

The researcher attributes this result to the healthcare workers' awareness of the risks associated with the misuse of antibiotics, as well as to the employees' recognition of the magnitude of the problem related to antibiotic resistance and its impact on healthcare. The workers also acknowledge the importance of health education as part of antimicrobial management and show an interest in healthcare improvement initiatives.

Furthermore, these results indicate that healthcare workers in the Hebron Governorate possess a high level of awareness and knowledge of AMS concepts, which is a positive reflection of the potential to enhance healthcare quality and reduce antibiotic resistance issues. However, despite this, the biggest challenge may lie in how to apply this knowledge in practice. Thus, relevant authorities should increase efforts in training healthcare workers, enabling them to effectively utilize these concepts in their daily practice by developing ongoing educational and awareness programs on the prudent use of antibiotics and managing AMR.

6.1.1.2 According to the attitudes of HCWs regarding the AMS in governmental hospitals within Hebron Governorate were at a high level, the results showed the mean was (4.05) with a standard deviation of (0.572). Among the most important items:

1. I feel that gaining approval for restricted antimicrobials makes the team think more carefully about the choice.
2. I feel that an antimicrobial stewardship program increases my knowledge of appropriate antimicrobial use.
3. Prescribing antimicrobials to a patient who does not really need them may ultimately have a negative impact on their health.
4. I would be willing to participate in any activities to improve the quality of antimicrobial use at my hospital.

The results indicate that the attitudes of HCWs towards the AMS in government hospitals within the Hebron Governorate were at a high level, suggesting that the staff in these hospitals have a positive outlook towards the AMS program. The workers believe that the approval process encourages them to think deeply about the selection of appropriate antibiotics, which enhances the more accurate and effective use of these medications. They value the educational benefit of the AMS program in increasing their knowledge about the correct use of antimicrobials. The workers express their willingness to participate in efforts to improve antibiotic use, indicating their commitment to the quality of healthcare in their institutions.

These results reflect very positive attitudes from healthcare workers towards the AMS, showcasing their clear commitment to promoting the quality of use of these medications. This may be attributed to the possibility that the staff received intensive training on the importance and procedures of antimicrobial management. Furthermore, the existence of clear policies and procedures within the hospitals supports the responsible management of antimicrobials. The workers may have also observed positive outcomes in patient health as a result of implementing the AMS program, which further reinforced their positive attitudes towards it.

6.1.1.3 Additionally, the study showed that the practice of HCWs regarding the AMS in governmental hospitals within Hebron Governorate was at a high level, with a mean score of (3.85) and a standard deviation of (0.691). Among the most important items:

1. Healthcare providers avoid unnecessary use of broad-spectrum antibacterial agents.

2. Healthcare providers educate patients about the dose, duration, and frequency of administration of their prescribed antimicrobials.
3. If medically appropriate, IV antibiotics should be stepped down to an oral alternative if possible.
4. Healthcare providers switch to the correct antibacterial agents when susceptibility testing indicates resistance or to a cheaper or more cost-effective antibacterial that is also compatible with the clinical presentation.
5. Healthcare providers document in the patient's clinical records the clinical indication, route, dose, duration, and review date of antimicrobials.

The previous result indicates that the practices of HCWs regarding AMS in government hospitals in the Hebron Governorate were at a high level, meaning that most healthcare workers are practicing good management of antimicrobials, reflecting their commitment to improving patient care.

Healthcare providers have a high awareness of the importance of reducing the overuse of antibiotics, which is a key factor in combating microbial resistance. They are committed to educating patients about the correct use of antimicrobials. They adopt effective practices to reduce the use of more potent antibiotics and demonstrate a good level of understanding of evidence-based care and the necessity of adjusting treatment according to the results of sensitivity tests.

Additionally, the results indicate a high level of positive practices related to antimicrobial management among healthcare workers in government hospitals in Hebron. This shows a good understanding of appropriate practices and procedures that contribute to reducing the risk of microbial resistance.

6.1.1.2 Discussion of the sub-question of the study: Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) in the average ratings of the sample individuals' knowledge, attitudes, and practices of of HCWs regarding the AMS in govermental hospitals within Hebron Governorate attributed to the study variables (gender, age, marital status, profession, workplace, educational qualification, years of experience)?

Discussion of the first null hypothesis: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the average ratings of the sample individuals' knowledge, attitudes, and practices of healthcare workers regarding the rational use of antibiotics in government hospitals within Hebron Governorate attributed to the variable (gender).

The results showed that there are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average ratings of the sample individuals' knowledge, attitudes, and practices of HCWs regarding the AMS in govermental hospitals within Hebron Governorate attributed to the variable of gender, in the total score of the scale and for all axes of the study tool (Knowledge, Attitude, Practice).

The results indicate that there are no statistically significant differences in the average knowledge, attitudes, and practices assessments of healthcare providers regarding AMS in government hospitals in the Hebron governorate based on gender. This means that gender (male or female) does not affect the level of knowledge, attitudes, or practices among healthcare providers concerning antimicrobial management, indicating that they all receive the same training and information and show the same level of awareness and commitment to AMS practices.

This explains that gender is not an influencing factor in healthcare providers' ability to understand and manage antibiotics, highlighting that learning and application are based on other factors such as education, training, and professional experiences.

This result reinforces the idea that training and knowledge related to AMS should be available to all healthcare providers regardless of their gender. This helps promote integration and collaboration among individuals in the health field, which in turn may improve AMS.

6.1.1.3 Discussion of the second null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of age.

The results showed that there are no statistically significant differences at the level (α≤0.05) in the average estimates of the sample members' knowledge, attitudes, and practices of of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of age, in the overall score of the study scale and all its dimensions (Knowledge, Attitude, Practice).

The previous results, indicate that there are no statistically significant differences in the average evaluations of knowledge, attitudes, and practices of healthcare providers regarding AMS in governmental hospitals in Hebron Governorate based on the age variable. This suggests that age does not affect the level of knowledge, attitudes, or practices related to AMS. In other words, it appears that all staff, regardless of their age categories, possess similar levels of knowledge, skills, and practices in this area. This means that training and continuous education on antimicrobial management have been effective across all age groups, equipping healthcare workers equally to address these issues. The result reflects the health system's commitment to providing the necessary knowledge about antimicrobial management for all ages. This indicates equality of opportunity in learning and skill development

6.1.1.4 Discussion of the third null hypothesis: There are no statistically significant differences at the level (α≤0.05) in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of marital status.

The results indicated that there are no statistically significant differences at the level (α≤0.05) in the average estimates of the sample members' knowledge, attitudes, and of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of marital status, in the overall score of the study scale and all its dimensions (Knowledge, Attitude, Practice).

