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The Effect Of The Knowledge And Practices Of Infection Control Standard Among Health Care Workers In The Healthcare Sector Level In Saudi Arabia 2024

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Abstract

Background

Healthcare infection control standard among health care workers infections have been a critical cause of morbidity and an undue burden in the healthcare system in Saudi Arabia. Infection contributes to increased length of hospital stay, higher mortality and higher health-care costs. Prevention and infection control standard is a critical public health concern. Infection control standard among health care workers are largely preventable through compliance with standard infection control techniques. Protocols of infection control standard management urge the significance of these measures to infection prevent the spread of contaminated organic essential fluids, the administration of harmful gases, and the proper disposal of hazardous bio-waste products. Unsafe practices in dealing with needle sticks, sharp instruments, contamination of the wound surface, the following aspect of the patient, the absence of health care gowns, goggles, and caps, using contaminated masks, and neglecting the immediately required rules and precautions increase the transmission of the infection. **Aim of study:** To Assessment effect of the knowledge and practices of infection control standard among health care workers in the healthcare sector level in Saudi Arabia 2024. **Methods:** This cross sectional study included (300) health care workers in the healthcare sector level at Saudi Arabia 2024. (Preventive Medicine, Nurse technician, dental Clinics, health Management , laboratory department, radiology department, physiotherapy department, Pharmacy section) from health sector an self-administrated questionnaire was constructed by the researcher and was used for data collection. **Results**: practice of the healthcare workers about standard precautions of infection control regarding the practice the majority of participant (59.0%) have average of the practice about standard precautions of infection control, followed by (26.0%) of participant high and weak were (15.0).**Conclusion:** Having good knowledge and practice of infection control standard among health care workers in the healthcare sector level to prevent the spread of infections from health-care facilities. Our research highlighted the gaps in knowledge and practice of the HCWs practicing the knowledge and practice The demonstrated poor level of knowledge and compliance to infection control demands more research to unravel this existing gap. However,

Keywords: knowledge, practices, infection control, standard, (HCWs), health, sector.

Introduction

Background

Healthcare-related infections (HRIs) stay as the majority common unfavorable occasion in any healthcare provider and affect millions of human beings every year, leading to increased illnesses and death [1]. It has been confirmed through the literature that a massive share of healthcare companies and customers had received infections inside, healthcare settings [2] . In a few studies, a mortality rate of as much as 49% has been fundamentally documented related to HAIs [3]. These contaminations, aside from presenting intense and existence-threatening situations on healthcare employees and patients, are answerable for deterioration quality of healthcare and rise expenses in medical clinic costs [4].Healthcare workers (HCWs) have an increased risk of active and infection compared to the general population [5]. In low- and middle-income countries where there is high incidence, a systematic review of 26 LMICs found that the prevalence and incidence of infection among HCWs are high [6]

Healthcare-associated infections (HAIs) are illnesses acquired by patients while receiving medical care for another condition in settings like hospitals, nursing homes, and clinics. Preventive Medicine, Nurse technician, dental Clinics, health Management , laboratory department, radiology department, physiotherapy department, Pharmacy section .They are caused by bacteria, viruses, fungi, or other pathogens and are a significant public health problem, leading to increased illness, longer hospital stays, higher costs, and sometimes death [7]

Infection prevention and control (IPC) is an evidence-based approach to pre-empt avoidable infections among patients and healthcare workers (HCWs) in healthcare facilities (HCFs) [8]

Common HAIs include urinary tract infections, surgical site infections, and bloodstream infections, often linked to medical devices or antibiotic-resistant bacteria. Prevention focuses on strict hand hygiene environmental cleaning, and appropriate use of antibiotics [9]

The WHO reported that improper environmental hygiene and waste disposal procedures, poor infrastructure, inadequate equipment and manpower, overcrowding, limited knowledge and poor practices of basic infection control measures, and lack of national guidelines are the key determinants of HAIs [10]

Healthcare associated infections can be defined as an infection occurring in a patient during the process of care in a hospital or other healthcare facility which was not present or incubating at the time of admission.[11] It contributes to significant morbidity and mortality, longer duration of hospitalization, as well as increased cost of treatment in both developed and resource-poor countries. The prevalence in the developed world is reported to be 15% among hospitalized patients while it is as high as 37% for patients admitted into the Intensive Care Unit.[12] The prevalence in developing countries is somewhat higher with up to 19% prevalence of HCAI among hospitalized patients.[13] In the United States, the added expenditure as a result of HCAI is in excess of $4.5 billion,[14]

