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Knowledge, attitude and practice towards infection control measures among healthcare workers at King Fahad Hospital, Al-Baha, Saudi Arabia

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Abstract

Hospital-acquired infections (HAIs) have been identified as a contributing factor to prolonged hospitalization, increased mortality rates, and increased healthcare expenditures. Adherence to standard precautions by healthcare workers (HCWs) has been acknowledged as an effective strategy for the prevention and management of healthcare-associated infections. These measures are designed to protect not only the patient, but also the HCWs and the surrounding environment. This research evaluated the knowledge, attitudes, and practices (KAP) of conventional infection control procedures among HCWs in King Fahad Hospital (KFH), Al Baha, Saudi Arabia). A structured questionnaire was utilized to conduct an online cross-sectional survey among HCWs of KFH.

A considerable number of participants exhibited recognition of the significance of conventional precautions and the function of personal protective equipment (PPE). Nevertheless, significant deficiencies remain in both comprehension and implementation, especially regarding glove use and the sources of hospital-acquired infections. Although 88.9% acknowledged the hazards linked to Hepatitis B and 87.9% to HIV/AIDS, merely 40.4% recognized that *Plasmodium* spp. is not transmitted by contaminated sharps, underscoring the necessity for focused educational interventions. The survey revealed a favorable trend in hand hygiene practices, with 91.9% of respondents underscoring the significance of handwashing following patient encounters. he surveys indicated significant discrepancies in practices, with only 47.5% of participants properly disposing of sheets from contaminated patients. These findings highlight the imperative for ongoing education to improve adherence to infection control protocols.

Keywords: Hospital-acquired infections (HAIs); Healthcare workers (HCWs); Infection control procedures; Personal protective equipment (PPE); Knowledge; Attitudes; Practices (KAP)

1. Introduction

The dynamic system of existence itself is comprised of three crucial components: knowledge, attitude, and compliance. Infections that emerge in a patient while they are receiving treatment in a hospital or other healthcare facility and that were not present or incubating at the time of admission are referred to as healthcare-associated infections (HAIs) [1]

The incidence of HAIs is increasing worldwide, despite the progress made in medical care and technologies [2]. The issue of infection poses a significant challenge in healthcare services on a global scale. This phenomenon is widely

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regarded as a significant contributor to both morbidity and mortality in relation to clinical, diagnostic, and treatment processes. The term infection control refers to the actions taken by HCWs to minimize the likelihood of transmission of infectious agents to both patients and employees. These actions include adherence to proper hand hygiene, meticulous work practices, and utilization of personal protective equipment (PPE) such as gloves, gowns, masks, and eye-protection, the implementation of aseptic technique to minimize patient exposure to microorganisms, and proper management of sharps, blood spills, linen, and waste.

The most efficient and straightforward method for preventing infection at a hospital is to adhere to standard precautions, a series of guidelines intended to prevent or mitigate exposure to infectious materials among medical personnel, patients, and their visitors [3,4]. Healthcare professionals who fail to adhere to appropriate infection control measures during patient care are at a higher risk of contracting infectious diseases. As per the report of the World Health Organization (WHO), HAI are prevalent in hospital settings globally, with a range of 5.7% to 19.1% [1]. According to recent research, the prevalence of infections related to healthcare in the US and Europe was documented as 3.2% and 6.5%, respectively [5,6]. Up to 25% of hospitalized patients in low- and middle-income countries (LMICs) are currently afflicted by HAIs, which is 2–20 times higher than in developed counties [7,8]. According to estimates, hospital-acquired infections (HAIs) may lead to a loss of approximately US$100 trillion by 2050, along with an additional 10 million deaths associated with antimicrobial resistance (AMR) in hospital environments [9,10]. In fact, HIVs may also have an adverse effect on the health and wellbeing of HCWs as occupational exposures account for around forty percent of all cases of hepatitis B and C infections among HCWs [11]. These occupational exposures may be prevented by adhering to infection prevention and control methods. Research has indicated that sufficient comprehension and implementation of various aspects of infection prevention and control (IPC) by nurses can result in a reduction of healthcare-associated infections (HAIs) by 30-70%, utilizing cost-effective and practical approaches [12,13]. The occurrence of HAIs exhibits variability across diverse clinical departments. According to a study conducted in Norway, the intensive care units exhibit the highest rate of infection, followed by neonatal and burns units [14]. According to reports, a number of hospitals in Saudi Arabia have documented a monthly incidence rate of 2.2% for HIVs [15]. Additionally, it has been established that HIVs remain a prevalent health concern in Saudi Arabia. According to Al Ra'awji et al. (2019), a significant proportion (37%) of HCWs in Saudi Arabia exhibited inadequate knowledge regarding hand hygiene [16]. The study highlighted the urgent requirement for training programs to enhance the hand hygiene practices of HCWs in the country.

Numerous studies have demonstrated diverse patterns in the level of understanding regarding infection control among HCWs, depending upon their years of professional experience [17,18]. Recent literature has identified variations in the comprehension and implementation of infection transmission and control measures among HCWs, as well as discrepancies in their actual knowledge of these concepts [19,20].

The initial and crucial step in establishing and executing an effective infection control program is to recognize the current knowledge, attitudes, and practices (KAP) regarding infection control among HCWs. The objective of this research is to evaluate the knowledge, attitudes, and practices (KAP) of HCWs in KFH For enhancing infection prevention strategies and practices.

2. Methods and Procedures

2.1. Research Design and Settings

The study is a descriptive, cross-sectional survey study. The survey was conducted among HCWs at KFH in Al-Baha city, Saudi Arabia, in 2024.

2.2. Data collection instrument

After taking ethical permission from the KFH Ethical Committee with number KFH/IRB23052023/1, a structured self-administered electronic questionnaire was used for the study. The Participant received informed consent and participation letter in their email for signing and returning. The informed consent explained the purpose of the current research study, protection of confidentiality, information about risk or benefits and participation voluntary. The system-maintained confidentiality and anonymity. The questionnaire starts with introduction about the study and its purpose, inviting the participants to participate voluntarily. The first section is demographic data, it includes gender, age groups, nationality, qualification, experience in KFH.

