Infection Control Measures among Nurses at Dental Clinics

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Abstract

Background: Infection is a major problem for health care service worldwide. Nurses in dental clinics should have knowledge and practices regarding infection control measures to decrease spread of infection. **Aim of the study:** Was to assess infection control measures among nurses at Dental Clinics. **Research design:** Descriptive research design was used in carrying out this study. **Setting:** This study was conducted at Dental Clinics in four Governmental Hospitals and thirty-five Health Units affiliate to Benha Health Center, Qalubia, Egypt. **Sample:** Convenient sample of all nurses was used in this study. The total sample size was 100 nurses. **Tools of data collection:** Two tools were used; **I:** An interviewing questionnaire which contained two parts. **A)** Personal characteristics of nurses, **B)** Nurse's knowledge regarding infection control measures. **II:** Observational checklist sheet which contained two parts. **A)** Nurse's practices regarding infection control measures **B)** Nurses working environment. **Results:** 50,0% of the studied nurses aged from 30 to less than 40 years with mean age were 32.70 ± 6.607 ;70,0% of them occupied as nurses, 50,0% of them had less than 5 years' experience, 9,0% of them were exposed to Virus B in previous years, and 60,0% of them were taken vaccinations against Virus B. 77,0 % of the studied nurses had good knowledge level regarding infection control measures and 82,0% of the studied nurses had satisfactory total practices regarding infection control measures **Conclusion:** There were no statistically significant relations between total nurses' knowledge level regarding infection control measures and their age and educational level, there were high statistically significant relation between total nurses' practices regarding infection control measures and their age, there were a highly positive correlation between total nurses' knowledge and total nurses' practices regarding infection control measures. **Recommendations:** Developing a system for periodical nurses' evaluation to determine strategies for upgrading their knowledge and enhancing their practices, and further studies are needed in this field to assess nurses' knowledge and practices regarding infection control measures to minimize exposure to hazards.

Keywords: Control, Clinics, Dental, Infection, Measures,Nurses

Introduction

Oral Medicine is defined by the American Academy of Oral Medicine as the discipline of dentistry concerned with the oral health care of medically complex patients – including the diagnosis and management of medical conditions that affect the oral and maxillofacial region **(Sollecito, 2017).** Oral medicine is primarily a non-surgical specialty with procedures limited to diagnostic biopsies, small excisions, therapeutic injections and other minor surgical interventions. In many cases, conditions are managed medically with the use of topical and systemic medications **(Farah, 2018).**

Dental Health Personnel (DHP) are at high risk of exposure to cross-infection with blood-borne pathogens, such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Human Immunodeficiency Virus (HIV), mycobacterium tuberculosis, streptococci, and other viruses and bacteria that colonize the oral cavity and the upper respiratory tract. HCV prevalence varies widely among countries, with the highest being in several African and eastern Mediterranean countries. The frequency of exposure to HBV was the highest among dental healthcare workers according to a study conducted in Japan **(Halboub et al,2015; Kashyap, et al.,2018).**

Infection **c**ontrol forms an important part of practice for all health-care professions and remains one of the most cost-beneficial interventions available. British Dental Association stated that "infection control is a core element of dental practice and the recommendations are applicable to all levels and fields of dentistry for all persons involved in providing dental care directly or indirectly including dentists and dental nurses. Dental infection continues to be one of the most critical issues in healthcare service worldwide. Infection prevention and control of cross-contamination are essential in providing a secure environment for patients and healthcare workers within healthcare settings in general and more specifically in dental practices **(Tan et al., 2020).**

Infection control measures are used for all patient care that based on a risk assessment and make use of common-sense practices and personal protective equipment use that protect healthcare providers from infection and prevent the spread of infection from patient to patient. Infection control measures include, hand hygiene, use of personal protective equipment such as gloves, masks, eyewear, face shields, gown or apron, and respiratory hygiene and cough etiquette, sharps safety, safe injection practices, control of environment and safe waste disposal **(Rudramma& Shilpa,2021).**