The contaminated hands of health-care workers (HCWs) and health-care equipment have been identified as the primary sources of HAIs [10]. The pathogens of HAIs are commonly transmitted from one patient to another when HCWs do not perform hand hygiene properly following caring for one patient and contacting another patient [15]. The incidence of HAIs varies in different types of clinical departments. A study in Norway reported that the greatest infection rate is in the intensive care units followed by neonatal and burns units [13]

Literature review

Recent studies estimated the prevalence of HAIs in Europe and the USA at 6.5% and 3.2%, respectively. The burden of HAIs is strikingly higher in low-resourced countries compared with high-income countries [16] Prevalence of HAIs is considerably higher in developing countries than in developed countries .

According to the World Health Organization (WHO), the prevalence of HAIs ranges between 5.7% and 19.1% in hospital settings globally [17]

A systematic review of the literature reported that the pooled prevalence of healthcare associated infection was 7.6% in high-income countries and 10.1% in low and middle-income countries [18]

Online searching for studies exploring the knowledge and practical towards standard infection control precautions among primary healthcare workers yielded relatively few studies as most studies conducted in this field were among healthcare workers in hospitals and future health care workers. In addition, relatively limited studies were carried out in Saudi Arabia. [19]

In Africa including Ethiopia, the prevalence of hospital acquired infection was significantly high (12–35%) [20] However, awareness of the problem remains extremely limited because of other health priorities take precedence over infection prevention and patient safety considerations [21]

Most of the healthcare associated infections are caused by the transmission of pathogens from one patient to another, especially by healthcare workers who failed to practice infection prevention measures consistently [22]

Faith , et al.(2019) study in Nigeria about good and fair knowledge among participants was reported as 50% and 44% respectively.[23] In Ethiopia, Reda,et al. showed that all participants had acceptable knowledge about contaminated needles and sharp materials that transmit disease causative agents, while 70.4% knew that gloves and gowns were required for any contact with patients. [24]In Brazil, Salinas et al. identified a gap between knowledge of standard precautions and the practical applications among physicians.[25]

In Africa, many studies have shown that significant proportion of healthcare providers had inadequate knowledge on infection prevention. Only 58% of health care workers in Ghana [26] and 70–80% in Nigeria [14] had adequate knowledge about infection prevention. Similarly, past evidence in Ethiopia showed that merely 54–60% of healthcare providers had adequate knowledge about infection prevention [16] and only 32–55% of healthcare providers demonstrated a safe practice on infection prevention [17]

In Ethiopia (2019) Beyamo et al assessed the compliance of health care workers with standard precaution practices and identified its determinants in public health institutions. The study included 250 HCWs. Nearly two-thirds (65%) of them had complied with standard precaution practices. Factors significantly associated with compliance to standard precaution practices were experience of ≤5 years, training on standard precaution, having good hand hygiene and availability of (personal protective equipment's) [27]

According to WHO, poor knowledge, attitude, and practice (KAP) are among the key predictors of HAIs [13]. While narrating the KAP theory, argued that knowledge is essential to change practice and a positive attitude is a key instigator to bring change [22]

Our literature search revealed a few studies reporting the KAP of hand hygiene and infection control measures in the KSA. Among the published studies, one focused on the hand hygiene of HCWs, three studied infection control among dental students [28]

Rationale

Gaps have been in knowledge and practice of infection control among health care workers hence, it will be beneficial for all HCW to receive formal and periodic refresher trainings. Health care workers at the primary healthcare reveal poor knowledge about infection control standard and triage except for the personal hygiene domain; this may be the result of extensive hand-hygiene campaigns to prevent of infection transmission, the effective knowledge about standard of infection control and having favorable attitude towards them as well as practicing them properly is very critical in controlling the transmission infections among healthcare worker Even with regular infection control training in the hospital, gaps have been identified in knowledge and practice of infection control among health care worker . This underscores the need for continued refresher training and measures to compel implementation of infection control. Other endemic transmissible viral hemorrhagic diseases it becomes imperative to adopt strict measures of infection control in health sector

Aim of the study

To assessment effect of the knowledge and practices of infection control standard among health care workers in the healthcare sector level in Saudi Arabia 2024.

Materials and methods .