As previous result that marital status does not affect the level of knowledge, attitudes, or practices among healthcare workers regarding AMS. This suggests that all workers acquire relevant knowledge and skills regardless of their marital status.

The researcher attributes this previous result to the possibility that all categories may have undergone the same training or education, which has narrowed potential gaps between married and unmarried individuals in terms of knowledge and practices. Working in similar professional environments and under standardized supervisory guidelines can facilitate the transfer of knowledge and practices in a way that enhances professional excellence, regardless of marital status. The focus on work and issues within the healthcare profession may overshadow personal influences such as married life. This may lead to a more pronounced interaction with professional standards rather than personal biases. Social status may not be considered a significant factor compared to other factors related to knowledge and practices, such as practical experience and educational background.

The previous result reflects the importance of continuing education and training in this field. Future studies could provide an opportunity to consider other influential factors, such as educational backgrounds, practical experience, and cultural environments, contributing to the improvement of AMS in hospitals.

5.4.1.5 Discussion of the fourth null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample members' knowledge, attitudes, and practices of HCWs regarding the AMS in govermental hospitals within Hebron Governorate attributed to the variable of profession.

The results showed that there are statistically significant differences at the level ($\alpha \leq 0.05$) in the average estimates of the sample members' knowledge, attitudes, and of HCWs regarding the AMS in governmental hospitals within Hebron Governorate attributed to the variable of profession, in the overall score of the study scale.

The results indicated that there are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS inn governmental hospitals in Hebron Governorate attributed to the variable (profession) across all dimensions of the scale (Knowledge, Attitude, Practice).

This result showed the effect of the variable of profession on the evaluations of knowledge, attitudes, and practices of healthcare providers regarding AMS in governmental hospitals in

the Hebron Governorate based on the variable of profession in the overall score. This reflects that workers in different medical fields (such as doctors, nurses, and pharmacists) may receive different training and knowledge that affect how they handle antimicrobial.

The researcher attributes this result to the likelihood that workers in various fields have undergone different educational training or learning programs, which in turn affects their level of knowledge and practices. For instance, doctors and medical practitioners have intensive academic training and different curricula compared to other professions such as nursing, and the varying nature of work among professions (for example, clinical roles versus administrative roles) may require diverse knowledge and skills in managing antimicrobial. Doctors may be more involved in medication prescribing decisions compared to nurses, who may focus more on care management. Additionally, each profession may develop its own professional culture regarding how to handle antimicrobial, which can include policies and procedures followed within each profession, leading to differences in knowledge and practices.

Overall, these findings highlight the importance of professional diversity in improving knowledge and practices related to AMS. Therefore, healthcare institutions should focus on integrated training programs that enhance collaboration between different professions and ensure that all healthcare providers, regardless of their specialty, have the necessary knowledge and skills to combat AMR.

5.4.1.6 Discussion of the fifth null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable of workplace.

The results showed that there are statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable (workplace), in the overall score of the study scale and the (Knowledge) dimension.

The results indicate that the workplace significantly affects the level of knowledge, practices, and attitudes among HCWs. This means that the systems, policies, and working environments in different hospitals directly impact how employees understand and respond to standards and practices related to AMS. Despite the workplace-related differences, years of service did not show a clear impact on attitudes and practices, indicating that experience alone is not the only factor influencing knowledge and practices.

The researcher attributes this outcome to the likelihood that different hospitals have varying training and education programs, which affect the knowledge and practices of the staff. For example, some hospitals may be more distinguished in providing appropriate training for their teams. Hospitals may also differ in terms of human and financial resources, which affects the level of knowledge and practices. Hospitals with more abundant resources might be able to offer better training courses and provide a distinguished professional health environment. Furthermore, there is a possibility that policies and procedures related to AMS vary from one hospital to another, affecting how employees accept and implement these standards.

The workplace culture in hospitals can lead to different educational environments that influence learning styles and daily practices, as culture can either encourage or diminish commitment to certain practices. Overall, the results underscore the importance of the workplace and its significant impact on knowledge and practices related to AMS. Hospitals should focus on developing integrated educational and training programs that meet the needs of HCWs to enhance knowledge and good practices.

5.4.1.7 Discussion of the sixth null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable (educational qualification).

The results showed that there are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable

(educational qualification) in the overall score of the study instrument and in both (Knowledge, Practice) dimensions.

Furthermore, the results also indicated that there are statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable (educational qualification) in the (Attitude) dimension.

The results indicate that educational qualifications did not significantly affect the level of knowledge, practices, or attitudes related to AMS. This means that all HCWs in the sample had similar levels of understanding and handling of antimicrobials, regardless of their educational degree. This finding aligns with some general findings that show education can contribute to understanding medical issues.

The researcher attributes this result to the possibility that all HCWs have undergone standardized training or educational programs focused on AMS, leading them to acquire a similar level of knowledge and practices regardless of educational qualifications. While formal education may provide theoretical information, in healthcare fields, practical training and hands-on experience are considered the most influential factors in understanding daily practices. Therefore, the level of education alone may be insufficient to apply knowledge in workplace environments. There may also be clear policies and procedures in hospitals regulating how to handle antimicrobials, ensuring that all personnel adhere to the same standards regardless of their educational qualifications. The work environment and organizational culture may have a greater impact than educational qualifications on how healthcare provider's practice. If institutions support a continuous learning environment, educational qualifications may not be the primary determinant of practices.

Overall, the results highlight the importance of practical and environmental factors in determining the level of knowledge and practices for healthcare providers in the field of AMS, rather than merely relying on educational qualifications. It is important to encourage health institutions to improve training and continuous development programs to ensure that all healthcare workers possess the necessary knowledge and skills to meet the challenges associated with AMS.

5.4.1.8 Discussion of the seventh null hypothesis: There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable of years of experience.

The results indicated that there are no statistically significant differences at the level ($\alpha \leq 0.05$) in the mean estimates of the sample individuals' knowledge, attitudes, and practices regarding AMS in governmental hospitals in Hebron Governorate attributed to the variable (years of experience) in the overall score of the study scale and in all its dimensions (Knowledge, Attitude, Practice).

The results suggest that there is no significant impact of the length of experience on the level of knowledge or practices related to AMS, which contrasts with the expectations of some previous studies that found experience enhances knowledge and practical skills.