The dental nurse's role include; providing patients help with oral hygiene skills, preparing the patient for treatment, sterilizing instruments, assisting during general anesthetic dental procedures, positioning suction devices, exposing dental radiographs, taking dental impressions, recording patient notes and administration roles such as scheduling appointments **(Australian Dental Association, 2018).**

Community health nurses play important role in infection control such as minimizing the acquisition and transmission of infectious agents in addition environmental management safety such as monitoring and manipulation of the physical environment to promote safety. On the other hand, dental assistants are important members of the dental team as they are employed in every type of dental practice. There responsibilities always include various types of clinical patient care **(El-Houfey & El-Maghrabi, 2016).**

Significance of the problem

Patients with periodontal disease showed higher detectability rate of HBV and HCV in Egypt. Dental treatment is a predominant risk factor for transmission of HBV as 96.0% of positive cases had received dental treatment in Egypt. HCV infection on the other hand is highly endemic in Egypt where 10,0%-15,0% of the population has evidence of chronic HCV infection, With wide spread increase in infectious diseases all over the world, it becomes a compulsion to re-evaluate the knowledge and practice of the dental health care team about infection control measures **(El-Houfey & El-Maghrabi, 2016).**

Aim of the study

The aim of this study was to assess infection control measures among nurses at Dental Clinics.

Research questions

- What are nurses' knowledge and practices about infection control measures?
- What is the relation between personal characteristics of nurses and their knowledge regarding infection control measures?
- What is the relation between personal characteristics of nurses and their practices regarding infection control measures?
- What is the relation between knowledge of nurses and their practices regarding infection control measures?

Subject and Methods

Research design:

A descriptive research design was used in this study.

Setting:

The study was conducted at Dental Clinics in four Governmental Hospitals and thirty-five Health Units affiliate to Benha Health Center

Sampling:

A Convenience sample of all nurses was used in this study, the number of nurses who are working in the previous selected settings. 100 nurses were recruited 30 nurses working at hospitals and 70 nurses working at health units affiliate to Benha health center.

Tools of data collection:

Data was collected by using the following two tools:

First tool: A Structured interviewing questionnaire; it was consisted of two parts:

- **The first part:** concerned with the personal characteristic of nurses which contained nine items (sex, age, educational level, job grading, experience in dental clinic, number of training courses, type of infection that has been infected in previous years, the number of vaccinations is taken against infectious diseases, infectious diseases which vaccinations were taken against it).
- **The second part:** concerned with nurse's knowledge regarding**: -**
  - **A. Infection which consisted of ten questions**.
  - **B. Infection control measures consisted of eleven questions**.

Scoring system of nurses' knowledge:

The scoring system for nurses' knowledge was calculated as follows (2) score for complete correct answer, while (1) score for incomplete correct answer and (0) for an incorrect answer or don't know. For each area of knowledge, the score of the items was summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a present score.

Total scores of knowledges = 42

a) Good when total score of knowledge was >75% (32points).
b) Average when the total score was 50-< 75% (21≤32points).
c) Poor when the total score was <50% (21 points).

Second tool: Observational checklist sheet was used to assess nurses' practice and environment which consisted of two parts: -

The first part: was used to assess nurses' practices regarding infection control measures that covered procedures related to hand washing, PPE and waste disposal and management.

a. Hand washing procedure consisted of 3 items.

b. Personal protective equipment procedure consisted of 7items; **Uniform 3 steps**, **Gloves 6 steps**, **Masks 4 steps**, **Protective eye wear 2 steps**, **Face shields 2steps**, **Overhead 2 steps**, **Rubbers 2 steps**.

c. waste disposable and management procedure consisted of 3items; **Mercury waste 4 steps**, **Silver containing waste 5 steps**, **Biomedical wastes 6 steps**.

Scoring system of nurses' practices:

The scoring system for nurses' practices was calculated as follow score:

- 1 For done and (0) for not done.
- The total practices score = 56
    a) Satisfactory if the score of the total practices ≥95% (≥45 points).
    b) Unsatisfactory if total score <95% (<45 points).