Study design:

This study is descriptive cross-sectional study

Study sitting:

The study has been carried out of health care sector in Saudi Arabia. There are belonging to Ministry of health (MOH) distributed as North and South .

Study population:

Health sector care professionals (n=300) distributed as follows: Preventive Medicine, health Management , radiology department, physiotherapy department, Pharmacy section physicians, nurses and laboratory technicians, Dental assistant, Study duration: July 20241st September 2024

Sample size:

Sample size was calculated using open Epi online sample size calculator at 95% confidence level with bound on error of 5% regarding standard infection control precautions max sample size required is 300 participants.

Sample technique:

Sample technique was two stages.

At first stage: simple random sampling method will be used to select the health sector. At second stage: all the participant from doctors, nurses and laboratory technicians, preventive Medicine, health Management , radiology department, physiotherapy department, Pharmacy section , dental assistant within the selected enrolled in the study to collect the sample size.

Inclusion criteria:

Health care workers (doctors, nurses and laboratory technicians, preventive Medicine, health Management , radiology department, physiotherapy department, Pharmacy section , dental assistant) male and female, Saudi and non-Saudi, all ages, those who agreed to participate in the research.

Exclusion criteria:

No exclusion criteria.

Data collection tool and technique:

Data were collected by self-administrated questionnaire.

First part of the questionnaire includes questions about Demographic data of the participant (gender, age, nationality, job title)

Second part about knowledge and practice of about infection control which including hand will be assessed covering hand hygiene obtained from WHO injection safety, and protective equipment utilization with barriers of adherence to standard infection control precaution. Score was created for the participants` responses to knowledge questions and statements, Right answers were given a score of 1 whereas wrong answers were given a score of 0. Total score and its percentage were computed. The mean of the score percentage was estimated for each of the subscales and well as the overall knowledge. Participants who scored at or above the mean score percentage for each subscale as well as for the overall were considered having “adequate knowledge” and those who scored below the mean score percentage were considered having inadequate knowledge.

Data analysis:

Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) software, version 24. Descriptive analysis was carried out as the mean and standard deviation (SD) were calculated for quantitative variables; frequency and proportion were calculated for categorical variables.

For comparisons, chi-square and t-test was used for categorical and quantitative variables respectively. p –value ≤ 0.05 was considered significant for all inferential analysis.

Ethical approval:

- The ethical approval was taken from the Regional Research Ethics committee. A permission letter was obtained from the regional director of the city of MOH before starting the data collection.
- A written Informed consent was obtained from each participant from commencing the data collection.
- The researcher preserved the confidentiality of the participants at all steps of the study for the data collection, analysis and result.

Budget: Self-funded.

Result

Table 1Socio-demographic characteristics of Personal characteristics of the participants (n=120)

	N	%
Age		
<30 years	60	20
30-40 years	153	51
40 -50years	48	16
>50	39	13
Gender		
Female	180	60
Male	120	40
Nationality		
Non-Saudi	51	17
Saudi	249	83
Departments		
Preventive Medicine	36	12
Nurse technician	33	11
Dental Clinics	36	12
Health Management	39	13
Laboratory department	45	15
Radiology department	33	11
Physiotherapy department	36	12
Pharmacy	42	14
Qualification		
Diploma	66	22
Bachelor	126	42
Master	108	36
Experience in health sector		
<5 years	120	40
5-10 years	153	51
>10 years	27	9
Marital status		
Un married	102	34
Married	147	49
Divorced	18	6
Widowed	33	11
Salary satisfaction		
Sufficient	105	35
Partly Sufficient	96	32
Insufficient	66	22
Quite Insufficient	33	11

Table 1 shows there were 300 participants, and the majority age was(51.0%) in (30-40)years, while the age(<30)were(20.0%) but the age 40-50 years were(16.0%0, regarding the majority of them were female (60.0%) while male(40.0%), regarding the nationality most of participants Saudi were(83.0%) while Non-Saudi were (17.0%), regarding department the majority of participant are Lab department were(15.0%)followed by Pharmacy worker were(14.0%) followed by health management were(13.0%) followed by Preventive Medicine, dental Clinics, Physiotherapy department were(12.0%) followed by Nurse technician, radiology department were(11.0%), regarding the Qualification most of participants Bachelor were(42.0%) followed by Master were(36.0%) followed by diploma were (22.0%), regarding the Experience in health sectors the majority of participant 5-10 years were (51.0%) followed by <5 years were(40.0%) followed by >10 years were (9.0%) , regarding Marital status the majority of participant are married were(49.0%) followed by un married were(34.0%) but the

widowed were (11.0%), regarding the Salary satisfaction most of participants Sufficient were(35.0%) followed by Partly Sufficient were(32.0%) but the insufficient were (22.0%) .