2.3. Data Analysis

Knowledge was assessed using a 36-item scale. 1 point was provided for each right answer and 0 points were given for each wrong answer. A maximum possible score of 20 points was established, with a range noted from 16 to 35 points. The overall level of knowledge was categorised as poor (<22 points, <60% right answer), moderate (22–28 points, 60–79% right answer), and good (29–36 points, 80–100% right answer). Thirteen statements were used to assess HCWs' attitude towards infection control standard precautions. A five-point Likert-type scale (strongly disagree to strongly agree) was used to assess each statement. The maximum possible score was determined to be 65 points, with a range established from 23 to 58 points. Attitudes were categorised as negative (<39 points, <60% score), neutral (39–51 points, 60–79% score), and positive (52–65 points, 80–100% score). The practice of infection control standard precautions was assessed using 17 questions on practicing standard precautions. Four points were given to participants for each activity that was always practiced, while 0 points were assigned for activities not practiced. A maximum possible score of 68 points was established, with a range noted from 30 to 68 points. The overall level of practice was categorised as poor (41 points, 60% score), moderate (41–54 points, 60–79% right answer), and good (55–68 points, 80–100% score). The Statistical Package for the Social Sciences (IBM SPSS Statistics v.23) was used for data analysis. The demographic information, knowledge, attitude, and practice score of participants were analysed through descriptive analyses. Results of descriptive analyses were presented in tables that reported percentages and frequencies. The association between KAP and socio-demographic variables was investigated using the Pearson Chi-Square test. A *p*-value of <0.05 was deemed statistically significant for the tests conducted.

3. Result

The survey was conducted involving 99 participants, comprising 65 females, which accounts for 65.7%, and 34 males, representing 34.3% of the total group (Table 1). The participants exhibited a balanced age distribution across three distinct groups: 33 individuals (33.3%) fell within the 22–30-year range, 34 individuals (34.3%) were aged 30-40 years, and 32 individuals (32.3%) were over 40 years old. The study included a total of 99 participants, with 45 individuals identifying as Saudi, accounting for 45.5% of the sample, while 54 participants, or 54.5%, were non-Saudi, indicating a slight majority of non-Saudis in the research group. The educational backgrounds of the participants exhibited a range of qualifications, with the majority holding a bachelor's degree, totaling 66 individuals, which accounts for 66.7% of the group. Additionally, 15 individuals (15.2%) held a Diploma, while 10 (10.1%) achieved a master's degree. Furthermore, the study included 5 participants (5.1%) who possessed a PhD, alongside a small group of individuals with varying qualifications, which featured one person holding a Saudi board certification and another with a membership. The evaluation of individuals at KFH revealed that 31 participants (31.3%) had less than 2 years of experience, while 12 participants (12.1%) had experience ranging from 2 to 5 years. A significant portion of the group, comprising 23 participants (32.2%), reported having 5 to 10 years of experience, while a similar number, 33 participants (33.3%), recognized their tenure of over 10 years within the organization.

Table 1 Socio-demographic characteristics of HCWs participated in the Survey

Characteristics		**No. (%)**
Gender	Female	65 (65.7)
	Male	34 (34.3)
Age groups	22-30 years	33 (33.3)
	30-40 years	34 (34.3)
	>40 year	32 (32.3)
Nationality	Saudi	45 (45.5)
	non-Saudi	54 (54.5)
Qualification	Student	1 (1.0)
	Diploma	15 (15.2)
	Bachelor	66 (66.7)
	Master	10 (10.1)
	PhD	5 (5.1)

	Saudi board	1 (1.0)
	Membership	1 (1.0)
Experience in KFH	<2 years	31 (31.3)
	2-5 Years	12 (12.1)
	5-10 years	23 (32.2)
	>10 years	33 (33.3)

The survey indicated a significant awareness among participants concerning infection control practices, as evidenced by 93.9% recognizing the potential for hospital-acquired infections to be transmitted via medical equipment and 88.9% affirming the relevance of standard precautions for all patients Table 2. A considerable proportion (97.0%) recognized the critical role of PPE in the management of infections; however, misconceptions remained prevalent, especially concerning the use of gloves. Notably, 55.6% of respondents held the belief that gloves offer total protection, while 21.2% thought that gloves could be reused if they were not visibly contaminated. The recognition of hand hygiene was notably high, as evidenced by 96.0% of respondents acknowledging its essential role before and after patient treatment, while 91.9% understood the significance of washing hands following patient interactions. Despite a high level of awareness regarding the risks associated with specific infections like HIV/AIDS and Hepatitis, only 40.4% of individuals correctly recognized that *Plasmodium* spp. is not transmitted through contaminated sharps. The survey emphasized the significance of appropriate disposal techniques, with 96.0% of respondents supporting for the separation of clinical and non-clinical waste. In summary, although there exists a robust comprehension of infection control protocols, notable deficiencies in knowledge and compliance with practices persist, especially regarding the utilization of gloves and the disposal of contaminated materials.

Table 2 Knowledge about infection control policy and procedures among HCWs in KFH, Al-Baha, 2024

No.	**knowledge**	**True No. (%)**	**False No. (%)**
1	Hospital-acquired infections have the potential to be transmitted through various medical equipment, including syringes, needles, catheters, stethoscopes, and thermometers.	93 (93.9)	6 (6.1)
2	Nosocomial illness is an infection that comes from the patient's own home.	44 (44.4)	55 (55.6)
3	Standard precautions are implemented in the provision of care for all patients, irrespective of their diagnosed condition or infection state.	88 (88.9)	11 (11.1)
4	Personal Protective Equipment (PPE) plays a crucial role in the area of infection management by serving as a physical obstruction that separates infectious substances, such as viral and bacterial pollutants, from the skin, oral cavity, nasal passages, and eye contacts (mucous membranes).	96 (97.0)	3 (3.0)
5	Gloves offer total protection against infection acquisition and transmission.	55 (55.6)	44 (44.4)
6	One of the components of standard precaution is isolation precaution.	77 (77.8)	22 (22.2)
7	If my hands are not visibly dirty, I do not need to cleanse them before interacting with a patient.	22 (22.2)	77 (77.8)
8	Washing hands following interaction with the patient's surroundings is one of the basic precautions.	91 (91.9)	8 (8.1)
9	In the event that a patient experiences vomiting inside a dressing room or clinic, the first measure in infection control protocol is the isolation of the affected area.	74 (74.7)	25 (25.3)

