



## Knowledge, Attitude and Practice of Nurses to Oral Health Care for Hospitalized Patients in Abha City-Saudi Arabia

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### Abstract

**Objective:** To assess the knowledge, awareness and practices of nurses to oral care needed for hospitalized patients in Abha city (Saudi Arabia).

**Material and Methods:** A Cross-sectional survey was conducted among 175 nurses, both sexes working at Abha hospitals with at least six months of experience. Data were collected through structured questionnaire proforma in both Arabic and English languages. Questionnaire was validated and pretested among 15 nurses and these subjects were not included in the final analysis. p-value was considered as significant when less than 0.05 (confidence interval of 95%). Descriptive statistics was carried out to calculate responses for each question.

**Results:** Majority of nurses were females 162 (92.6%). Eighty percent of nurses had an idea about prevention and management of periodontal diseases. However, 97 (55%) did not know that gingivitis occurs when Oral hygiene was neglected for two weeks or more. In addition, 89% were applying and providing oral care to the hospitalized patients.

**Conclusion:** This study showed that nurses knowledge about oral health care was average and practicing of oral care measures to hospitalized patients was applied by 156 (89%). This study highlights the need for setting protocol for supervision and adoption of advanced training for nurses.

**Keywords:** Hospitalized Patient; Knowledge; Nurses; Oral Health; Practices

### Introduction

Many systemic diseases are related to oral conditions and thus general health requires efforts of both medical and dental providers [1]. Oral health cannot be separated from the general health of hospitalized patients. Optimally, total health care requires the combined efforts of the medical and dental professions [2]. The dental hygienist should be part of the multidisciplinary team to assist in other health care professionals in long-term care facilities [3]. Maintenance of oral hygiene has been known as one of the basic tasks of nurses working at hospitals especially intensive care units. However, patients' rights have become an important part of modern health care practices [4]. In general obstacles for providing effective oral health to hospitalized patients have been reported including low priority of oral care, fear of causing pain or injury to the patients, the perception that oral care does not provide significant

health benefits, inadequate nurse staffing, and lack of oral health related supplies [6]. No previous studies in Abha have assessed the oral health knowledge, attitude and practice towards hospitalized patients. Therefore, the objective of this study was to investigate about the level of awareness of nurses to oral health care needed for hospitalized patients in Abha city. Also, the oral hygiene measures provided to the hospitalized patients in Abha, were recorded to assess for formal protocol needed for application of oral care to both conscious and unconscious hospitalized patients.

### Material and Methods

#### Methods

An observational, cross-sectional study in which structured questionnaire was randomly distributed to 175 nurses working at Abha hospitals, fulfilling the criteria for selection and agreed in

participation by signing a consent form. The Study was conducted in three randomly selected hospitals in Abha city (Aseer Central Hospital Abha KSA, Abha Hospital for Maternity and Pediatrics and Abha General Hospital). Questionnaire was pretested and validated among 15 nurses and these subjects were not included in the final analysis. All nurses were informed verbally about the study by the principal investigator and signed a written consent to participate in the study.

**Sample size**

The sample size was calculated based on:  $Z^2pq/e^2$

$Z = 1.96$  for 95% of confidence interval

$P =$  proportion of population who had knowledge about oral health care 20% (0.2)

**Inclusion and exclusion criteria**

Nurses working for at least six months in Abha hospitals. All age groups and both sexes will be included whereas Physicians were excluded.

**Ethical considerations**

Ethical clearance was obtained from Scientific Research Committee of king Khalid University College of Dentistry, approval number: SRC/ETH/2016-17/005.

**Instruments**

The questionnaire is composed of the following parts:

- Demographic data
- Knowledge about periodontal diseases
- Knowledge about prevention of periodontal diseases
- Application of oral care to hospitalized patients

**Data collection**

Data was collected through close ended questionnaire over one month in 2016. All nurses were informed and given the questionnaire after signing a consent form for acceptance in participation.

**Data analysis**

Data were analyzed using Statistical Package for Social Silences (SPSS) version 20. The P. value was considered as significant when  $< 0.05$  (confidence interval of 95%). Descriptive statistics was carried out to calculate responses for each question.

**Results**

In this study a total of 175 nurses filled and completed the questionnaire forms. The results were presented in tables. The socio-demographic profile of nurses in Abha hospitals showed that females

predominate (13 times) than males. Most nurses 133 (76.0%) worked at Abha hospitals were Diploma degree holders, followed by 40 (29.9%) bachelor’s and 2 (1.1%) master’s degree (Table 1).