The researcher attributes the previous result to consistent training, suggesting that it is possible that all healthcare providers received standardized training or similar instructions that enhance knowledge and practices, thereby reducing the impact of years of experience. If educational programs are of high quality, they may compensate for any knowledge gaps due to limited experience. There may also be a lack of continuing learning and development opportunities in the workplace, meaning that even those with many years of experience may not acquire new or unique knowledge about AMS. Furthermore, sometimes healthcare providers may be required to implement certain practices, meaning that their varied experiences may not significantly influence their approach to AMS. The organizational culture may be oriented towards standardization, leading all staff, regardless of their years of experience, to follow the same principles and practices.

Overall, these results indicate that years of experience may not be the determining factor in improving knowledge and practices for healthcare providers in the field of AMS. While experience may be important, it reflects the significance of continuous education and training as key factors in improving the quality of care.

5.4.2 Discussion of the second sub-question: What is the level of barriers to the implementation of antimicrobial stewardship?

The results showed that the level of barriers to the implementation of antimicrobial stewardship was high, with a mean score of (3.92) and a standard deviation of (0.703). The most important barriers include:

1. public access to antimicrobials, such as antibiotics, without prescriptions in the community.
2. limited public/patient acceptance of antimicrobial stewardship.
3. problems with data and information technology systems.
4. limited infrastructure and administrative support for antimicrobial stewardship programs or interventions.
5. fear that withholding antimicrobials, and especially antibiotics will lead to poor outcomes.

The previous result reflects the prominent challenges facing efforts in this area, necessitating an examination of the underlying reasons for these barriers to understand how to overcome them. This is due to several factors such as: the threat of antibiotic resistance requiring a collective response, and any obstacle that hinders these efforts can have a significant impact on public health. Community behaviors and their acceptance of medical practices play a crucial role in the effectiveness of AMS. Easy access to antimicrobial may lead to overuse and increase the risk of developing resistance. A lack of public awareness reflects a deficiency in awareness programs that explain the importance of rational antibiotic use. Without a good level of awareness and a willingness to make collaborative choices, implementing effective strategies becomes difficult. Technical issues also negatively affect antimicrobial management. The fear of consequences: Barriers related to the fear of stopping antimicrobial use indicate that healthcare providers are concerned that this may lead to negative outcomes for patients, making them more hesitant to implement the necessary actions for AMS.

Overall, these results indicate that the implementation of AMS faces significant challenges and requires comprehensive strategies to overcome the relevant barriers. It is essential to

enhance public awareness regarding the rational use of antibiotics, develop policies that regulate access to them, as well as improve infrastructure and administrative support.

The Ghanaian survey by Sefah et al (2023) revealed that 91.2% of HCPs had poor knowledge of AMS, with only 8.9% knowing about AMS. In contrast, healthcare providers in Hebron showed a high level of knowledge, as indicated by a mean score of 4.02. This stark difference suggests that education and training efforts in Hebron hospitals may be more effective in increasing knowledge of AMS than efforts in Ghana. Additionally, in Ghana, the attitude toward AMS was relatively good (78.8%), but knowledge and practice were inadequate, indicating a disconnect between positive attitudes and actual implementation. Conversely, the high level of KAP in Hebron suggests that healthcare providers not only have good attitudes toward AMS but also the knowledge and practices to support them. However, in Ghana, the study exhibited that 64.6% of participants have poor practices regarding AMS. This suggests that Hebron's health care system successfully integrates AMS principles into practice and promotes a more comprehensive understanding and application by health care providers. Furthermore, our result shows that there are differences between nurses and doctors, with the differences favoring the nurses. The study also showed differences between doctors and laboratory technicians, with the differences favoring the laboratory technicians. In Ghana, Pharmacists had better knowledge than nurses, while medical doctors had better practice levels compared to nurses.

Our findings in knowledge scores were compatible with a previous study conducted by Buckel et al (2016) indicated that most respondents were familiar with the concept of AMS and recognized its necessity, so they have a good KAP. Similarly, Badar et al (2018) found that the participants had good knowledge, a positive attitude, and followed ethical and fair practices regarding AMS.

The attitudes of HCWs in Hebron Governmental Hospitals, with a mean score of 4.05, reflect a positive disposition towards AMS. This is consistent with findings from Cotta et al. (2014), wherein a study, most healthcare professionals recognized the seriousness of antimicrobial resistance and the need to improve prescribing practices and AMS programs. Hebron's Governmental hospital's high scores on statements relating to careful antimicrobial

prescribing and the perceived benefits of antimicrobial maintenance programs are similar to those reported in other studies, such as El Baida & Mina, (2022).

A mean score of 3.85 indicates that healthcare workers in Hebron practice appropriate antimicrobial use. This is in line with findings reported by Tegagn et al. (2017), where a significant percentage of healthcare professionals demonstrated good KAP toward AMS procedures. Also, these researchers found that Age, profession, and years of experience are not significant predictors of healthcare professionals' KAP toward AMS. However, in our study, the profession has a statistically significant difference between nurses and doctors, and also between doctors and laboratory technicians.

In the South African study conducted by Balliram et al. (2021), doctors had the highest knowledge scores (65.74%), followed by pharmacists (60.07%) and nurses (60.14%). In contrast to our finding, which showed that the nurses have the highest score of knowledge. Both studies highlight the importance of knowledge in combating AMR, emphasizing that healthcare professionals recognize the seriousness of AMR and the need for proper antimicrobial use. Also, both studies indicate that participants have good attitudes toward AMS. The South African study reported that practice scores were lower than knowledge and attitude scores, indicating a gap between what HCWs know and how they practice. In contrast, our study showed that healthcare providers actively have good practices.

6.2 **Conclusion**

This study was carried out to assess knowledge, attitudes, and practices toward AMS among HCWs in the Hebron governorate governmental hospital.

As the findings suggest, HCWs have a high level of knowledge regarding AMS, with a mean score of 4.15. This indicates that they are well aware of the importance of appropriate antimicrobial use and the risks associated with it. According to the study, HCWs had a positive attitude about antimicrobial programs, with a mean score of 4.05, indicating that they realize the importance of antimicrobial programs and are willing to engage in initiatives that improve antimicrobial practices. It is noteworthy that even with high levels of knowledge and positive attitudes, HCWs' actual practices, while also scoring positively with

a mean score of 3.85, may still need improvement to ensure that knowledge is effectively applied. Additionally, Researchers found significant differences in KAP between doctors and nurses based on their professional roles with nurses demonstrating higher scores.

The study underscores the importance of continuous education and training in enhancing the implementation of AMS. It also points out that factors such as workplace environment and institutional policies significantly influence HCWs' knowledge and practices regarding AMS. The lack of significant differences based on demographic variables such as gender, age, marital status, and years of experience suggests that training and educational interventions have been effective across diverse groups.