The second part: was used to assess nurses working environment which included 9 items; **Space 2 statements, Benchtops 3 statements**, **lighting 3 statements**, **Ventilation 3 statements**, **Floors 2 statements**, **Autoclaving 2 statements**, **Containers of wastes 4statements**, **Water1 statements** and **Sewer 1 statements**.

Scoring system for Dental Clinic Environmental conditions:

The scoring system for dental clinic environmental conditions was calculated as follow score: (1) for available and (0) for not available.

The total dental clinic environmental conditions score =21

a- Sanitary if the total score ≥80% (≥17 points).

b- Unsanitary if total score <80% (<17 points).

Content validity and reliability:

The tools validity was done by three of Faculties Staff Nursing Experts from the Community Health Nursing Specialty, who reviewed the tools for clarity, relevance, comprehensive and applicability. Reliability of the tools was applied by the investigator for testing the internal consistency of the tool by administration of the same tools to the same subject under similar condition one or more occasion. The tool reliability was measured using Cronbach's Alpha. The reliability for knowledge was 0.785% and for practices was 0.818%.

Ethical consideration:

Approval and an informed oral consent from all study participants were obtained after explaining the purpose of the study to gain their trust and cooperation. Each nurse had a choice to continue or withdraw from the study. Privacy and confidentiality were assured. Ethics, values, culture and beliefs were respected. were done as rephrasing of some questions and arrangement of the questions' sequence.

Pilot study:

The pilot study was carried out on (10) nurses which represented 10% of the sample size. The pilot study was aimed to assess the tool clarity, applicability and time needed to fill each sheet, completing the sheet consumed about 30 minutes. No modifications were done, so the pilot study sample was included in the total sample.

Fieldwork:

The data was collected from studied nurses who attended in the previously selected setting through the interview with them. The study was conducted at a period of 6 months which started from the beginning of September 2019 to the end of February 2020. The investigator was attended two days/ week (Sunday & Wednesday) from 9.00 AM.: 12

PM., to collect data and implement this study alternatively in each study setting.at the beginning of interview; the investigator welcomed each nurse. The title, objectives, tools and the study technique were illustrated for each nurse to obtain their approval and cooperation which is needed for conducting this study. Each nurse was individually interviewed using Arabic structured interviewing questionnaire. The average number of interviewed nurses was between 2-3 nurses/day depending on their responses to the interviewers, each interviewed nurse takes about 30 minutes to fill the sheet depending upon their understanding and response, as well as distribute the questionnaire.

Statistical analysis:

All data collected were organized, tabulated and analyzed by using the Statistical Package for Social Science (SPSS version 20), which was used frequencies and percentages for qualitative descriptive data, and chi-square coefficient x2 was used for relation tests, and mean and standard deviation was used for quantitative data, Pearson correlation coefficient (r) was used for correlation analysis and degree of significance was identified. The observation difference and associations were considered as the following: (p-value) highly statistically significant (HS) $P < 0.001$, statistically significant (S) $P < 0.05$ and no statistically significant (NS) $P > 0.05$.

Results:

Table (1): Shows that; 50,0% of the studied nurses aged from 30 to less than 40 years with mean age were 32.70 ± 6.607 ;70,0% of them occupied as nurses, 50,0% of them had less than 5 years' experience, 79,0% of them were exposed to Virus B in previous years, 59,0% of them were taken two vaccinations against infectious diseases and 60,0% of them were taken vaccinations against Virus B.

Figure (1): Clarifies that; 77,0 % of the studied nurses had good knowledge level regarding infection control measures; while 18,0% of them had average knowledge level and 5,0% of them had poor knowledge level.

Figure (2): Illustrates that; 82,0% of the studied nurses had satisfactory total practices regarding infection control measures; while 18,0% of them had unsatisfactory total practices regarding infection control measures.

Figure (3): Illustrates that; 70,0% of the studied dental clinic environment were sanitary; while 30,0% of them were unsanitary.

Table (2): Shows that; there were highly statistically significant relation between total nurses' knowledge regarding infection control measures and their type of infection that has been infected in previous years (p-value ≤ 0.001); and there was statistically significant relation between total nurses' knowledge regarding infection control measures and their sex(p-value < 0.05). While there were no statistically significant relation between total nurses' knowledge regarding infection control measures and their age, educational level, job, experience, number of training programs, number of vaccination are taken against infectious diseases and infectious diseases that have been vaccinated against it (p-value > 0.05).