10	I should rub my hands until they are completely dry after applying alcohol-based antiseptics.	60 (60.6)	39 (39.4)
11	After removing the gloves, alcohol-based rubs are applied.	86 (86.9)	13 (13.1)
12	The agent that causes Hepatitis B may be transferred by contaminated needles and sharps.	88 (88.9)	11 (11.1)
13	The agent that causes Hepatitis C may be transferred by contaminated needles and sharps.	76 (76.8)	23 (23.2)
14	The HIV/AIDS-causing agent may be transferred by contaminated needles and sharps.	87 (87.9)	12 (12.1)
15	Hand hygiene is necessary both before and after patient treatment.	95 (96.0)	4 (4.0)
16	The agent that causes tetanus (Clostridium tetani) may be spread by contaminated needles and sharps.	72 (72.7)	27 (27.3)
17	*Plasmodium* spp., the agent that causes malaria, may be spread through contaminated sharps and needles.	40 (40.4)	59 (59.6)
18	M. tuberculosis, the agent that causes TB, may be spread by using contaminated sharps and needles.	36 (36.4)	63 (63.6)
19	Airborne protection is a type of separation for people with lung TB.	89 (89.9)	10 (10.1)
20	Every time while handling potentially infected items, gloves must be used.	95 (96.0)	4 (4.0)
22	As long as there is no obvious contamination on the gloves, I may use the same pair for many patients.	21 (21.2)	78 (78.8)
23	When providing patient care, gloves must be replaced if your hands are moved from a "contaminated body site" to a "clean body site."	85 (85.9)	14 (14.1)
24	If gloves are not available, you may handle bodily fluids with your bare hands.	21 (21.2)	78 (78.8)
25	When operations and activities are expected to produce splashes or sprays of blood and bodily fluids, surgical masks can protect the nose and mouth.	70 (70.7)	29 (29.3)
26	A gown or apron is used to shield clothing from splatters or sprays of blood and bodily fluids.	92 (92.9)	7 (7.1)
27	Infected objects include stationary, phones stored in wards, and doorknobs.	82 (82.8)	17 (17.2)
28	Before leaving the patient's the surrounding area, remove all personal protective equipment (PPE).	74 (74.7)	25 (25.3)
29	Even when there are no apparent signs of blood or bodily fluids on the linen from an infected patient, it should still be disposed of in a red linen bag.	47 (47.5)	52 (52.5)
30	To stop the transmission of illness, clinical and non-clinical waste should be separated.	95 (96.0)	4 (4.0)
31	Used injection ampoules must be discarded in the clinical waste container.	56 (56.6)	34 (34.4)
32	In general, recapping of needles is inappropriate.	86 (86.9)	13 (13.1)
33	If you pierce your hand with a sharp object, you must notify the appropriate authorities.	95 (96.0)	4 (4.0)

34	Sharps items should be disposed away in puncture-proof containers.	85 (85.9)	14 (14.1)
35	Regardless of whether gloves are used, hands should be cleansed with soap and water before and after handling potentially infected objects.	90 (90.9)	9 (9.1)
36	Soap is the most effective disinfectant for cleaning exposed skin following infection.	66 (66.7)	33 (33.3)
37	Patients who are coughing must wear masks to avoid the spread of contagious respiratory secretions from the patient to others.	92 (92.9)	7 (7.1)

The assessment examined the views of HCWs regarding standard precautions and infection control measures in Table 3.Among the respondents, 18.2% recognised the challenges of implementing standard precautions, while a significant 34.3% strongly disagreed with this perspective. A notable 62.6% expressed their disagreement with the idea that hand disinfection is unnecessary after being in a patient's environment, emphasising a solid foundation for hand hygiene practices. A significant portion of participants, specifically 56.6%, showed strong support for the effectiveness of traditional measures in reducing the spread of infections, while just 3.0% disagreed. Opinions on the idea that every patient presents an infectious risk varied, with 27.3% agreeing and 23.2% strongly disagreeing. Almost half of the respondents (49.5%) expressed the view that PPE is not essential, indicating that treatment can effectively handle infectious diseases. On the other hand, 15.2% agreed. A significant number of participants, specifically 65.7%, showed a strong tendency to keep their hands clean both before and after interacting with patients. Out of the participants, 35.4% supported the use of personal protective equipment in emergency scenarios, while 19.2% opposed it. A notable 36.4% acknowledged the need for healthcare providers to maintain appropriate protective barriers. A total of 36.4% of respondents disagreed with the idea that PPE might cause psychological harm to patients, while 34.3% strongly opposed this notion, showing a split opinion on the matter. A significant 39.4% of participants thought that items such as stationery, phones, and doorknobs are unlikely to be sources of infection, while 16.2% held a similar view. Many people recognised the importance of separating clinical and non-clinical waste, with 40.4% of participants agreeing and another 40.4% strongly agreeing that it helps reduce the spread of infections. A notable 52.5% of participants expressed strong agreement on the responsibility of all healthcare professionals to properly disinfect medical instruments. A significant 56.6% of participants showed strong support for the implementation of standard and contact measures to reduce the spread of infectious diseases, while only a small 1.0% voiced disagreement.

Table 3 Attitude about infection control policy and procedures among HCWs in KFH, Al-Baha, 2024

No.	**Attitude**	**Agree No (%)**	**Disagree No (%)**	**Neutral No (%)**	**Strongly agree No (%)**	**Strongly disagree No (%)**
1	Standard precaution is difficult to implement.	18 (18.2)	27 (27.3)	13 (13.1)	7 (7.1)	34 (34.3)
2	There is no need to disinfect hands or wash them after coming into contact with a patient's environment	12 (12.1)	18 (18.2)	3 (3.0)	4 (4.0)	62 (62.6)
3	Standard measures prevent infection transmission from patients to HCWs and vice versa.	27 (27.3)	3 (3.0)	11 (11.1)	56 (56.6)	2 (2.0)
4	The assumption that all patients are infectious should not be made until their illness has been verified	27 (27.3)	20 (20.2)	15 (15.2)	14 (14.1)	23 (23.2)
5	Since infectious illnesses may be treated, PPE is not necessary.	15 (15.2)	26 (26.3)	7 (7.1)	2 (2.0)	49 (49.5)
6	Hand cleanliness is preferred before and after interacting with patients.	23 (23.2)	3 (3.0)	6 (6.1)	65 (65.7)	2 (2.1)
7	PPE may be utilized in an emergency.	35 (35.4)	19 (19.2)	16 (16.2)	23 (23.2)	6 (6.1)

8	Health care providers should ensure that suitable protective barriers are available.	36 (36.4)		10 (10.1)	52 (52.5)	1 (1.0)
9	PPE should not be worn by HCWs since it may cause psychological damage to patients.	12 (12.1)	36 (36.4)	6 (6.1)	11 (11.1)	34 (34.3)
10	Stationery, phones, and doorknobs are not potential sources of infection.	16 (16.2)	29 (29.3)	8 (8.1)	7 (7.1)	39 (39.4)
11	The practice of segregating clinical and non-clinical trash is beneficial in reducing the risk of infection transmission between these two waste categories.	40 (40.4)	5 (5.1)	13 (13.1)	40 (40.4)	1 (1.0)
12	All HCWs have a responsibility to ensure that medical equipment is properly disinfected.	32 (32.3)	3 (3.0)	9 (9.1)	52 (52.5)	3 (3.0)
13	Standard and contact measures should be used to limit the spread of infectious diseases.	32 (32.3)	1 (1.0)	5 (5.1)	56 (56.6)	5 (5.1)