Table 2: Knowledge of the healthcare workers regarding infection control element of standard precaution

Statements statements/questions	TRUE		FALSE		Chi-Square	
	N	%	N	%	X^2	P-value
Dirty needle and sharp materials can transmit disease causing agents (TRUE)	216	72	84	28	58.080	<0.001*
Standard precautions should be practiced on all patients and laboratory specimen serology irrespective of diagnosis (TRUE)	180	60	120	40	12.000	<0.001*
Sharps should never be recapped (TRUE)	156	52	144	48	0.480	0.488
Needles should be bent or broken after use **(FALSE)**	87	29	213	71	52.920	<0.001*
When you have a patient who vomited in dressing room or clinic, the first step in infection control procedure is to isolate infected area (TRUE)	240	80	60	20	108.000	<0.001*
Sharp containers are utilized for used injection needles (TRUE)	210	70	90	30	48.000	<0.001*
Hepatitis B causing agent can be transmitted with dirty needles and sharps (TRUE)	216	72	84	28	58.080	<0.001*
Hepatitis C causing agent can be transmitted with dirty needles and sharps (TRUE)	225	75	75	25	75.000	<0.001*
HIV/AIDS causing agent can be transmitted with dirty needles and sharps (TRUE)	255	85	45	15	147.000	<0.001*
Tetanus (Clostridium tetani) causing agent can be transmitted with dirty needles and sharps (TRUE)	228	76	72	24	81.120	<0.001*
Malaria causing agent (Plasmodium spp) can be transmitted with dirty needles and sharps (**FALSE)**	90	30	210	70	48.000	<0.001*
Tuberculosis causing agent (M. tuberculosis) can be transmitted with dirty needles and sharps **(FALSE**)	120	40	180	60	12.000	<0.001*
Type of isolation with pulmonary tuberculosis is airborne precaution (TRUE)	195	65	105	35	27.000	<0.001*
There is treatment for MERS-CoV (coronavirus) (**FALSE)**	60	20	240	80	108.000	<0.001*
The best disinfecting material to clean exposed skin after contamination is soap (TRUE)	255	85	45	15	147.000	<0.001*

The appropriate immediate action after pricking finger by I.V. line needle is dressing wound and inform infection control supervisor(TRUE)	165	55	135	45	3.000	0.083

Table 2 shows the knowledge of the participants about infection control regarding (the Dirty needle and sharp materials can transmit disease causing agents, Standard precautions should be practiced on all patients and laboratory specimen serology irrespective of diagnosis, Sharps should never be recapped) the majority of participant have true information respectively (72.0%, 60.0%, 52.0%) while is a significant relation were P-value=0.001 except (Q 3) no significant were P-value=0.488 but $\mathbf{X^2}$ respectively (58.080, 12.000, 0.480). Regarding the you have a patient who vomited in dressing room or clinic, the first step in infection control procedure is to isolate infected area, Sharp containers are utilized for used injection needles , Hepatitis B causing agent can be transmitted with dirty needles and sharps. Hepatitis C causing agent can be transmitted with dirty needles and sharps. HIV/AIDS causing agent can be transmitted with dirty needles and sharps. Tetanus (Clostridium tetani) causing agent can be transmitted with dirty needles and sharps the majority of participant have true information respectively (80.0% , 70.0%, 72.0% , 75.0%, 85.0%, 76.0%) while is a significant relation were P-value=0.001 X^2 respectively (108.000,48.000,58.000,75.000, 147.000, 81.120). Regarding the Type of isolation with pulmonary tuberculosis is airborne precaution , The best disinfecting material to clean exposed skin after contamination is soap , The appropriate immediate action after pricking finger by I.V. line needle is dressing wound and inform infection control supervisor the majority of participant have true information respectively (65.0%, 85.0%, 55.0) while is a significant relation were P-value=0.001 , 0.083 X^2 respectively (27.000, 147.000,4.000). Regarding the Needles should be bent or broken after use, Malaria causing agent (Plasmodium spp) can be transmitted with dirty needles and sharps, Tuberculosis causing agent (M. tuberculosis) can be transmitted with dirty needles and sharps , There is treatment for MERS-CoV (coronavirus) the majority of participant have false information respectively (71.00%,70.0%, 60.0%, 80.0) while is a significant relation were P-value=0.001 X^2 respectively (52.920, 48.000,12.000, 108.000)