In conclusion, the thesis emphasizes the need for ongoing educational programs and institutional support to strengthen AMS practices among HCWs in Hebron. By addressing the identified gaps and barriers, healthcare institutions can enhance the quality of care, reduce the incidence of AMR, and ultimately improve patient outcomes. The findings contribute valuable insights for policymakers and healthcare administrators aiming to develop effective strategies for antimicrobial stewardship in the region.

6.3. **Recommendation**

1. Healthcare workers should receive ongoing education and awareness programs on antimicrobial use and antimicrobial resistance to effectively integrate these concepts into their daily practices.
2. Integrated training programs should be developed by healthcare institutions for all healthcare providers, regardless of specialty, to combat AMR.
3. The public must be educated about the appropriate use of antimicrobials.
4. Policies should be developed that regulate public access to the antimicrobial.
5. The infrastructure should be enhanced in governmental hospitals.
6. Further study about AMR and AMS should be performed.

6.4 Strengths and Limitations of the study

6.4.1 Strengths:

1. A multicenter study it performed in five hospitals.
2. Good sample size, which is 285.
3. The study included a comprehensive review of the literature, relying on a large number of studies that addressed the topic of AMR AND AMS.
4. Reliability was tested using the reliability coefficient (Cronbach's Alpha) for each dimension, providing evidence of the tool's consistency,
5. which enhances the credibility of the results.

6.4.2 Limitations:

1. The use of self-reported data may introduce bias, as participants could have exaggerated their responses.
2. limitations associated with the use of a convenience sample that might not be representative of all hospitals. In addition, the study is descriptive and cross-sectional and it was conducted in one hospital
3. Lack of previous research in Palestine about AMS.
4. Political issues that affect the data collection process during the study.

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Appendix

Appendix A: The questionnaire in its initial form:

Al Quds University
School of public health
Infectious disease prevention and control
Research Questionnaire

"Knowledge, Attitudes, and Practices Towards Antimicrobial Stewardship Among Healthcare Workers in Hebron Governorate Governmental Hospitals."

Prepared by
Fatima Abu-Sabha
Supervised by
Prof. Maher Khdour

القسم الأول: الصفات الديموغرافية والمعلومات العامة:

1. **الجنس**

ذكر ☐ انثى ☐

2. **العمر:**

30-20 سنة ☐ 40-31 سنة ☐ 50-41 سنة ☐ أكثر من 50 سنة ☐

الحالة الاجتماعي:

متزوج\ة ☐ اعزب\عزباء ☐ ارمل\ة ☐ مطلق\ة ☐

3. **المهنة:**

ممرض/ممرضة: ☐ طبيب/طبيبة: ☐ صيدلاني/ة: ☐ فني/ة مختبر: ☐

4. **مكان العمل:**

مستشفى الخليل الحكومي(عالية): ☐ مستشفى محمد علي المحتسب: ☐ مستشفى الشهيد أبو الحسن القاسم (يطا): ☐ مستشفى دورا الحكومي: ☐ مستشفى محمود عباس الحكومي (حلحول): ☐

5. **المؤهل العلمي:**

دبلوم: ☐ بكالوريوس: ☐ درجة الماجستير: ☐ دكتوراه: ☐

6. **سنوات الخبرة:**

أقل من سنة : ☐ 4-1: ☐ 9-5: ☐ 15-10: ☐

أكثر من 15 سنة ☐

القسم الثاني:

Knowledge						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1.	يعد استخدام الأدوية المضادة للميكروبات بشكل غير لائق عبر القطاعات البشرية والحيوانية والبيئية من بين أهم أسباب مقاومة مضادات الميكروبات.					
2.	تقلل مقاومة مضادات الميكروبات من فعالية الأدوية الموجودة، مما يؤدي الى صعوبة القضاء على العدوى من الجسم.					
3.	هناك مخاطر مرتبطة بالاستخدام غير الرشيد والغير مبرر لمضادات الميكروبات.					
4.	تقييد استخدام مضادات الميكروبات ضروري للحد من مقاومة مضادات الميكروبات.					
5.	الاستخدام غير المناسب لمضادات الميكروبات يزيد من التكلفة الطبية للمريض على المستشفى.					
6.	هدف برنامج ترشيد استهلاك مضادات الميكروبات هو تحسين رعاية المرضى وتقليل استخدام المضادات الحيوية وتعزيز الرعاية الصحية الفعالة من حيث التكلفة، وهي آثار جانبية مرغوب فيها للبرنامج.					
7.	ال (5 Ds) للعلاج بمضادات الميكروبات، هي الدواء المناسب، والجرعة الصحيحة ، والطريق الصحيح للدواء، والمدة المناسبة ، والتصعيد في الوقت المناسب للعلاج الموجه الممرض.					
8.	ليس من الضروري إكمال العلاج بمضادات الميكروبات كما هو موصوف.					
9.	لا يُعتبر ضروريا استخدام الجرعة الصحيحة من مضادات الميكروبات لتقليل احتمالية مقاومة مضادات الميكروبات					
10	يمكن أن يؤدي الاستخدام المفرط والإساءة في استخدام مضادات الميكروبات إلى مقاومة مضادات الميكروبات.					

11	عند بدء العلاج دائما يجب البدء بالمضاد الحيوي ذو الطيف الواسع (broad spectrum) بغض النظر عن شدة العدوى والاتهاب.					
12	من المهم تعليم المرضى وعائلاتهم كيفية استخدام مضادات الميكروبات الموصوفة بالشكل الصحيح.					
13	قبل وصف المضاد الحيوي يجب القيام بعمل فحص زراعة للمريض					
14	مخطط المضادات الحيوية (antibiograms) يمكن أن يساعد في توجيه توصيات للعلاج التجريبي (empiric therapy) وتوفير نظرة عامة واسعة عن مقاومة المضادات الحيوية على مر الزمن.					
15	الصيادلة لديهم دور بارز في عملية ترشيد استهلاك مضادات الميكروبات.					
16	يجب تحويل العلاج بالمضادات الحيوية عبر الوريد إلى بديل عن طريق الفم بعد 3 أيام في حال كان ذلك مناسبا من الناحية الطبية.					
17	يقوم برنامج ترشيد استهلاك مضادات الميكروبات بإنشاء علاج تجريبي بالمضادات الحيوية ((empiric antibiotic للعدوى الأكثر شيوعا بالمستشفى					
18	يجب إعطاء الجرعة الوقائية على الأقل قبل 30 دقيقة ولا يجب أن تزيد عن 60 دقيقة قبل الشق الجلدي في حالة العمليات الجراحية.					
19	من المرجح بنسبة 7 إلى 10 مرات إصابة الأشخاص ب (clostridium difficile) أثناء استخدام المضادات الحيوية وخلال شهر بعد تناوله.					
20	عند وجود شخص يعاني من حساسية للمضادات الحيوية يمكن أن يؤثر بشكل كبير على عملية اختيار المضادات الحيوية وقد يتلقى علاجًا بالمضادات الحيوية غير المناسب.					