The survey evaluated the adherence to standard infection control practices among HCWs Table 4. The findings demonstrate a notably high prevalence of hand hygiene practices before and after patient examinations, with 70.7% and 73.7% of participants indicating that they "always" engage in hand hygiene prior to and following glove removal, respectively. A significant 80.8% indicated that they consistently engage in hand hygiene following exposure to blood or bodily fluids. During the process of blood sample extraction, 74.7% of respondents reported that they "always" used gloves, whereas 45.5% indicated consistent glove usage throughout patient examinations. A total of 70.7% of participants indicated that they "always" used face masks during examinations of potentially infectious patients. Nonetheless, the compliance with the practice of recapping needles was markedly insufficient, as merely 23.2% of respondents stated that they consistently recapped needles immediately after use, while 44.4% reported that they never engage in this practice. The prevalence of handwashing practices before and after patient care was notably high, as evidenced by 72.7% of respondents indicating that they "always" engaged in this essential hygiene behavior. According to the findings, 64.6% of respondents indicated that they "always" performed sanitization and disinfection of equipment prior to and following use, while 66.7% reported "always" engaging in regular cleaning and disinfection within patient care areas. With respect to the utilization of PPE, 45.5% indicated that they "always" employed PPE while providing care to patients. About 40% of respondents reported receiving training on standard infection control precautions, and a comparable percentage expressed confidence in their ability to educate others regarding these precautions. The evaluation of compliance with infection control measures in primary care settings received a favorable rating, as 40.4% of participants reported a strong level of adherence. Nevertheless, 35.3% indicated that they had observed colleagues neglecting to adhere to standard infection control measures, underscoring the need for enhancements in training and adherence to protocols.

Table 4 Practice of HCWs regarding infection control policy and procedures at KFH, Al-Baha, 2024

No.	**Practice**	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
1	How often do you practice hand hygiene prior to conducting patient examinations?	70 (70.7)	19 (19.2)	7 (7.1)	3 (3.0)	0 (0.0)
2	How often do you practice hand hygiene after the removal of gloves?	73 (73.7)	18 (18.2)	5 (5.1)	2 (2.0)	1 (1.0)
3	How often do you practice hand hygiene promptly after any contact with blood, bodily fluids, secretions, excretions, or soiled materials?	80 (80.8)	10 (10.1)	8 (8.1)	0 (0.0)	1 (1.0)
4	How often do you use gloves while performing the task of extracting blood samples?	74 (74.7)	17 (17.2)	5 (5.1)	2 (2.0)	1 (1.0)
5	How often do you recapp needles as soon as possible after usage?	23 (23.2)	14 (14.1)	11 (11.1)	7 (7.1)	44 (44.4)
6	How often do you use gloves throughout the examination of all patients?	45 (45.5)	37 (37.4)	9 (9.1)	3 (3.0)	5 (5.1)

7	How often do you wear a face mask during the examination of potentially infectious patients?	70 (70.7)	17 (17.2)	7 (7.1)	3 (3.0)	2 (2.0)
8	How often do you use gloves while touching the skin of patients with impairments?	67 (67.7)	21 (21.2)	7 (7.1)	2 (2.0)	2 (2.0)
9	How often do you wash your hands before and after providing patient care?	72 (72.7)	17 (17.2)	9 (9.1)	1 (1.0)	0 (0.0)
10	How often do you sanitize or disinfect your equipment before and after each use?	64 (64.6)	25 (25.3)	9 (9.1)	1 (1.0)	0 (0.0)
11	How often do you undertake regular cleaning and disinfection in patient care areas?	66 (66.7)	23 (23.2)	8 (8.1)	1 (10)	1 (1.0)
12	Have you ever seen a coworker failing to use standard infection control precautions?	12 (12.1)	24 (24.2)	35 (35.3)	17 (17.2)	11 (11.1)
13	When caring for patients, how frequently do you use personal protective equipment (PPE)?	46 (45.5)	33 (33.3)	14 (14.1)	5 (5.1)	1 (1.0)
14	Have you ever received standard infection control precaution training?	42 (42.4)	42 (42.4)	8 (8.1)	4 (4.0)	3 (3.0)
15	If so, how often do you receive training?	35 (35.4)	38 (38.4)	21 (21.2)	3 (3.0)	2 (2.0)
16	How would you assess the degree of standard infection control precaution adherence in your primary care facility?	40 (40.4)	40 (40.4)	12 (12.1)	5 (5.1)	2 (2.1)
17	Do you believe you can teach people on the necessity of standard infection control precaution and how to use them?	46 (46.6)	33 (33.3)	14 (14.1)	2 (2.0)	4 (4.0)

The findings reveal that a significant majority of respondents possess a notable degree of expertise (6.8%) Figure 1. A minor segment, 19.2%, possesses a middling degree of expertise, but merely 4% of respondents are classified as having a poor level of knowledge. The survey had 99 respondents, aged between 16 and 35 years. This distribution indicates that the participants' overall knowledge level is primarily proficient. The findings demonstrate a substantial correlation between sociodemographic factors and participants' knowledge levels Table 5. No substantial variation in knowledge levels existed between males and females, with both genders exhibiting a high percentage of proficient knowledge (73.5% for males and 78.5% for females). The Pearson Chi-Square statistic was .733, accompanied by a *p*-value of .456. A notable correlation was identified (p = .014). Individuals over 40 years exhibited the highest level of proficient knowledge (90.6%), whilst those aged 22-30 years demonstrated the lowest (63.6%). A notable disparity in knowledge levels was observed according to nationality (p = .007). Non-Saudi individuals exhibited a greater proportion of proficient knowledge (87.0%) in contrast to Saudi participants (64.4%). No substantial correlation was identified (p = .182). Individuals possessing a master's degree and PhD had a substantial level of proficiency, with 80.05% demonstrating good knowledge. The findings revealed no significant correlation between knowledge level and years of experience at KFH, with a *p*-value of .135. Participants with under 2 years of experience exhibited a knowledge percentage of 64.5%, whilst those with over 10 years had a comparable number of 75.8%. This indicates that experience in KFH may not substantially influence knowledge levels. The data indicate that age and nationality significantly influence participants' knowledge levels, although gender, qualifications, and experience in KFH do not exhibit notable relationships. The research indicates that older participants and non-Saudis generally had superior knowledge, which may guide focused educational interventions or outreach initiatives to improve understanding among younger and Saudi participants.