Table 3: Practice of the healthcare workers regarding infection control element of standard precautions

practice statements/questions		
	N	**%**
How often you wash your hands with proper detergent after contact with patient		
Always	225	75
Sometimes	66	22
Never	9	3
Do you use antiseptic hand rub to clean hands?		
Yes	255	85
No	45	15
How often do you use all personal protective equipment's as per standard to prevent infection?		
Always	225	75
Sometimes	75	25
When do you change chlorine solutions that used for instrumental Processing?		
Every 24 h	207	69
After 2 days	93	31
How often do you use glove when you perform procedures that need wearing glove?		
Always	270	90
Sometimes`	30	10

Have you ever exposed to blood or other body fluids of patients through contact or unprotected skin?		
Yes	120	40
No	180	60
What measure did you take if you are exposed to blood or fluids, needle stick injury?		
Only taking Post exposure prophylaxis	36	12
Only clean by alcohol	33	11
Only washing with water	15	5
Taking Post exposure prophylaxis and clean by alcohol	27	9
Taking post exposure prophylaxis and washing with water	54	18
Clean by alcohol and washing with water	48	16
All action taken	87	29
Did you practice high-level disinfection where sterilization is not applicable?		
Yes	120	40
No	180	60
What is your facility sterilization technique		
Boiling	105	35
Steam sterilization	195	65

Table 3 show practice of the healthcare workers regarding infection control element of standard precautions regarding you wash your hands with proper detergent after contact with patient the majority of the participants answer always were(75.0%), while sometimes were (22.0%) but never were (3.0%) ,regarding you use antiseptic hand rub to clean hands the majority of the participants answer Yes were(85.0%). While No were (15.0%) , regarding you use all personal protective equipment's as per standard to prevent infection the majority of the participants answer always were(75.0%), while sometimes were (25.0%), regarding the you change chlorine solutions that used for instrumental Processing the majority of the participants answer every 24 h were(69.0%). while after 2 days were (31.3%), regarding you use glove when you perform procedures that need wearing glove the majority of the participants answer always were(90.0%), while sometimes were (10.0%), regarding you ever exposed to blood or other body fluids of patients through contact or unprotected skin the majority of the participants answer No were(60.0%). While Yes were (40.0%) , regarding the measure did you take if you are exposed to blood or fluids, needle stick injury the majority of the participants answer all action taken were(29.0%), while taking post exposure prophylaxis and washing with water were (18.0%), but clean by alcohol and washing with water were (16.%), regarding you practice high-level disinfection where sterilization is not applicable the majority of the participants answer No were(60.0%). while Yes were (35.0%) , regarding What is your facility sterilization technique the majority of the participants answer Steam sterilization were(65.0%). while boiling were (35.0%)

Table 4: Distribution of knowledge of the healthcare workers about standard precautions of infection control

Knowledge			**Chi-square**	
	N	**%**	**X^2**	**P-value**
Weak	15	5	163.5	<0.001
Average	90	30		
High	195	65		
Total	300	100		
Range	7-22.			
Mean ±SD	14.855+3.552			

This table 4 shows the majority of participant (65.0%) have high of the Knowledge about standard precautions of infection control, followed by (30.0%) of participant average while weak were (5.0%) while Range(7-22) and Mean ±SD(14.855+3.552), while a significant relation were P-value=0.001 X^2 163. 5

Figure (1): Distribution of knowledge the healthcare workers about standard precautions of infection control