Section four: You will be asked about your attitudes regarding antimicrobial resistance and use in this section.

Could you please let me know what you think of the following statements and whether you agree or disagree?

Attitude						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	أشعر أن الحصول على موافقة لاستخدام مضادات الميكروبات المقيدة يجعل الفريق يفكر بعناية أكبر في الاختيار .					
2	أشعر أن برنامج ترشيد استهلاك مضادات الميكروبات سيزيد معرفتي بالاستخدام المناسب لمضادات الميكروبات.					
3	وصف مضادات الميكروبات لمريض لا يحتاجها حقًا قد يكون له تأثير سلبي في نهاية المطاف على صحته .					
4	أعتقد أن تخطي المريض جرعة واحدة أو جرعتين من علاجه بمضادات الميكروبات يساهم في تطوير المقاومة ضد مضادات الميكروبات.					
5	من وجهة نظري، الأطباء المعالجون هم الوحيدين الذين يحتاجون إلى فهم برنامج ترشيد استهلاك مضادات الميكروبات.					
6	سأكون مستعدًا للمشاركة في أي أنشطة لتحسين جودة استخدام مضادات الميكروبات في مستشفاي.					
7	زيادة استخدام مضادات الميكروبات شائعة في مستشفاي.					
8	المقاومة مضادات الميكروبات مشكلة صحية عامة خطيرة وهي مشكلة كبيرة في مستشفاي.					
9	أود أن أحصل على المزيد من التعليم بخصوص الاستخدام المناسب لمضادات الميكروبات وتنفيذ برنامج ترشيد استهلاك مضادات الميكروبات.					

Section Five: Antimicrobial stewardship practices used to optimize antibacterial use and reduce the development of resistance.

Could you please let me know what you think of the following statements and whether you agree or disagree?

Practice						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	يتم وصف المضادات الحيوية تجريبيا(empirically) (بناءً على الملاحظة والخبرة).					
2	قبل البدء بالعلاج المضاد للميكروبات يتم اخذ عينة للفحص المخبري من اجل معرفة الحاجة لاستخدام مضادات الميكروبات وما سيتم اختياره للعلاج.					
3	يجب على العاملين في القطاع الصحي تجنب الاستخدام غير الضروري لمضادات البكتيرية واسعة الطيف. broad-spectrum antibacterial agents).)					
4	مقدمو الرعاية الصحية يقومون بالتوثيق على سجل المريض المعلومات التالية عن مضادات الميكروبات الجرعة الدوائية وطريقة الاعطاء ومدة الاعطاء وتاريخ المراجعة للمضادات الحيوية.					
5	يستخدم مقدمو الرعاية الصحية جرعات واحدة فقط من المضادات الحيوية للإجراءات الجراحية التي تكون فيها الوقاية فعالة ما لم تكن مدة العملية مطولة، أو حدث فقدان كبير للدم، أو توصيات وطنية منشورة توحي بغير ذلك.					
6	يتم التبديل من مضاد حيوي الى آخر عندما تشير اختبارات الحساسية إلى وجود مقاومة، أو وجود مضاد حيوي اقل تكلفة أو أكثر فعالية من الناحية بشرط ان يكون متوافقًا أيضًا مع الوضع السريري للمريض.					
7	يجب أن يتم اتخاذ خمس قرارات متعلقة بالمضادات الحيوية خلال 48 ساعة: إيقاف العلاج إذا لم تحدث أي عدوى أو التبديل إلى المضادات الحيوية عن طريق الفم أو تغيير طيف المضادات الحيوية إذا لزم الأمر. ويجب متابعة العلاج ومراجعته بعد 72 ساعة.					

8	يجب على مقدمي الرعاية الصحية تثقيف المريض حول الطريقة الصحيحة لتناول مضادات الميكروبات التي وصفت له.					
9	يتم تحويل المضادات الحيوية عبر الوريد إلى بديل عن طريق الفم إذا كان مناسبا من الناحية الطبية.					
10	يستخدم المختبر أساليب سريعة لاكتشاف الكائنات الممرضة المتعددة المقاومة (MDROs) مثل ESBL، MRSA، VRE، أو CRE.					
11	تقوم المستشفى بعمل تقرير تراكمي حول حساسية المضادات الحيوية (antibiogram)					
12	هنالك تقييم لمدى إعطاء المريض المضاد الحيوي او أي نوع اخر من مضادات الميكروبات الصحيح وللمدة الصحيحة عند خروجه من المستشفى.					
13	يوجد في المستشفى صيدلي مسؤول عن إدارة وقيادة برنامج ترشيد استهلاك مضادات الميكروبات وتحسين استخدام المضادات الحيوية.					
14	هناك خطط في المستشفى لتنفيذ برنامج ترشيد استهلاك مضادات الميكروبات.					
15	في مستشفاكم، هناك تتبع لاستخدام المضادات الحيوية ومقاومتها					

Section sex: The barrier to implementation of antimicrobial stewardship.

The barrier						
	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	معارضة الأطباء لبرنامج ترشيد استهلاك المضادات الحيوية.					
2	وصول محدود إلى التشخيصات السريرية الموثوقة أو الاختبارات المكروبيولوجية بما في ذلك اختبارات الحساسية للمضادات الحيوية.					
3	الوصول المحدود أو غير الموثوق به إلى المضادات الحيوية ذات الجودة المضمونة.					

4	الخوف من ان إيقاف مضادات الميكروبات وخصوصا المضادات الحيوية سيؤدي الى نتائج سيئة.					
5	قلة أو عدم وجود تواصل بين مقدمي الرعاية الصحية.					
6	محدودية البنية التحتية والدعم الإداري اتجاه برنامج ترشيد استهلاك مضادات الميكروبات.					
7	الوصول المحدود إلى البيانات، بما في ذلك اتجاهات وصف المضادات الحيوية في المرفق، وبيانات تتعلق بانتشار مقاومة المضادات الحيوية في المجتمع.					
8	قبول محدود من قبل المرضى والناس عامة لعملية ترشيد استهلاك مضادات الميكروبات.					
9	الوصول العام إلى مضادات الميكروبات مثل الأدوية المضادة للبكتيريا دون وصفات طبية في المجتمع.					
10	مشاكل في أنظمة البيانات وتكنولوجيا المعلومات داخل المستشفى.					