Table 5 Association between sociodemographic characteristics and level of knowledge among HCWs in KFH, Al-Baha, 2024

Gender	**TK**			**Pearson Chi-Square**	***P value***
	Poor	**Moderate**	**Good**		**Significance**
Male	1	8	25	0.733	0.456
	(2.9%)	(23.5%)	(73.5%)		
Female	3	11	51		
	(4.6%)	(16.9%)	(78.5%)		
Age groups	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
22-30 years	1	11	21	10.246	0.014**
	(3.0%)	(33.3%)	(63.6%)		
30-40 years	3	5	26		
	(8.8%)	(14.7%)	(76.5%)		
>40 year	0	3	29		
	(0.0%)	(9.4%)	(90.6%)		
Nationality	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
Saudi	3	13	29	7.082	0.007**
	(6.7%)	(28.9%)	(64.4%)		
Non-Saudi	1	6	47		
	(1.9%)	(11.1%)	(87.0%)		
Qualification	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
Student	0	0	1	5.353	0.182
	(0.0%)	(0.0%)	(100.0%)		
Diploma	2	2	11		
	(13.3%)	(13.3%)	(73.3%)		
Bachelor	2	14	50		
	(3.0%)	(21.2%)	(75.8%)		
Master	0	2	8		
	(0.0%)	(20.0%)	(80.0%)		
PhD	0	1	4		
	(0.0%)	(20.0%)	(80.0%)		
Saudi board	0	0	1		
	(0.0%)	(0.0%)	(100.0%)		
Membership	0	0	1		

	(0.0%)	(0.0%)	(100.0%)		
Experience in KFH	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
< 2 years	2	9	20	8.31	0.135
	(6.5%)	(29.0%)	(64.5%)		
2 - 5 Years	0	3	9		
	(0.0%)	(25.0%)	(75.0%)		
5 - 10 years	0	1	22		
	(0.0%)	(4.3%)	(95.7%)		
> 10 years	2	6	25		
	(6.1%)	(18.2%)	(75.8%)		

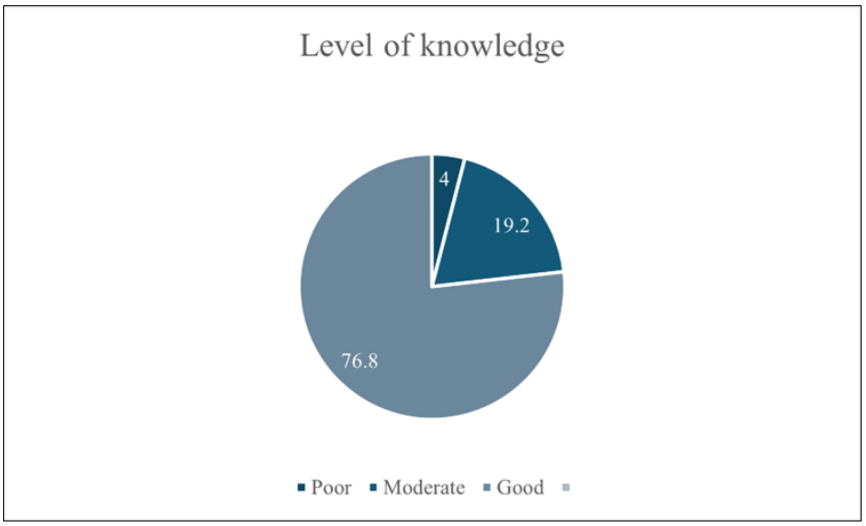

Figure 1 Level of Knowledge among HKWs at KFH, Al-Baha.

The findings reveal the distribution of attitudes among participants (Figure 2). Among 99 individuals surveyed, 16.2% (16 respondents) had a negative attitude, whereas the majority, 75.8% (75 respondents), held a neutral position. Approximately 8.1% (8 respondents) had a favourable attitude (Figure 2). This distribution indicates that the majority of respondents are neither distinctly positive nor negative, with a considerable segment inclined towards neutrality.

The analysis investigates the correlation between diverse sociodemographic traits and the respondents' attitudes (negative, neutral, positive) Table 6. Males demonstrated a distribution of 23.5% negative, 61.8% neutral, and 14.7% favorable attitudes. Females exhibited a neutral attitude at 83.1%, with 12.3% negative and 4.6% favorable responses. The Pearson Chi-Square statistic was 5.890 with a *P* value of 0.541, suggesting no significant correlation. Among the 22-30 age group, 21.2% were negative, 72.7% neutral, and 6.1% positive. The demographic aged 30-40 had 14.7% negative, 73.5% neutral, and 11.8% positive responses. The group aged over 40 had 12.5% negative, 81.3% neutral, and 6.3% positive responses. The Chi-Square value was 1.891, with a P value of 0.270, indicating no significant correlation between age groups and levels of attitude. Saudi respondents had 22.2% negative, 62.2% neutral, and 15.6% positive sentiments. Non-Saudi respondents exhibited a predominant neutral disposition at 87.0%, accompanied by 11.1% negative and merely 1.9% positive responses. The Pearson Chi-Square statistic was 9.574, with a *P* value of 0.479, suggesting no significant correlation based on nationality. The students exhibited a distinctive distribution, characterized by a 100% neutral attitude from one respondent. Diploma holders exhibited 26.7% negative, 60.0% neutral, and 13.3% positive responses. Holders of bachelor's degrees exhibited 15.2% negative, 78.8% neutral, and

6.1% positive responses. Individuals with a master's degree exhibited 10.0% negative, 80.0% neutral, and 10.0% positive sentiments. Individuals with PhDs exhibited 20.0% negative, 60.0% neutral, and 20.0% positive responses. The Chi-Square value was 4.836, and the *P* value was 0.284, indicating no significant correlation with certification levels. Individuals with under 2 years of experience exhibited 22.6% negative, 71.0% neutral, and 6.5% positive attitudes. Individuals with 2-5 years of experience exhibited 8.3% negative and 91.7% neutral replies, with no positive feedback recorded. Individuals with 5-10 years of experience exhibited 8.7% negative, 73.9% neutral, and 17.4% positive attitudes. Individuals possessing more than 10 years of experience indicated 18.2% negative, 75.8% neutral, and 6.1% positive sentiments. The Pearson Chi-Square statistic was 6.333 with a *P* value of 0.297, suggesting no significant correlation between experience in KFH and attitude levels. The analysis indicates no significant correlations between sociodemographic characteristics (gender, age, nationality, qualification, and experience in KFH) and attitude levels (negative, neutral, positive) among respondents, as evidenced by the elevated *P* values across all categories. The majority of participants displayed neutral sentiments irrespective of their sociodemographic characteristics.