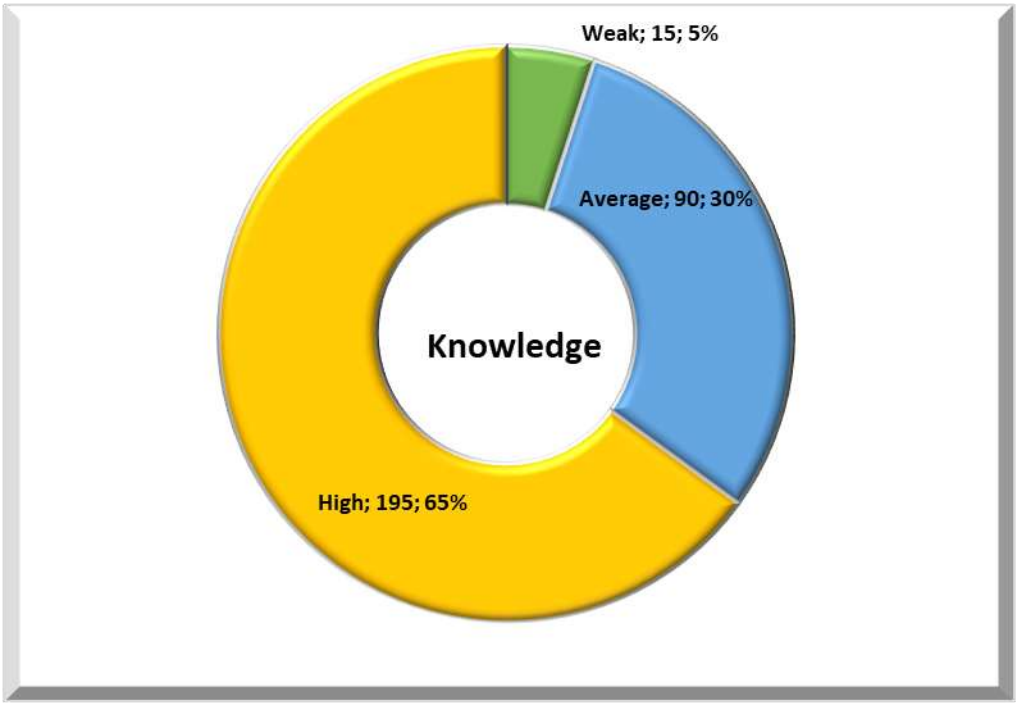


Table 5: Distribution of practice of the healthcare workers about standard precautions of infection control

Practices			**Chi-square**	
	N	**%**	**X^2**	**P-value**
Weak	45	15	94.38	<0.001
Average	177	59		
High	78	26		
Total	300	100		
Range	4-16.			
Mean ±SD	9.254+3.118			

Table 5 shows the practice of the healthcare workers about standard precautions of infection control regarding the practice the majority of participant (59.0%) have average of the practice about standard precautions of infection control, followed by (26.0%) of participant high and weak were (15.0) while Range(4-16) and Mean ±SD (9.254+3.118), while a significant relation were P-value=0.001 X^2 94.38

Figure (2): Distribution of practice of the healthcare workers about standard precautions of infection control