انتهت الاستبيان

مع فائق الاحترام والتقدير

Appendix B: The questionnaire in its final form:

Al Quds University

School of public health

Infectious disease prevention and control

Research Questionnaire

"Knowledge, Attitudes, and Practices Towards Antimicrobial Stewardship Among Healthcare Workers in Hebron Governorate Governmental Hospitals."

Prepared by
Fatima Abu-Sabha
Supervised by
Prof. Maher Khdour

القسم الأول: الصفات الديموغرافية والمعلومات العامة:

الجنس

ذكر ☐ انثى ☐

العمر:

20-30 سنة ☐ 31-40 سنة ☐ 41-50 سنة ☐ أكثر من 50 سنة ☐

الحالة الاجتماعي:

متزوج\ة ☐ أعزب\عزباء ☐ ارمل\ة ☐ مطلق\ة ☐

المهنة:

ممرض/ممرضة: ☐ طبيب/طبيبة: ☐ صيدلاني/ة: ☐ فني/ة مختبر: ☐

مكان العمل:

مستشفى الخليل الحكومي(عالية): ☐ مستشفى محمد علي المحتسب: ☐ مستشفى الشهيد أبو الحسن القاسم (يطا): ☐ مستشفى دورا الحكومي: ☐ مستشفى محمود عباس الحكومي (حلحول): ☐

المؤهل العلمي:

دبلوم: ☐ بكالوريوس: ☐ درجة الماجستير: ☐ دكتوراه: ☐

سنوات الخبرة:

أقل من سنة: ☐ 1-4: ☐ 5-9: ☐ 10-15 : ☐ أكثر من 15 سنة ☐

Section Two: You will be asked about your attitudes regarding antimicrobial resistance and use in this section.

Section Tow: Knowledge						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1.	يعد استخدام الأدوية المضادة للميكروبات بشكل غير لائق عبر القطاعات البشرية والحيوانية والبيئية من بين أهم أسباب مقاومة مضادات الميكروبات.					
2.	تقلل مقاومة مضادات الميكروبات من فعالية الأدوية الموجودة، مما يؤدي الى صعوبة القضاء على العدوى من الجسم.					
3.	هناك مخاطر مرتبطة بالاستخدام غير الرشيد والغير مبرر لمضادات الميكروبات.					
4.	تقييد استخدام مضادات الميكروبات ضروري للحد من مقاومة مضادات الميكروبات.					
5.	الاستخدام غير المناسب لمضادات الميكروبات يزيد من التكلفة الطبية للمريض على المستشفى.					
6.	هدف برنامج ترشيد استهلاك مضادات الميكروبات هو تحسين رعاية المرضى وتقليل استخدام المضادات الحيوية وتعزيز الرعاية الصحية الفعالة من حيث التكلفة، وهي آثار جانبية مرغوب فيها للبرنامج.					
7.	ال (Ds 5) للعلاج بمضادات الميكروبات، هي الدواء المناسب، والجرعة الصحيحة ، والطريق الصحيح للدواء، والمدة المناسبة ، والتصعيد في الوقت المناسب للعلاج الموجه الممرض.					

.8	ليس من الضروري إكمال العلاج بمضادات الميكروبات كما هو موصوف.					
.9	لا يُعتبر ضروريا استخدام الجرعة الصحيحة من مضادات الميكروبات لتقليل احتمالية مقاومة مضادات الميكروبات					
.10	يمكن أن يؤدي الاستخدام المفرط والإساءة في استخدام مضادات الميكروبات إلى مقاومة مضادات الميكروبات.					
.11	عند بدء العلاج دائما يجب البدء بالمضاد الحيوي ذو الطيف الواسع (broad spectrum) بغض النظر عن شدة العدوى والالتهاب.					
.12	من المهم تعليم المرضى وعائلاتهم كيفية استخدام مضادات الميكروبات الموصوفة بالشكل الصحيح.					
.13	قبل وصف المضاد الحيوي يجب القيام بعمل فحص زراعة للمريض					
.14	مخطط المضادات الحيوية (antibiograms) يمكن أن يساعد في توجيه توصيات للعلاج التجريبي (empiric therapy) وتوفير نظرة عامة واسعة عن مقاومة المضادات الحيوية على مر الزمن.					
.15	الصيادلة لديهم دور بارز في عملية ترشيد استهلاك مضادات الميكروبات.					
.16	يجب تحويل العلاج بالمضادات الحيوية عبر الوريد إلى بديل عن طريق الفم بعد 3 أيام في حال كان ذلك مناسبا من الناحية الطبية.					
.17	يقوم برنامج ترشيد استهلاك مضادات الميكروبات بإنشاء علاج تجريبي بالمضادات الحيوية ((empiric antibiotic للعدوى الأكثر شيوعا بالمستشفى					
.18	يجب إعطاء الجرعة الوقائية على الأقل قبل 30 دقيقة ولا يجب أن تزيد عن 60 دقيقة قبل الشق الجلدي في حالة العمليات الجراحية.					
.19	من المرجح بنسبة 7 إلى 10 مرات إصابة الأشخاص ب (clostridium difficile) أثناء استخدام المضادات الحيوية وخلال شهر بعد تناوله.					
.20	عند وجود شخص يعاني من حساسية للمضادات الحيوية يمكن أن يؤثر بشكل كبير على عملية اختيار المضادات					

	الحيوية وقد يتلقى علاجًا بالمضادات الحيوية غير المناسب.					

Section Three: Attitude						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	أشعر أن الحصول على موافقة لاستخدام مضادات الميكروبات المقيدة يجعل الفريق يفكر بعناية أكبر في الاختيار .					
2	أشعر أن برنامج ترشيد استهلاك مضادات الميكروبات سيزيد معرفتي بالاستخدام المناسب لمضادات الميكروبات.					
3	وصف مضادات الميكروبات لمريض لا يحتاجها حقًا قد يكون له تأثير سلبي في نهاية المطاف على صحته .					
4	أعتقد أن تخطي المريض جرعة واحدة أو جرعتين من علاجه بمضادات الميكروبات يساهم في تطوير المقاومة ضد مضادات الميكروبات.					
5	من وجهة نظري، الأطباء المعالجون هم الوحيدين الذين يحتاجون إلى فهم برنامج ترشيد استهلاك مضادات الميكروبات.					
6	سأكون مستعدًا للمشاركة في أي أنشطة لتحسين جودة استخدام مضادات الميكروبات في مستشفاي.					
7	زيادة استخدام مضادات الميكروبات شائعة في مستشفاي.					
8	المقاومة مضادات الميكروبات مشكلة صحية عامة خطيرة وهي مشكلة كبيرة في مستشفاي.					
9	أود أن أحصل على المزيد من التعليم بخصوص الاستخدام المناسب لمضادات الميكروبات وتنفيذ برنامج ترشيد استهلاك مضادات الميكروبات.					