Table 6 Association between sociodemographic characteristics and level of attitude among HCWs in KFH, Al-Baha, 2024

Gender	**level of attitude**			**Pearson Chi-Square**	***P value***
	Negative	**Neutral**	**Positive**		**Significance**
Male	8	21	5	5.890	0.541
	23.5%	61.8%	14.7%		
Female	8	54	3		
	12.3%	83.1%	4.6%		
Age groups	level of attitude			Pearson Chi-Square	*P value*
	Negative	Neutral	Positive		Significance
22-30 years	7	24	2	1.891	0.270
	21.2%	72.7%	6.1%		
30-40 years	5	25	4		
	14.7%	73.5%	11.8%		
>40 year	4	26	2		
	12.5%	81.3%	6.3%		
Nationality	level of attitude			Pearson Chi-Square	*P value*
	Negative	Neutral	Positive		Significance
Saudi	10	28	7	9.574	0.479
	22.2%	62.2%	15.6%		
Non-Saudi	6	47	1		
	11.1%	87.0%	1.9%		
Qualification	level of attitude			Pearson Chi-Square	*P value*
	Negative	Neutral	Positive		Significance
Studant	0	1	0	4.836	0.284
	0.0%	100.0%	0.0%		
Diploma	4	9	2		
	26.7%	60.0%	13.3%		
Bachelor	10	52	4		
	15.2%	78.8%	6.1%		

Master	1	8	1		
	10.0%	80.0%	10.0%		
PhD	1	3	1		
	20.0%	60.0%	20.0%		
Saudi board	0	1	0		
	0.0%	100.0%	0.0%		
Membership	0	1	0		
	0.0%	100.0%	0.0%		
Experience in KFH	level of attitude			Pearson Chi-Square	*P value*
	Negative	Neutral	Positive		Significance
< 2 years	7	22	2	6.333	0.297
	22.6%	71.0%	6.5%		
2 - 5 Years	1	11	0		
	8.3%	91.7%	0.0%		
5 - 10 years	2	17	4		
	8.7%	73.9%	17.4%		
> 10 years	6	25	2		
	18.2%	75.8%	6.1%		

The findings demonstrate the extent of practice among the participants (Figure 3). Among 99 individuals surveyed, 3 (3.0%) were characterized as having a poor level of practice, 17 (17.2%) exhibited a moderate level of practice, and the majority, 79 (79.8%), displayed an excellent level of practice. The examination of the correlation between sociodemographic attributes and levels of practice uncovers several noteworthy conclusions Table 7. A notable disparity in practice levels exists across genders (Pearson Chi-Square = 14.149, *P* =.001). Males exhibit a greater proportion of low (5.9%) and moderate (35.3%) practice levels in contrast to females, who primarily have good practice levels (90.8%). Age significantly affects practice levels (Pearson Chi-Square = 9.167, *P* =.004). The 22-30 age demographic exhibits 6.1% poor, 24.2% intermediate, and 69.7% good habits. The 30-40 age demographic exhibits comparable tendencies, however individuals above 40 years demonstrate a significantly high prevalence of commendable activities (96.9%). Nationality has a substantial impact on practice levels (Pearson Chi-Square = 16.129, *P* =.000). Saudi citizens demonstrate 6.7% low, 31.1% intermediate, and 62.2% good practice levels, whereas non-Saudis display an exceptionally high proportion of good practices at 94.4%, with no instances of poor practices recorded. Educational attainment exhibits diverse outcomes, although it fails to attain statistical significance (Pearson Chi-Square = 13.037, *P* = .258). Among diploma graduates, 40% exhibit intermediate habits, but 81.8% of bachelor's degree holders demonstrate good practices. Individuals with Master's and PhD degrees have a significant prevalence of commendable habits, at 90% and 80%, respectively. Experience did not exhibit a significant correlation with practice levels (Pearson Chi-Square = 20.852, *P* =.380). Individuals with fewer than 2 years of experience exhibit a high prevalence of good practices (90.3%), whereas those with 2-5 years demonstrate a more even distribution between moderate (58.3%) and good (41.7%) behaviors. The tendency persists, with individuals possessing 5-10 years of experience demonstrating 78.3% adherence to good practices, while those with over 10 years exhibit 84.8% adherence. The analysis concludes that gender, age, and nationality significantly influence practice levels, although certification and experience in KFH exhibit no significant correlation.

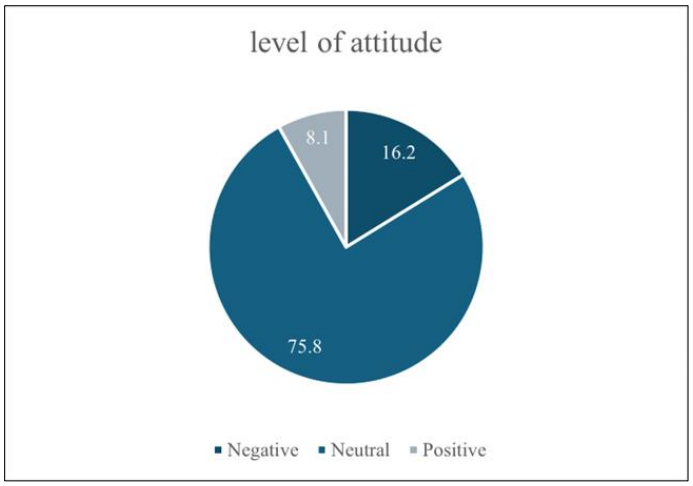

Figure 2 Level of attitude among HKWs at KFH, Al-Baha

Table 7 Association between sociodemographic characteristics and level practice among HCWs in KFH, Al-Baha, 2024

Gender	**TK**			**Pearson Chi-Square**	***P value***
	Poor	**Moderate**	**Good**	**Poor**	**Moderate**
Male	2	12	20	14.149	0.001**
	5.9%	35.3%	58.8%		
Female	1	5	59		
	1.5%	7.7%	90.8%		
Age groups	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
22-30 years	2	8	23	9.167	0.004**
	6.1%	24.2%	69.7%		
30-40 years	1	8	25		
	2.9%	23.5%	73.5%		
>40 year	0	1	31		
	0.0%	3.1%	96.9%		
Nationality	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
Saudi	3	14	28	16.129	0.000**
	6.7%	31.1%	62.2%		
Non-Saudi	0	3	51		
	0.0%	5.6%	94.4%		
Qualification	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
Studant	0	0	1	13.037	0.258
	0.0%	0.0%	100.0%		
Diploma	0	6	9		

	0.0%	40.0%	60.0%		
Bachelor	2	10	54		
	3.0%	15.2%	81.8%		
Master	0	1	9		
	0.0%	10.0%	90.0%		
PhD	1	0	4		
	20.0%	0.0%	80.0%		
Saudi board	0	0	1		
	0.0%	0.0%	100.0%		
Membership	0	0	1		
	0.0%	0.0%	100.0%		
Experience in KFH	TK			Pearson Chi-Square	*P value*
	Poor	Moderate	Good		Significance
< 2 years	2	1	28	20.852	0.380
	6.5%	3.2%	90.3%		
2 - 5 Years	0	7	5		
	0.0%	58.3%	41.7%		
5 - 10 years	1	4	18		
	4.3%	17.4%	78.3%		
> 10 years	0	5	28		
	0.0%	15.2%	84.8%		

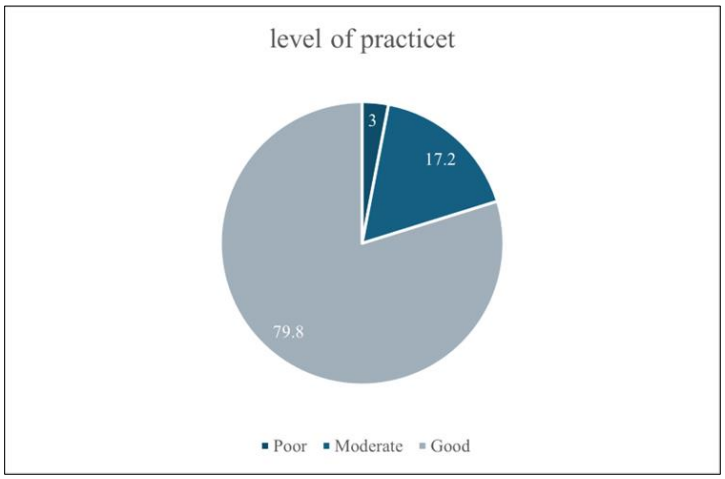

Figure 3 Level of practice among HKWs at KFH, Al-Baha.