The distribution of study participants according to their responses to questions related to knowledge attitude and practice was publicized in table 2. Knowledge of nurses about definitions and causes of both gingival and periodontal diseases was statistically significant ( $P$ -value  $< 0.05$ ). Whereas 54 (30.9%) of nurses did not know that neglectation of brushing more than two weeks, may result in development of gingival and periodontal diseases. This result was statistically in significant ( $P$ -value 0.78). Concerning knowledge about gingival and periodontal diseases in relation to participant educational level, the results revealed that, nurses who hold bachelor’s degree represented the most oriented group 112 (84.2%), followed by Diploma, 27 (67.5%) and master’s degree holders. Results of the questions related to nurse’s knowledge about gingival diseases, causes, management, familiarity with different methods of tooth brushing and oral irrigators devices, were presented in table 3 nurses who worked for less than five years, 23 (20.2%) had no idea about gum diseases, 39 (34.2%) did not know that hospitalization for more than two weeks without brushing may lead to oral diseases, and 10 (8.8%) did not know the correct way of tooth brushing. However, nurses of more than ten years of experience showed the same level of ignorance of gingival and periodontal diseases production and prevention. Nurses who were practicing and applying oral care to hospitalized patients were represented by 89% of participant.

Variable	Frequency	Percent
<b>Gender</b>		
Male	13	7.4
Female	162	92.6
<b>Education</b>		
Diploma	133	76.0
Bachelor’s	40	29.9
Masters	2	1.1
<b>Experience</b>		
Less than one year	6	3.4
1 - 10 years	140	80
10 and Less than 20	22	12.6
More than 20 years	7	4.0

**Table 1:** Distribution of participants according to sociodemographic profile, educational and work experience.

Variable	Category	Level of education			Total	P-value
		Bachelor	Diploma	Master		
Do you have any idea about gum diseases	Yes	112	27	1	140	0.039
		84.2%	67.5%	50.0%	80.0%	
	No	21	13	1	35	
		15.8%	32.5%	50.0%	20.0%	
What is dental plaque	Bacteria adhere to oral tissues	47	8	2	57	0.029
		35.3%	20.0%	100.0%	32.6%	
	Calculus	36	14	0	50	
		27.1%	35.0%	0.0%	28.6%	
	stains	40	9	0	49	
		30.1%	22.5%	0.0%	28.0%	
	I don't know	10	9	0	19	
		7.5%	22.5%	0.0%	10.9%	
What is gingivitis	Gum disease	95	14	0	109	< 0.0001
		71.4%	35.0%	0.0%	62.3%	
	Burning sensation	4	4	1	9	
		3.0%	10.0%	50.0%	5.1%	
	Gum inflammation	34	15	1	50	
		25.6%	37.5%	50.0%	28.6%	
	I don't know	0	7	0	7	
		0.0%	17.5%	0.0%	4.0%	
What causes gingivitis	plaque	76	7	1	84	< 0.0001
		57.1%	17.5%	50.0%	48.0%	
	Smoking	27	8	0	35	
		20.3%	20.0%	0.0%	20.0%	
	Teeth grinding	20	16	0	36	
		15.0%	40.0%	0.0%	20.6%	
	I don't know	10	9	1	20	
		7.5%	22.5%	50.0%	11.4%	
What is periodontitis	Pain in the gum	8	6	0	14	0.08
		6.0%	15.0%	0.0%	8.0%	
	Stains	4	2	0	6	
		3.0%	5.0%	0.0%	3.4%	
	Inflammation of tooth supporting structure	112	26	1	139	
		84.2%	65.0%	50.0%	79.4%	
	I don't know	9	6	1	16	
		6.8%	15.0%	50.0%	9.1%	
What causes periodontitis	Plaque	30	9	0	39	0.003
		22.6%	22.5%	0.0%	22.3%	
	Dental caries	67	16	0	83	
		50.4%	40.0%	0.0%	47.4%	
	Fluorosis	25	6	0	31	
		18.8%	15.0%	0.0%	17.7%	
	I don't know	11	9	2	22	
		8.3%	22.5%	100.0%	12.6%	