Section Four: Antimicrobial stewardship practices used to optimize antibacterial use and reduce the development of resistance.

Practice						
#	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	يتم وصف المضادات الحيوية تجريبيا(empirically) (بناءً على الملاحظة والخبرة).					
2	قبل البدء بالعلاج المضاد للميكروبات يتم اخذ عينة للفحص المخبري من اجل معرفة الحاجة لاستخدام مضادات الميكروبات وما سيتم اختياره للعلاج.					
3	يجب على العاملين في القطاع الصحي تجنب الاستخدام غير الضروري لمضادات البكتيرية واسعة الطيف. –broad spectrum antibacterial agents).)					
4	مقدمو الرعاية الصحية يقومون بالتوثيق على سجل المريض المعلومات التالية عن مضادات الميكروبات الجرعة الدوائية وطريقة الاعطاء ومدة الاعطاء وتاريخ المراجعة للمضادات الحيوية.					
5	يستخدم مقدمو الرعاية الصحية جرعات واحدة فقط من المضادات الحيوية للإجراءات الجراحية التي تكون فيها الوقاية فعالة ما لم تكن مدة العملية مطولة، أو حدث فقدان كبير للدم، أو توصيات وطنية منشورة توحي بغير ذلك.					
6	يتم التبديل من مضاد حيوي الى آخر عندما تشير اختبارات الحساسية إلى وجود مقاومة، أو وجود مضاد حيوي اقل تكلفة أو أكثر فعالية من الناحية بشرط ان يكون متوافقًا أيضًا مع الوضع السريري للمريض.					
7	يجب أن يتم اتخاذ خمس قرارات متعلقة بالمضادات الحيوية خلال 48 ساعة: إيقاف العلاج إذا لم تحدث أي عدوى أو التبديل إلى المضادات الحيوية عن طريق الفم أو تغيير طيف المضادات الحيوية إذا لزم الأمر. ويجب متابعة العلاج ومراجعته بعد 72 ساعة.					
8	يجب على مقدمي الرعاية الصحية تثقيف المريض حول الطريقة الصحيحة لتناول مضادات الميكروبات التي وصفت له.					

9	يتم تحويل المضادات الحيوية عبر الوريد إلى بديل عن طريق الفم إذا كان مناسبا من الناحية الطبية.					
10	يستخدم المختبر أساليب سريعة لاكتشاف الكائنات الممرضة المتعددة المقاومة (MDROs) مثل ESBL، MRSA، VRE، أو CRE.					
11	تقوم المستشفى بعمل تقرير تراكمي حول حساسية المضادات الحيوية (antibiogram)					
12	هنالك تقييم لمدى إعطاء المريض المضاد الحيوي او أي نوع اخر من مضادات الميكروبات الصحيح وللمدة الصحيحة عند خروجه من المستشفى.					
13	يوجد في المستشفى صيدلي مسؤول عن إدارة وقيادة برنامج ترشيد استهلاك مضادات الميكروبات وتحسين استخدام المضادات الحيوية.					
14	هناك خطط في المستشفى لتنفيذ برنامج ترشيد استهلاك مضادات الميكروبات.					
15	في مستشفاكم، هناك تتبع لاستخدام المضادات الحيوية ومقاومتها					

Section Five: The barrier to implementation of antimicrobial stewardship.

The barrier						
	الفقرة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
1	معارضة الأطباء لبرنامج ترشيد استهلاك المضادات الحيوية.					
2	وصول محدود إلى التشخيصات السريرية الموثوقة أو الاختبارات المكروبيولوجية بما في ذلك اختبارات الحساسية للمضادات الحيوية.					
3	الوصول المحدود أو غير الموثوق به إلى المضادات الحيوية ذات الجودة المضمونة.					
4	الخوف من ان إيقاف مضادات الميكروبات وخصوصا المضادات الحيوية سيؤدي الى نتائج سيئة.					
5	قلة أو عدم وجود تواصل بين مقدمي الرعاية الصحية.					
6	محدودية البنية التحتية والدعم الإداري اتجاه برنامج ترشيد استهلاك مضادات الميكروبات.					

7	الوصول المحدود إلى البيانات، بما في ذلك اتجاهات وصف المضادات الحيوية في المرفق، وبيانات تتعلق بانتشار مقاومة المضادات الحيوية في المجتمع.					
8	قبول محدود من قبل المرضى والناس عامة لعملية ترشيد استهلاك مضادات الميكروبات.					
9	الوصول العام إلى مضادات الميكروبات مثل الأدوية المضادة للبكتيريا دون وصفات طبية في المجتمع.					
10	مشاكل في أنظمة البيانات وتكنولوجيا المعلومات داخل المستشفى.					

انتهت الاستبيان

مع فائق الاحترام والتقدير

Appendix C: Approval Letter

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 2023/10/17

عزيزتي الطالبة فاطمة ابو صبحة المحترمة
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:

"Knowledge, Attitudes, and Practices towards Antimicrobial Stewardship among healthcare workers in Hebron governorate governmental hospitals."

المقدم من (مشرف البحث/د.ماهر الحضور).

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

Jerusalem Branch/Telefax 02-2799234
Gaza Branch/Telefax 08-2644220 -2644210
P.O. box 51000 Jerusalem

فرع القدس / تلفاكس 02-2799234
فرع غزة / تلفاكس 08-264420-2644210
ص.ب. 51000 القدس

Appendix D: The task facilitation book:

State of Palestine
Ministry of Health
Education in Health and Scientific Research Unit

دولة فلسطين
وزارة الصحة
وحدة التعليم الصحي والبحث العلمي

Ref.: ………………
Date:………………

الرقـــم: ١٦٢/٢٥٣١/٢٠٢٢
التـــاريخ: ٨/١١/٢٠٢٢

عطوفة الوكيل المساعد لشؤون المستشفيات والطوارئ المحترم،،،

تحية واحتـرام،،،

<u>الموضـــوع: تسهيل مهمة بحث</u>

يرجى تسهيل مهمة **الطالبة: فاطمة ابو صبحة– ماجستير الوقاية وضبط الامراض المعدية/ جامعة القدس**، وباشراف د. ماهر الخضور ، في عمل بحث بعنوان:

"Knowledge, Attitudes, and Practices Towards Antimicrobial Stewardship Among Healthcare Workers in Hebron Governorate Governmental Hospitals"

من خلال السماح للطالبة بجمع معلومات عن طريق تعبئة استبانة الدراسة من قبل الاطباء والممرضين وموظفي المختبرات والصيدلة والاشعة بعد اخذ موافقتهم، وذلك في:

– مستشفى المحتسب – مستشفى عاليه – مستشفى يطا
– مستشفى دورا – مستشفى حلحول

على ان يتم الالتزام باساليب واخلاقيات البحث العلمي، وعد التعرض للمعلومات التعريفية للمرضى.
على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة الوزارة على نتائج البحث.