Table (3): Shows that; there were highly statistically significant relation between total nurses' practices regarding infection control measures and their age (p-value < 0.001); and there was statistically significant relation between total nurses' practices regarding infection control measures and educational level, Job grading, Number of training program, Number of vaccinations are

taken against infectious diseases and infectious diseases that have been vaccinated against it (p-value < 0.05). While there was no statistically significant relation between total nurses' practices regarding infection control measures and their Gender, Experience and Type of infection experienced in previous years (p-value > 0.05).

Table (4): Reveals that; there were a highly statistically significant positive correlation between total nurses' knowledge and total nurses' practices regarding infection control measures (p-value ≤ 0.001).

Table (1): Frequency distribution of the studied nurses regarding their personal characteristics (n=100)

Personal characteristics	%
sex	
Male	11.0
Female	89.0
Age / Years	
20 < 30 years	40.0
30 < 40 years	50.0
40 years and over	10.0
Mean ± SD 32.70 ± 6.607	
Educational level	
Diploma of Nursing	60.0
Health Technical Institute	10.0
Bachelor of Nursing	20.0
Postgraduate studies in Nursing	10.0
Job grading	
Nurse	70.0
Nursing Technician	10.0
Nursing Supervisor	20.0
Experience	
Less than 5 years	50.0
5 < 10 years	30.0
10 years or more	20.0
Mean ± SD 1.70 ± 0.785	
The type of infection that has been infected in previous years	
Virus B	٩.0
Virus C	10.0
HIV	2.0
I have not been exposed to any infection	79.0
Infectious diseases which vaccinations were taken against it	
Virus B	60.0
Virus C	28.0
Didn't receive any vaccinations	12.0

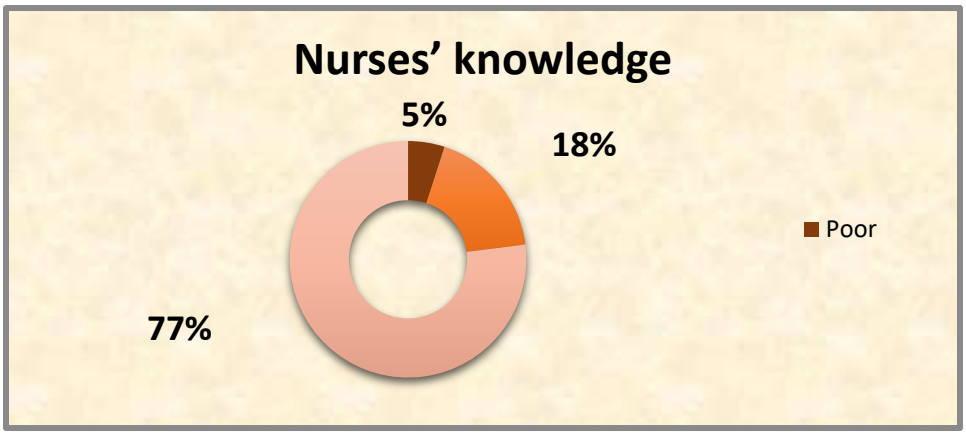

Figure (1): Percentage distribution of the studied nurses 'total knowledge level regarding infection control measures (n=100).