4. Discussion

The findings regarding HCWs' knowledge, attitude, and practice related to infection control reveal a complex landscape of understanding and compliance, showcasing both positive and concerning elements. A notable group of participants demonstrated an awareness of the importance of standard precautions and the role of PPE. Nonetheless, significant gaps persist in both understanding and application, particularly regarding the use of gloves and the origins of hospital-

acquired infections. Moreover, the significant understanding of the spread of infections through contaminated needles and sharps—specifically, 88.9% for Hepatitis B and 87.9% for HIV/AIDS—aligns with the findings in a previous study, which showed that a large percentage of primary care professionals acknowledged the risks associated with sharps [21]. Despite this, the recognition rate of 40.4% for *Plasmodium* spp. not transmitted through contaminated sharps highlights the critical need for targeted educational initiatives concerning particular pathogens. This is further highlighted in a previous study, which underscores the importance of ongoing training to address these knowledge gaps [22]. The survey results reveal a positive trend in hand hygiene practices, with an impressive 91.9% of respondents recognizing the importance of washing hands after engaging with patients. This reflects the positive perspectives noted in a previous study, where a considerable proportion of healthcare professionals exhibited a strong commitment to hand hygiene [23]. Despite the knowledge imparted, the adherence rates reported—such as 74.7% of individuals removing PPE before exiting a patient's area—suggest that understanding does not always translate into action. This observation is further substantiated by findings in a study conducted by [17], which indicated that adherence to standard precautions differed among healthcare professionals. The variations in practices, highlighted by the low compliance rate of 47.5% in disposing of linens from infected patients in a designated red bag, reveal the challenges faced in the successful execution of infection control measures. This observation corresponds with the findings previously outline, revealing that dental faculty and students demonstrated notable adherence to guidelines, while also showing a lack of comprehension regarding essential infection control standards [24]. The existence of these discrepancies underscores the importance of continuous education and the strengthening of infection control measures across all healthcare settings. Therefore, while HCWs demonstrated a solid understanding of infection control practices, significant gaps in knowledge remain, particularly regarding the correct use of gloves and the origins of infections. The examination in connection with other studies indicates that these issues are connected and reflective of a broader trend within healthcare settings. Addressing these deficiencies is essential through targeted training, efficient resource allocation, and the promotion of a safety-oriented culture. These measures aim to improve compliance and ultimately reduce the incidence of hospital-acquired infections.

The evaluation of HCWs' views on standard precautions and infection control strategies reveals a complex connection between understanding, belief, and application that shows both encouraging and concerning elements. The findings reveal that a notable percentage of participants (34.3%) expressed disagreement with the assertion that the implementation of standard precautions poses challenges, indicating an affirmative perspective on these crucial practices. This is consistent with the findings presented previously, which reveal that a significant majority (88.2%) of primary care professionals demonstrated a good attitude towards infection control policies, highlighting a widespread acknowledgement of the critical role these measures play in preventing healthcare-associated infections [21].

Nevertheless, the findings also highlight significant deficiencies in comprehension and application. For example, 62.6% of participants disagreed with the notion that hand disinfection is unnecessary following interactions with a patient's environment. However, 49.5% held the belief that PPE is not essential, indicating a tendency to prioritize treatment over preventive strategies. This observation aligns with the results that revealed a notable proportion of healthcare professionals (61.7%) mistakenly thought that gloves offer total protection against infection [25]. This highlights a prevalent misunderstanding that may contribute to a lack of vigilance in infection control measures.

The diverse perspectives regarding the infectious risk presented by patients add complexity to the situation. In this evaluation, 27.3% of respondents concurred that it is not appropriate to assume all patients are infectious, whereas 23.2% expressed disagreement. This uncertainty mirrors previous findings, where HCWs exhibited a lack of agreement regarding the necessity of standard precautions for all patients, a factor that is essential for effective infection control [22]. The notion that infectious diseases can be effectively controlled exclusively through treatment, as reflected by 49.5% of respondents, presents a considerable danger, as it compromises the essential principle of regarding all patients as potential sources of infection.

Furthermore, the significant tendency to prioritize hand hygiene (65.7%) and the endorsement of separating clinical from non-clinical waste (40.4%) serve as encouraging signs of awareness and dedication to infection control measures. This aligns with previous findings, indicating that a significant proportion of HCWs acknowledged the critical role of hand hygiene and the necessity of effective waste management in mitigating the transmission of infections [23]. Nonetheless, the observation that almost half of the participants (49.5%) do not regard PPE as crucial prompts significant concerns regarding the likelihood of heightened infection transmission, especially in emergency contexts where the risk is amplified.

The findings show a clear difference in how people view everyday items as potential sources of infection, with 39.4% of respondents saying that things like stationery and doorknobs probably do not carry infectious agents. However, it was

reported that HCWs acknowledged the presence of pathogens on various surfaces, emphasizing the need for comprehensive training and awareness efforts to address these gaps [25].

Therefore, while the evaluation shows a generally positive attitude towards standard precautions among HCWs, there are clear misunderstandings and gaps in implementation that continue to exist. Other studies show a clear pattern of not understanding and not following infection control protocols in various healthcare settings. To boost adherence and reduce the chances of healthcare-associated infections, it is crucial to roll out targeted educational programs, highlight the importance of PPE, and foster a safety culture that prioritizes infection prevention in every healthcare interaction. The survey results regarding adherence to standard infection control practices among HCWs reveal a mixed landscape of compliance and understanding. The findings indicate a commendable level of hand hygiene practices, with 70.7% of participants reporting that they "always" engage in hand hygiene prior to patient examinations and 73.7% after glove removal. This aligns with the study conducted by [23] where 96.2% of healthcare workers performed hand hygiene before and after patient care, suggesting a strong culture of hand hygiene in some healthcare settings. However, the reported compliance rates in this survey are lower than those observed in another study by [21] where 88.2% of primary care professionals expressed a positive attitude towards infection control policies, indicating that while attitudes may be favorable, actual practices may not always reflect this.