If the patient stops brushing when do the gingival disease start	7 days	70	18	2	90	0.024
		52.6%	45.0%	100.0%	51.4%	
	14 days	29	3	0	32	
		21.8%	7.5%	0.0%	18.3%	
	One month	21	7	0	28	
15.8%		17.5%	0.0%	16.0%		
I don't know	13	12	0	25		
	9.8%	30.0%	0.0%	14.3%		
Hospitalization more than two without brushing may lead to oral disease	Yes	75	20	2	97	0.297
		56.4%	50.0%	100.0%	55.4%	
	No	43	11	0	54	
		32.3%	27.5%	0.0%	30.9%	
I don't know	15	9	0	24		
	11.3%	22.5%	0.0%	13.7%		
Do you have any idea about oral irrigation device	Yes	87	28	1	116	0.77
		65.4%	70.0%	50.0%	66.3%	
	No	46	12	1	59	
		34.6%	30.0%	50.0%	33.7%	
Are you familiar with the correct way of tooth brushing	Yes	123	35	2	160	0.56
		92.5%	87.5%	100.0%	91.4%	
	No	10	5	0	15	
		7.5%	12.5%	0.0%	8.6%	
Did the oral health care measure is part of you education	Yes	121	31	1	153	0.02
		91.0%	77.5%	50.0%	87.4%	
	No	12	9	1	22	
		9.0%	22.5%	50.0%	12.6%	
Are you interested to learn more about oral care	Yes	125	33	2	160	0.07
		94.0%	82.5%	100.0%	91.4%	
	No	8	7	0	15	
		6.0%	17.5%	0.0%	8.6%	
Do you no the importance of teeth brushing	Yes	130	35	2	167	0.024
		97.7%	87.5%	100.0%	95.4%	
	No	3	5	0	8	
		2.3%	12.5%	0.0%	4.6%	
Do you know that oral health is important for general health	Yes	132	31	2	165	<0.0001
		99.2%	77.5%	100.0%	94.3%	
	No	1	9	0	10	
		.8%	22.5%	0.0%	5.7%	
Is it important to provide oral care to hospitalized patients	Yes	130	36	2	168	0.29
		97.7%	90.0%	100.0%	96.0%	
	No	2	3	0	5	
		1.5%	7.5%	0.0%	2.9%	
	I don't know	1	1	0	2	
.8%		2.5%	0.0%	1.1%		
Total		133	40	2	175	
		100.0%	100.0%	100.0%	100.0%	

**Table 2:** Distribution of participants according to their level of education and responses to knowledge and attitude questions.

Variable	Category	Working Experience			Total	P-value
		< 5	5 to 10	> 10		
Do you have any idea about gum diseases	Yes	91	33	16	140	0.84
		79.8%	82.5%	76.2%	80.0%	
	No	23	7	5	35	
		20.2%	17.5%	23.8%	20.0%	
What is dental plaque	Bacteria adhere to oral tissues	32	17	8	57	0.43
		28.1%	42.5%	38.1%	32.6%	
	Calculus	34	10	6	50	
		29.8%	25.0%	28.6%	28.6%	
	Stains	33	9	7	49	
		28.9%	22.5%	33.3%	28.0%	
	I don't know	15	4	0	19	
		13.2%	10.0%	0.0%	10.9%	
What is gingivitis	Gum disease	67	25	17	109	0.28
		58.8%	62.5%	81.0%	62.3%	
	Burning sensation	5	3	1	9	
		4.4%	7.5%	4.8%	5.1%	
	Gum inflammation	35	12	3	50	
		30.7%	30.0%	14.3%	28.6%	
	I don't know	7	0	0	7	
		6.1%	0.0%	0.0%	4.0%	
What causes gingivitis	Plaque	49	24	11	84	0.17
		43.0%	60.0%	52.4%	48.0%	
	Smoking	20	9	6	35	
		17.5%	22.5%	28.6%	20.0%	
	Teeth grinding	29	4	3	36	
		25.4%	10.0%	14.3%	20.6%	
	I don't know	16	3	1	20	
		14.0%	7.5%	4.8%	11.4%	
What is periodontitis	Pain in the gum	10	3	1	14	0.53
		8.8%	7.5%	4.8%	8.0%	
	Stains	5	1	0	6	
		4.4%	2.5%	0.0%	3.4%	
	Inflammation of tooth supporting structure	86	33	20	139	
		75.4%	82.5%	95.2%	79.4%	
	I don't know	13	3	0	16	
		11.4%	7.5%	0.0%	9.1%	
What causes periodontitis	Plaque	24	10	5	39	0.21
		21.1%	25.0%	23.8%	22.3%	
	dental caries	48	22	13	83	
		42.1%	55.0%	61.9%	47.4%	
	Fluorosis	26	3	2	31	
		22.8%	7.5%	9.5%	17.7%	
	I don't know	16	5	1	22	
		14.0%	12.5%	4.8%	12.6%	