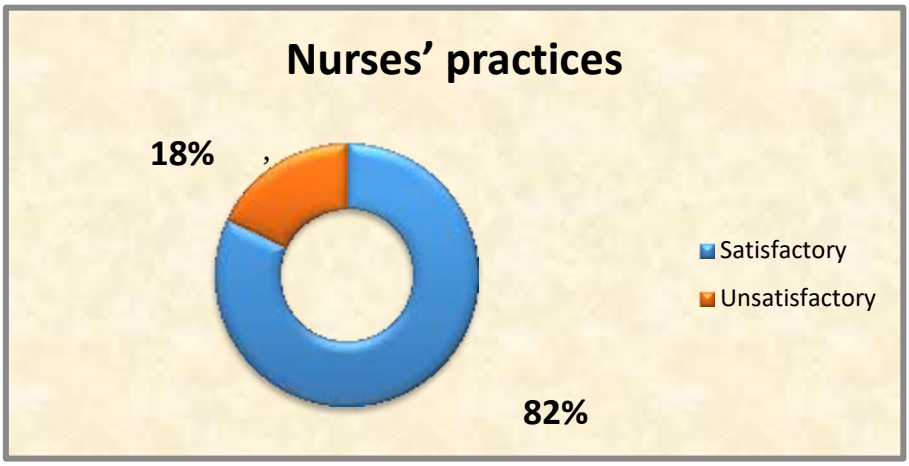

Figure (2): Percentage distribution of the studied nurses' total practices regarding infection control measures.

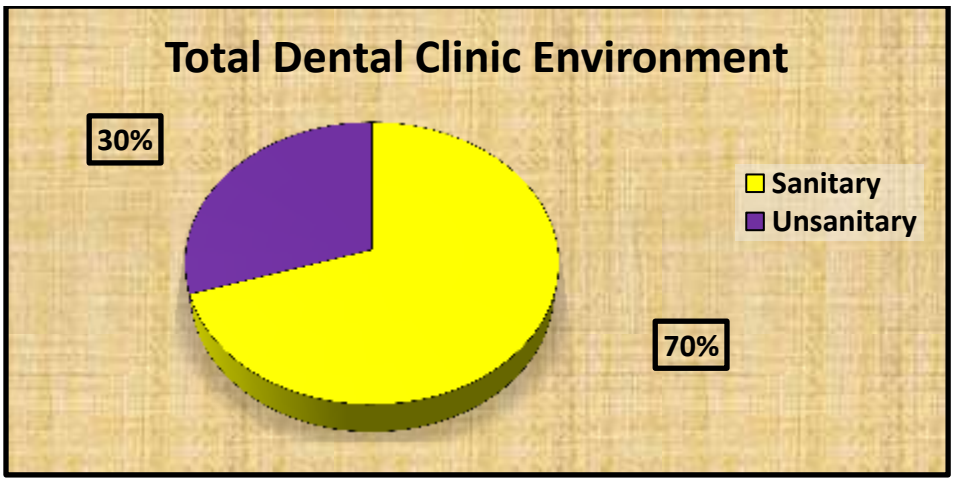

Figure (3): Percentage distribution of the total Dental Clinic Environment (n=39)

.Table (2): Statistically relation between personal characteristics of the studied nurses and their total knowledge regarding infection control measures (n=100)

Personal characteristics	Total Nurses' Knowledge						X^2	P-value
	Poor (n = 5)		Average (n=18)		Good (n = 77)			
	No	%	No	%	No	%		
sex								
Male	0	0.0	0	0.0	11	14.3	6.145	0.046*
Female	5	100.0	18	100.0	66	85.7		
Age								
20 < 30 years	2	40.0	8	44.4	30	39.0	1.356	0.852
30 < 40 years	3	60.0	8	44.4	39	50.6		
40 years and over	0	0.0	2	11.1	8	10.4		
Educational level								
Diploma of Nursing	2	40.0	10	55.6	48	62.3	4.545	0.603
Health Technical Institute	1	20.0	3	16.7	6	7.8		
Bachelor of Nursing	2	40.0	4	22.2	14	18.2		
Postgraduate studies in Nursing	0	0.0	1	5.6	9	11.7		
Job grading								
Nurse	2	40.0	11	61.1	57	74.0	3.871	0.424
Nursing Technician	1	20.0	3	16.7	6	7.8		
Nursing Supervisor	2	40.0	4	22.2	14	18.2		
Experience								
Less than 5 years	2	40.0	9	50.0	39	50.6	1.799	0.407
5 < 10 years	2	40.0	5	27.8	23	29.9		
From 10 years or more	1	20.0	4	22.2	15	19.5		
Number of training programs								
One	0	0.0	5	27.8	15	19.5	4.680	0.585
Two	0	0.0	1	5.6	9	11.7		
Three and More	2	40.0	7	38.8	21	27.3		
No	3	60.0	5	27.8	32	41.6		
The type of infection that has been infected in previous years								
Virus B	0	0.0	1	5.6	8	10.4	32.991	0.000**
Virus C	2	20.0	6	33.3	2	2.6		
HIV	1	10.0	1	5.6	0	0.0		
I have not been exposed to any infection	2	20.0	10	55.5	67	87.0		
Infectious diseases which vaccinations were taken against it								
Virus B	0	0.0	1	5.6	11	14.3	2.352	0.885
Virus C	1	20.0	6	33.3	21	27.3		
Didn't receive any vaccinations	4	80.0	11	61.1	45	58.4		