Despite the high prevalence of hand hygiene, the survey revealed significant gaps in other areas of infection control. For instance, only 23.2% of respondents consistently recapped needles immediately after use, with 44.4% indicating that they never engage in this practice. This is concerning, as recapping needles is a known risk factor for needlestick injuries, which are prevalent among HCWs, as previously highlighted [25], where 61.7% of participants incorrectly believed that gloves provide complete protection against infection. The low compliance with needle recapping in this survey underscores the need for targeted education to address misconceptions and reinforce safe practices.

The use of PPE also showed room for improvement, with only 45.5% of respondents indicating that they "always" employed PPE while providing care. This is consistent with previous findings [26], where the use of gloves was reported at 100%, but compliance with other PPE measures varied significantly. The disparity in PPE usage highlights the necessity for comprehensive training and resources to ensure that healthcare workers are equipped to protect themselves and their patients effectively.

Moreover, the survey indicated that 40% of respondents had received training on standard infection control precautions, which is crucial for enhancing compliance. Similarly, it was reported that healthcare workers who received training were 13.3 times more likely to have good knowledge of infection control practices [23]. The correlation between training and adherence emphasizes the importance of ongoing education and the need for healthcare facilities to prioritize training programs.

The observation that 35.3% of participants had witnessed colleagues neglecting standard infection control measures further emphasizes the challenges in maintaining compliance. A significant number of healthcare workers were reported to encounter situations where they could not adhere to aseptic practices due to a lack of resources or equipment [22]. Such challenges highlight the systemic issues that need to be addressed to improve adherence to infection control protocols.

While the survey results demonstrate a positive trend in hand hygiene practices among HCWs, significant gaps remain in other areas of infection control, particularly regarding needle recapping and PPE usage. The comparison with other studies indicates that while knowledge and attitudes may be favorable, translating this into consistent practice is a challenge. Addressing these gaps through targeted training, resource allocation, and a culture of safety is essential for enhancing compliance with infection control measures and ultimately reducing the risk of healthcare-associated infections.

Furthermore, the results indicate that HKWs at KFH had a primarily high level of understanding of infection control practices, with 76.8% of respondents classified as having significant expertise. This corresponds with the previous findings wherein a substantial amount of healthcare personnel exhibited proficient understanding of infection control, albeit with varying specific percentages [21]. In that study, 68.4% of participants were deemed to possess strong knowledge, suggesting a little lower overall proficiency relative to the present findings.

The relationship between sociodemographic characteristics and knowledge levels is very significant. The present study revealed no significant differences in knowledge levels across genders, as both males (73.5%) and girls (78.5%) demonstrated great proficiency. This aligns with the findings in [23], which indicated that gender did not significantly affect knowledge levels among healthcare workers in Qassim, Saudi Arabia. The present study reveals a notable

association between age and knowledge, with those over 40 years exhibiting the highest proficiency at 90.6%. This tendency is shown in it was indicated that older healthcare professionals possess superior understanding of infection control practices relative to their younger peers [22].

The present study found nationality as a significant determinant of knowledge levels, with non-Saudi individuals demonstrating a greater proficiency rate (87.0%) than Saudi participants (64.4%). This conclusion contradicts a previous finding, which did not identify nationality as a key factor influencing knowledge levels among healthcare personnel in Erbil, Iraq [25]. The discrepancies in data may indicate that cultural or educational backgrounds influence the comprehension of infection control techniques.

The present investigation revealed no significant link between knowledge levels and years of experience at KFH, indicated by a *p*-value of .135. However, it was demonstrated a substantial association between years of experience and effective infection control techniques [23]. The absence of association in the present study indicates that experience alone may not serve as a dependable predictor of knowledge, underscoring the necessity for continuous training and education irrespective of tenure.

The results indicate that educational interventions may be essential to improve comprehension for younger and Saudi individuals, who exhibited lower levels of knowledge. It was highlighted the significance of training and resources in enhancing compliance with infection control measures among healthcare workers in Ethiopia [26].

The results of the attituded and practice of HCWs indicate a multifaceted understanding and adherence to infection control protocols. Of the 99 individuals surveyed, a substantial majority (75.8%) maintained a neutral stance on infection management, while merely 8.1% had a positive attitude and 16.2% a negative attitude. This distribution indicates a deficiency of robust confidence in infection control methods, which is alarming considering the vital significance of these measures in preventing healthcare-associated infections. However, it was indicated that 88.2% of primary care providers in Abha City had a good attitude towards infection control, it is clear that the participants in the current study are less involved [21]. The neutral position of the majority in the present study may signify a necessity for improved training and awareness initiatives, as continuous education to boost adherence to infection control protocols [21]. The examination of sociodemographic variables indicated no substantial associations between gender, age, nationality, qualifications, or experience and the respondents' attitudes in the present study. It was indicated that sociodemographic characteristics, including age and sex, did not significantly affect healthcare professionals' attitudes towards infection control [23]. Nonetheless, it was identified a substantial correlation between professional experience and adherence to recommended precautions, indicating that experience may influence attitudes in varying circumstances [17]. The current study revealed that 79.8% of respondents demonstrated great practice levels, while only 3.0% were classified as having inadequate practice. It was revealed that numerous healthcare professionals exhibited inadequate adherence to basic precautions, particularly among less experienced personnel [22]. It was indicated that a majority of healthcare personnel exhibited commendable habits about hand cleanliness and other infection control protocols. [25]. The present investigation revealed substantial differences in practice levels according to gender, age, and nationality. Males demonstrated reduced practice levels relative to females, gender disparities in adherence to infection control protocols was also documented previously [24]. The results of the current study reveal that younger respondents exhibited lower levels of practice, but older individuals displayed excellent habits age was also a significant determinant of compliance [26]. The influence of nationality on practice levels was significant, with non-Saudi respondents demonstrating greater compliance rates.

5. Conclusion

The survey shows different levels of awareness and compliance among HCWs at KFH concerning infection management. Although some acknowledge the importance of standard precautions and PPE, there remain considerable gaps in comprehension and application, especially regarding gloves and the origins of hospital-acquired infections. Many HCWs recognize the dangers associated with contaminated needles and sharp objects; however, only 40.4% understand that *Plasmodium* spp. is not transmitted through contaminated sharps. The practices related to hand hygiene are typically effective; however, the rates of adherence are quite low. The survey indicates that a notable percentage of participants do not support the use of traditional safety measures and believe that PPE is not needed. The research emphasizes the importance of comprehensive training and resources to ensure HCWs are sufficiently equipped to safeguard themselves and their patients. The levels of knowledge among healthcare professionals are notably influenced by sociodemographic factors, particularly age and nationality, which serve as important determinants. Programs aimed at education could be essential for improving understanding among younger people and those in Saudi Arabia. A considerable number of HCWs hold a neutral stance on infection management, indicating a lack of confidence in infection control methods.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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