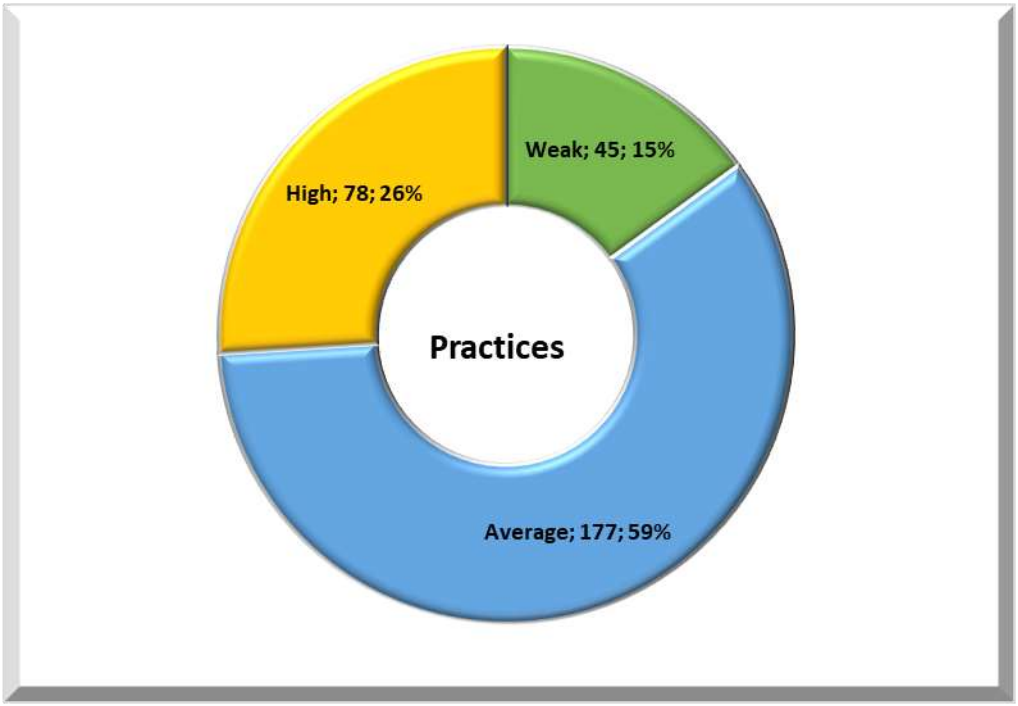
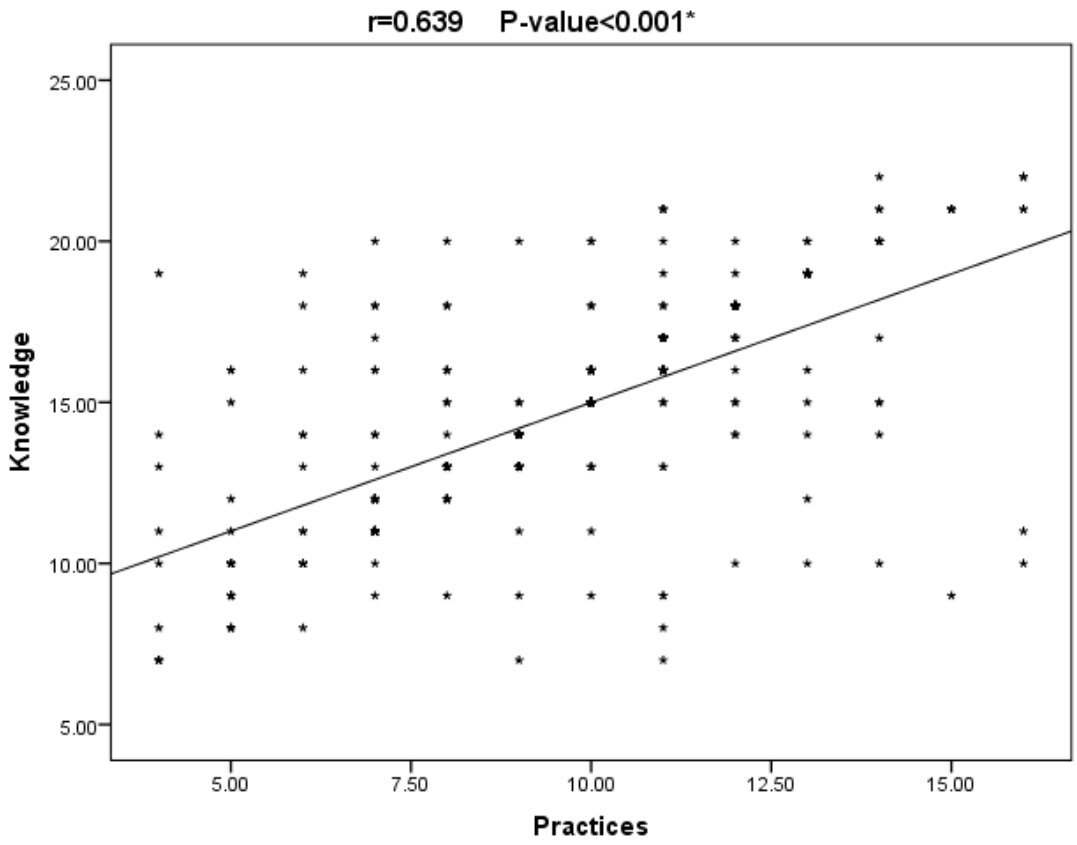


Table (6) Distribution of the Correlation between Knowledge and Practices

Correlation between Knowledge and Practices	
r	0.639
P-value	0.001*

Table 6 show the correlation between Knowledge and Practices while r were 0.639 but a significant relation were P-value=0.001