****Highly significant P ≤ 0.001** *** significant P < 0.05**

Table (3): Statistically relation between personal characteristics of nurses and total practices regarding infection control measures (n=100).

Personal characteristic of nurses	Total nurses' practices				X^2	P-value
	Satisfactory (n =82)		Unsatisfactory (n = 18)			
	No	%	No	%		
sex						
Male	10	12.2	1	5.6	0.665	0.415
Female	72	87.8	17	94.4		
Age						
20 < 30 years	32	39.0	8	44.5	15.447	0.000**
30 < 40 years	46	56.1	4	22.2		
40 years and over	4	4.9	6	33.3		
Educational level						
Diploma of Nursing	43	52.4	17	94.4	11.360	0.010*
Health Technical Institute	10	12.2	0	0.0		
Bachelor of Nursing	20	24.4	0	0.0		
Postgraduate studies in Nursing	9	11.0	1	5.6		
Job grading						
Nurse	52	63.4	18	100.0	9.408	0.009*
Nursing Technician	10	12.2	0	0.0		
Nursing Supervisor	20	24.4	0	0.0		
Experience						
Less than 5 years	37	45.1	13	72.2	4.901	0.086
5 < 10 years	26	31.7	4	22.2		
From 10 years or more	19	23.2	1	5.6		
Number of training program						
One	12	14.6	8	44.4	12.150	0.007*
Two	7	8.5	3	16.7		
Three and more	29	35.4	1	5.6		
No	34	41.5	6	33.3		
Type of infection experienced in previous years						
Virus B	9	11.0	0	0.0	5.698	0.127
Virus C	6	7.3	4	22.2		
HIV	2	2.4	0	0.0		
I have not been exposed to any infection	65	79.3	14	77.8		
Infectious diseases which vaccinations were taken against it						
Virus B	52	63.4	5	27.8	8.262	0.041*
Virus C	23	28.1	5	27.8		
Didn't receive any vaccinations	7	8.5	8	44.4		

****Highly significant P ≤ 0.001**** *** significant P < 0.05***

Table (4): Statistically Correlation between total nurses' knowledge and total Nurses' practices regarding infection control measures (n=100).

Total Nurses' practices	Total Nurses' knowledge	
	r.	p-value
	0.330	0.001**

****Highly significant P ≤ 0.001**** *** significant P < 0.05***

Discussion

Dental impressions are potential sources of cross-contamination and should be handled in a manner that prevents exposure to practitioners, patients, and the environment. Based on the corroboration of data and regulation confined to the province, appreciative standards of Dental Infection Control and Occupational Safety must be followed by the dental team for patient and dental healthcare safety. Initially, the dentistry was routinely done without protective gears but after 1991 dental personnel was required to wear gloves, masks, gown, and protective eyewear. Dentistry is one of the most exposed professions to respiratory diseases e.g, covid-19 **(Upendran et al., 2020).**

According to demographic characteristics, most of the studied nurses. The current study Shows that; half of the studied nurses aged from 30 to less than 40 years with mean age were 32.70 ± 6.607; less than two thirds of them occupied as nurses, half of them had less than 5 years' experience, about three quarters of them were exposed to Virus B in previous years, more than half of them were taken two vaccinations against infectious diseases and more than half of them were taken vaccinations and immunizations against Virus B.