مع الاحترام،،،

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

دولة فلسطين وزارة الصحة
وحدة التعليم الصحي والبحث العلمي

نسخة: عميد كلية الصحة العامة المحترم/ جامعة القدس

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

معرفة ومواقف وممارسات الكادر الصحي حول ترشيد استهلاك المضادات الحيوية في المستشفيات الحكومية داخل محافظة الخليل

إعداد الباحثة: فاطمة أحمد محمد أبو صبحه

المشرف: د. ماهر الحضور

الملخص

الخلفية: مقاومة مضادات الميكروبات (AMR) هي واحدة من أخطر وأهم المشكلات التي تواجه العالم الناجمة عن سوء الاستخدام والإساءة والإفراط في استخدام مضادات الميكروبات. ولكي يتم المنع والحد من انتشار مقاومة مضادات الميكروبات ولتحقيق أفضل علاج للعدوى ، فإنه من المهم القيام بالاختيار المناسب للأدوية المضادة للميكروبات. وأيضا، يجب تطوير استراتيجيات جديدة بشكل عاجل للتعامل معها. حيث تدعم العديد من المؤسسات اعتماد برنامج ترشيد استهلاك مضادات الميكروبات (AMS) داخل المستشفيات. لذلك، من الضروري أن يمتلك العاملون في الرعاية الصحية (HCWs) معرفة ومواقف وممارسات (KAPs) ذات جودة عالية لتحسين استخدام مضادات الميكروبات في المستقبل وتقليل مضادات الميكروبات.

الهدف: هو تقييم المعرفة والمواقف والممارسات تجاه ترشيد استهلاك مضادات الميكروبات (AMS) بين العاملين في الرعاية الصحية داخل المستشفيات الحكومة في محافظة الخليل.

الطريقة والمنهجية: كانت هذه الدراسة دراسة مقطعية قائمة على الاستبيان حيث أجريت في مستشفيات محافظة الخليل الحكومية الحكومة، واستمرت لمدة ستة أشهر على عينة قوامها 285. تم تضمين التمريض والأطباء والصيادلة وفنيي المختبرات في هذه الدراسة. شمل الاستبيان 20 سؤالًا حول المعرفة، و9 أسئلة حول المواقف، و15 سؤالًا حول الممارسات، و10 أسئلة حول المعيقات أمام تنفيذ برنامج ترشيد استهلاك مضادات الميكروبات. بالإضافة إلى ذلك، تم إجراء التحليل الإحصائي للبيانات باستخدام

الحزمة الإحصائية للعلوم الاجتماعية (SPSS) IBM الإصدار 20، من خلال استخدام الإحصاءات الوصفية، وتحليل التباين الأحادي (ANOVA)، واختبار t، واختبار Tukey's ، و Cronbach alpha.

النتيجة: شملت الدراسة عينة تتكون من 285 من التمريض والأطباء والصيادلة وفنيي المختبرات حيث أظهر التوزيع الديموغرافي بأن النسبة الكبرى كانت لصالح التمريض (60.4%)، وإن نسبة المبحوثين الاناث احتلت الترتيب الأول حيث بلغت نسبتهم (52.98%)، واحتل المبحوثين ذوي الفئة العمرية (31–40) سنة المرتبة الأولى بنسبة (40.7%) من مجتمع الدراسة مقارنة بالفئات الاخرى، كما وأنه وكانت نسبة المتزوجين (71.6%). وبينت النتائج بأن معظمهم من حملة شهادة بكالوريوس (78.9%) ولديهم خبرة من 10 إلى 15 سنة (40.4%). بالإضافة الى ذلك احتل المبحوثين العاملين في مشفى الخليل الحكومي (عالية) المركز الأول بنسبة (53.7%) من مجتمع الدراسة

بشكل عام، أظهرت عينة الدراسة داخل المستشفيات الحكومية في محافظة الخليل مستوى عالٍ من المعرفة والاتجاهات والممارسات المتعلقة بإدارة مضادات الميكروبات، بمتوسط حسابي قدره 4.02. حيث كانت المعرفة الأعلى تصنيفًا بمتوسط حسابي قدره 4.30، تلاها الاتجاهات بمتوسط حسابي قدره 4.05 ودرجة ممارسات بمتوسط قدره 3.85. كما لم تجد الدراسة أي اختلافات ذات دلالة إحصائية في المعرفة والاتجاهات والممارسات بناءً على الجنس أو العمر أو الحالة الاجتماعية أو سنوات الخبرة. ومع ذلك، لوحظت اختلافات كبيرة بناءً على المهنة p value = 0.041، حيث حصل التمريض على درجات أعلى من الأطباء وفنيي المختبرات والصيادلة. بالإضافة إلى ذلك، حددت الدراسة عدة عوائق أمام تنفيذ إدارة مضادات الميكروبات، بمتوسط حسابي قدره 3.92. شملت العوائق الرئيسية الوصول العام إلى مضادات الميكروبات دون وصفات طبية والقبول المحدود لإدارة مضادات الميكروبات من قبل المرضى.

الخاتمة: الحاجة إلى برامج تعليمية مستمرة ودعم مؤسسي لتعزيز ترشيد استهلاك مضادات الميكروبات بين العاملين في الرعاية الصحية في المستشفيات الحكومة في الخليل. ومن خلال معالجة الفجوات والعوائق المحددة، يمكن للمؤسسات الصحية تعزيز جودة الرعاية، وتقليل حدوث مقاومة الميكروبات، وتحسين نتائج المرضى في النهاية. حيث تساهم النتائج برؤى قيمة لصانعي السياسات وإداريين الرعاية الصحية الذين يسعون لتطوير استراتيجيات فعالة لإدارة مضادات الميكروبات.