If the patient stops brushing when do the gingival disease start	7 days	59	19	12	90	0.06
		51.8%	47.5%	57.1%	51.4%	
	14 days	18	12	2	32	
		15.8%	30.0%	9.5%	18.3%	
	One month	24	2	2	28	
21.1%		5.0%	9.5%	16.0%		
I don't know	13	7	5	25		
	11.4%	17.5%	23.8%	14.3%		
Hospitalization more than two without brushing may lead to oral disease	Yes	61	25	11	97	0.55
		53.5%	62.5%	52.4%	55.4%	
	No	39	8	7	54	
		34.2%	20.0%	33.3%	30.9%	
I don't know	14	7	3	24		
	12.3%	17.5%	14.3%	13.7%		
Do you have any idea about oral irrigation device	Yes	75	27	14	116	0.98
		65.8%	67.5%	66.7%	66.3%	
	No	39	13	7	59	
34.2%		32.5%	33.3%	33.7%		
Are you familiar with the correct way of tooth brushing	Yes	104	36	20	160	0.78
		91.2%	90.0%	95.2%	91.4%	
	No	10	4	1	15	
8.8%		10.0%	4.8%	8.6%		
Did the oral health care measure is part of you education	Yes	98	34	21	153	0.18
		86.0%	85.0%	100.0%	87.4%	
	No	16	6	0	22	
14.0%		15.0%	0.0%	12.6%		
Are you interested to learn more about oral care	Yes	105	35	20	160	0.54
		92.1%	87.5%	95.2%	91.4%	
	No	9	5	1	15	
7.9%		12.5%	4.8%	8.6%		
Do you know the importance of teeth brushing	Yes	109	37	21	167	0.41
		95.6%	92.5%	100.0%	95.4%	
	No	5	3	0	8	
4.4%		7.5%	0.0%	4.6%		
Do you know that oral health is important for general health	Yes	107	38	20	165	0.95
		93.9%	95.0%	95.2%	94.3%	
	No	7	2	1	10	
6.1%		5.0%	4.8%	5.7%		
Is it important to provide oral care to hospitalized patients	Yes	108	39	21	168	0.45
		94.7%	97.5%	100.0%	96.0%	
	No	5	0	0	5	
		4.4%	0.0%	0.0%	2.9%	
	I don't know	1	1	0	2	
.9%		2.5%	0.0%	1.1%		
Total		114	40	21	175	
		100.0%	100.0%	100.0%	100.0%	

**Table 3:** Distribution of participant according to working experience and responses to knowledge and attitude

## Discussion

Oral health care needed for hospitalized patients is associated with nurse's knowledge and practices during hospitalization. In this study the percentages of nurses who were trained oral health care as part of their initial education was (87.4%) compared to non-trained nurses (12.6), this result contradict the England study [10] where most nurses had received training during initial nursing course (42.41%) or whilst on the job and minority had attended later training course in oral care (15,14.5%). The present study showed that majority of nurses (76%) were graduated with Diploma degree while only 2% have Masters. A study carried out in Riyadh concluded that Health professionals with diploma degree showed higher oral health knowledge compared with university graduates. The possible explanation for this could be that diploma holders were more involved in-patient care as compared with university graduates, who were more likely to be involved in patient administrative work [11].

The results of the present study regarding nurses knowledge about dental plaque and gingivitis, presented that 32.6% of nurses have idea about the correct meaning of dental plaque while, 28.6% know the meaning of gingivitis these findings were similar to the study conducted by Mohamed Abdalbaseer 2012 [11], who concluded that Plaque, consisting of bacteria and their intercellular products, is generally considered as the primary etiological factor in both caries and gingivitis [12]. Less than 28% of health professionals identified the meaning of dental plaque. This suggests poor knowledge of dental plaque and its formation on the tooth and gums. For effective primary prevention of dental caries and periodontal disease, knowledge of plaque and its removal is essential. The finding that no significant correlation between nurse's experience and their knowledge, attitude and practice towards mouth care of hospitalized patients, believed to be in contrast with European countries [13] where the more experienced the nurse, the more knowledge, attitude and practices of oral care. In Taiwan also, there was significant correlation between the age of the nurses and their total score on oral care practices. The potential bias in this study comes with study carried out in Sudan by Sara and Amel Mudawi [14], that all nurses were worked at university or governmental institutions. However, the survey carried by Binkley in USA [15] found that private hospitals provided more oral health care.

## Conclusion

Diploma was the highest degree of study among nurses in Abha hospitals. The oral hygiene measures although was found to be part of their study, fifth of the nurses have no any idea about gingival diseases and oral care measures needed for hospitalized patients. Experience alone without adoption of courses and formulation of oral health care protocol will not add any benefits to the hospitalized patients. The study highlights the need for setting oral health care protocol and adoption of advanced training for nurses in Abha

hospitals. As this study was carried out in three hospitals, its finding couldn't be generalized to all the hospitals in Abha city, yet the finding can possibly be taken as indicators.

## Conflict of Interest

Non-declared.

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