Regarding total knowledge of studied nurses about infection control measures, the current study showed that more than three quarters of the studied nurses had good knowledge level regarding infection control measures. This finding agreed with **Alrubaiee et al., (2017)** who conducted a study on "Knowledge and practices of nurses regarding nosocomial infection control measures in Private Hospitals in Sana'a City, Yemen" (n=100), and reported that; three quarters of the studied Yemeni nurses had a fair level of knowledge regarding infection control measures. This might be due to the infection control team in hospital provide learning, information and training to health staff to improve knowledge and practice regarding infection control and improve health care outcome.

Regarding total practices level of studied nurses about infection control measures, this study revealed that; most of the studied nurses had satisfactory total practices regarding infection control measures, while less than fifth of them had unsatisfactory total practices regarding infection control measures. This finding agreed with **Ayed et al., (2015)** who conducted a study on "Knowledge and practice of nursing staff towards infection control measures in the Palestinian Hospitals" (n=271), and showed that; the majority of the studied sample had good infection control practices level. Whereas, this finding disagreed with **Sarani et al., (2016)** who conducted a study on " knowledge, attitude and practice of nurses about standard precautions for hospital-

acquired infection in Teaching Hospitals Affiliated to Zabol University of medical sciences, Iran" (n=170), and found that; less than half of the participants had good infection control practices level. This might be due to dental care workers have legal duties to take appropriate precaution to reduce the risk of disease.

According to total dental clinic environment, this study showed that; more than two thirds of the studied dental clinic environments were considered as being sanitary. This finding agreed with **Sahiledengle B et al., (2018)**, who conducted a study on " Infection prevention practices and associated factors among healthcare workers in Governmental Healthcare Facilities in Addis Ababa" (n=629), and revealed that; the majority of participants having awareness on availability of standard operating procedures. This might be Because of the medical team's interest in reducing the rate of infection spread.

As regards to the relation between total knowledge score of studied nurses with their socio-demographic characteristics the current study showed that; there were statistically significant relation between total nurses' knowledge regarding infection control measures and their sex. This finding agreed with **Ayed et al., (2015)** who displayed that; there were significant statistical were found in mean knowledge scores only in relation to sex. Also, this study showed that; there were no statistically significant relation between total nurses' knowledge regarding infection control measures and their age, educational level, experience. This finding goes in the same line with **AlAhdal et al., (2019)** who conducted a study on "Knowledge, attitude and practice of infection control measures in Private Dental Clinics in Jeddah, Saudi Arabia" in KSA (n = 245), and showed that; there was no significant relation between the participants' age, educational level or the experience years and their knowledge about infection.

As regards to the relation between total practices score of studied nurses with their socio-demographic characteristics the current study showed that; total nurses' practices regarding infection control measures revealed statistically non-significant relation with sex. The current study findings supported by the study of **AlAhdal et al., (2019)** who reported that; the participants' educational levels significantly affected the infection control practice, while sex showed no significant association with infection control practice.

Also, this study showed that; total nurses' practices regarding infection control measures revealed statistically significant relation with age, educational level and job. This finding agreed with **Mahasneh et al., (2020)** who conducted a study on "Practices of infection control among dental care providers: a cross sectional study" in Jordan (n = 500), and reported that; significant association between infection control practice and age, educational level and job. Also, this study showed that; total nurses' practices regarding infection control measures revealed statistically non-significant relation with experience. This finding goes in the same line with **Gijare, (2012)** who conducted a study on "Effectiveness of teaching on infection control practices among health care professionals" in India (n = 116), and reported that; no significant statistical in practice scores of various different years of experience groups.

As regards to the t correlation between total nurses' knowledge and total nurses' practices with infection control measures, the current study clarified that; a statistically high

significant positive correlation between total nurses' knowledge and total nurses' practices regarding infection control measures. This finding agreed with **Asmr et al., (2019)** who conducted a study on "Assessment of knowledge and practices of standard precaution against blood borne pathogens among doctors and nurses at adult emergency room in Addis Ababa, Ethiopia" (n=128), and reported that; knowledge level was significantly associated with practice level of study sample. Similarly, **El-Hebsh (2018)** who conducted a study on "Nurses' knowledge and practice about infection control in Outpatient Clinics of Governmental Hospitals at Al-Mukalla City–Yemen" (n = 50), and reported that; there was a positive correlation between knowledge and practice (r=0.285) (p=0.045). Also, this finding agreed with **Najafi et al., (2017)** who conducted a study on " Knowledge, attitude and practice of nurses regarding nosocomial infections control in Teaching Hospitals of Kermanshah University of Medical Sciences, Iran" (n =200), and found that; there is a significant difference between knowledge level and practice (P < 0.001).