Figure (3): Distribution of the Correlation between Knowledge and Practices



DISCUSSION

Knowledge and practices in infection control standard, high risk perception and longer duration of professional experience have been shown to be associated with infection control standard among health care workers [29] We conducted this study in 300 health care workers the in Saudi Arabia 2024, to Assessment the effected of the knowledge and practices of infection control standard among health care workers at health sector are level in Saudi Arabia, we surveyed 300 HCWs health sectors doctors, nurses and laboratory technicians, preventive Medicine, health Management , radiology department, physiotherapy department, Pharmacy section , dental assistant the knowledge of infection control standard precautions by healthcare workers is an essential step in starting and implementing a successful infection control program in any healthcare facility.[30] In our study shows there were 300 participants, and the majority age was(51.0%) in (30-40)years, while the age(<30)were(20.0%) but the age 40-50 years were(16.0%0, regarding the majority of them were female (60.0%) while male(40.0%), regarding the nationality most of participants Saudi were(83.0%) while Non-Saudi were (17.0%), regarding department the majority of participant are Lab department were(15.0%)followed by Pharmacy worker were(14.0%) followed by health management were(13.0%) followed by Preventive Medicine, dental Clinics, Physiotherapy department were(12.0%) followed by Nurse technician, radiology department were(11.0%). (See Table1).

In other study confirms some gaps in knowledge regarding hand hygiene, with about half of the doctors agreeing with the use of sterile glove as the most effective method of preventing HCAI. The overall knowledge on the risk of transmission of blood borne pathogens (HIV, HBV, HCV) and post exposure prophylaxis was poor. While the practice of hand hygiene is generally good, relatively fewer of the respondents reported washing their hands in between patient care, with nurses reporting a better practice. There was a weak negative correlation between good knowledge and good practice among the respondent.[22]

In Brazil, identified a gap between knowledge of standard precautions and the practical applications among physicians.[19] regarding the Correlation between Knowledge and Practices show the

correlation between Knowledge and Practices while r were 0.639 but a significant relation were P-value=0.001 (see Table 6)

In Al-Qassim, health-care workers aged over 30 years and those at tertiary care hospitals were more knowledgeable than younger physicians and those working in secondary care hospitals.[32] In Makkah, older age, previous training, and experience were positively correlated with higher scores of knowledge among HCWs.[19] In Ethiopia (2018), factors significantly associated with compliance to standard precaution practices among HCWs were experience of ≤5 years, training on standard precaution, having good hand hygiene and availability of (personal protective equipment. In another study carried out also in Nigeria, non-availability of the materials was the main factor reported for non-adherence to SPs.[33]

Worldwide, many studies have shown that healthcare workers expressed variable levels of knowledge regarding standard precautions of infection control, with relatively limited studies have been carried out in the Kingdom of Saudi Arabia.[29]

Also showed that most of participants had high knowledge regarding infection control but the most of participant average practices, In Saudi Arabia, the level of satisfactory knowledge and average practice of studied HCWs toward infection had improved after an interventional education program . So, we believe that adequate and well prepared training programs are essential in improving knowledge regarding standard precautions of infection control [29] (see Table 4) shows the majority of participant (65.0%) have high of the Knowledge about standard precautions of infection control, followed by (30.0%) of participant average while weak were (5.0%) while Range(7-22) and Mean ±SD(14.855+3.552), while a significant relation were P-value=0.001 X^2 163. 5 regarding the practice of the healthcare workers about standard precautions of infection control regarding the practice the majority of participant (59.0%) have average of the practice about standard precautions of infection control, followed by (26.0%) of participant high and weak were (15.0) while Range(4-16) and Mean ±SD (9.254+3.118), while a significant relation were P-value=0.001 X^2 94.38 (See Table 4,5)

Compared to previous study that was conducted among Nigerian Health care providers, s, the current knowledge status of participants was lower than that (92–97%).[30] In another study from Nigeria good and fair knowledge among participants was reported as 50% and 44% respectively.[27] In Ethiopia, Yakob et al. showed that all participants had acceptable knowledge about contaminated needles and sharp materials that transmit disease causative agents, while 70.4% knew that gloves and gowns were required for any contact with patients.[34]

Conclusion

Having good knowledge and practice of infection control standard precautions are vital to prevent the spread of infections from Health-Sectors facilities. Our research highlighted the gaps in Knowledge and practices of the health care worker (doctors, nurses and laboratory technicians, preventive Medicine, health Management , radiology department, physiotherapy department, Pharmacy section , dental assistant) has practicing in the hospitals in the Saudi Arabia. The duration of experience was negatively associated with knowledge which might indicate that older academic programs did not adequately cover topics on infection control in health-care facilities. We further found that receiving training on infection control standard precautions is positively associated with good knowledge and practice. Therefore, arranging training programs for HCWs might be useful in refreshing and improving their knowledge of infection control standard precautions and is also expected to facilitate positive and practice.

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