On the other side, this finding disagreed with **Javaid et al., (2020)** who conducted a study on " practice of personal protective equipment among dental surgery assistants: survey from a Public Sector Hospital Lahore, Pakistan"(n =80), and reported that; there was no significant correlation scores of knowledges and practice. This might be due to nurses must possess adequate knowledge and demonstrate practices towards achieving the goal of prevention of infections in our health care facilities. Also, this finding disagreed with **Hess et al., (2017)** who conducted a study on "A randomized controlled trial of enhanced cleaning to reduce contamination of healthcare worker gowns and gloves with multidrug-resistant bacteria. Infection control and Hospital Epidemiology" in USA (n = 110), and reported that; there was no significant correlation scores of knowledges and practice. Similarly**, Saleh et al., (2017)** who conducted a study on "Training program nursing staff regarding blood diseases acquired by needle stick injury in a Military hospital" in Egypt (n=90), did not find a relation between knowledge and performance in program.

Conclusion:

More than three quarters of the studied nurses had good knowledge regarding infection control measures; the majority of the studied nurses had satisfactory total practices regarding infection control measures. there was highly relation between total nurses' knowledge regarding infection control measures and their type of infection that has been infected in previous years (p-value ≤ 0.001); and there was statistically significant relation between total nurses' knowledge regarding infection control measures and their sex (p-value < 0.05). There were highly statistically relation between total nurses' practices regarding infection control measures and their age (p-value < 0.001); and there was statistically significant relation between total nurses' practices regarding infection control measures and educational level, job, number of training program, number of vaccinations are taken against infectious diseases and infectious diseases that have been vaccinated against it (p-value < 0.05). There were a highly statistically significant positive correlation between total nurses' knowledge and total nurses' practices regarding infection control measures (p-value ≤ 0.001).

Recommendations:

- Continuous training programs for nurses regarding infection control measures should be implemented.

- Developing a system for periodical nurses' evaluation to determine strategies for upgrading their knowledge and enhancing their practices.
- Further studies are needed in this field to assess nurses' knowledge and practices regarding infection control measures to minimize exposure to hazards.

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اجراءات مكافحة العدوى بين الممرضات في عيادات الأسنان

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هدفت هذه الدراسة الي تقييم إجراءات مكافحة العدوى بين الممرضات في عيادات طب الأسنان أجريت الدراسة في عيادات طب الأسنان في أربعة مستشفيات حكومية وخمسة وثلاثين وحدة صحية تابعة لمركز بنها الصحي علي ١٠٠ ممرضه .حيث كشفت النتائج عن عدم وجود علاقات ذات دلالة إحصائية بين مجموع درجة المعرفه الكليه للممرضات فيما يتعلق باجراءات مكافحة العدوى وأعمارهن ومستواهم التعليمي بينما كانت هناك علاقة ذات دلالة إحصائية عالية بين درجة ممارساتهن الكليه فيما يتعلق باجراءات مكافحة العدوى وأعمارهن. كانت هناك علاقة إيجابية ذات دلالة إحصائية عالية بين مجموع درجة المعرفه الكليه للممرضات ودرجة ممارساتهن الكليه فيما يتعلق باجراءات مكافحة العدوى . كما أوصت الدراسة بأهمية تطوير وتنفيذ برنامج تثقيف صحي للممرضات لتثقيفهم حول إعادة تغطية الإبرة بين الحقن لمنع انتشار العدوى وهناك حاجة إلى مزيد من الدراسات في هذا المجال لتقييم معرفة وممارسات الممرضات فيما يتعلق بإجراءات مكافحة العدوى لتقليل التعرض للمخاطر.