

ORAL AND DENTAL NURSING CARE KNOWLEDGE AND PRACTICE AMONG NURSES WORKING AT PRIMARY DENTAL CLINIC: A SURVEY STUDY

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ABSTRACT

The aim of the current study was to assess oral and dental nursing care knowledge and practice among nurses working at the primary dental clinic. Propose an oral and dental nursing training program based on nurses' knowledge and practice. A cross-sectional survey study design was utilized to attain the aim of the study. The study sample consisted of a cross-sectional sample of 112 nurses working at a dental clinic in Primary Health Care (PHC) setting. Two tools were developed by the researcher were used for data collection: oral & dental nursing care knowledge questionnaire and Nurses' practices observational checklist. The study results indicated that the majority of nurses have poor knowledge and practice regarding dental nursing care. The majority of nurses didn't receive any dental health topic in their academic education. Majority of nurses didn't receive any training related to on dental health in their nursing carrier. A significant relationship was found between total practice scores, years of experience and previous training on oral & dental nursing care. Also, a significant relationship was detected between nurses' total knowledge and total practice scores. Conclusions: oral & dental nursing care knowledge and practice were poor among nurses working at a primary dental clinic. The Current study recommended implementation of the proposed training program for nurses working at a primary dental clinic to improve their knowledge and practice regarding dental nursing care.

KEYWORDS: *Dental Health, Nursing Care, Primary Dental Clinic*

INTRODUCTION

Oral health is an important determinant for the quality of life, Good oral health enables individuals to communicate effectively, eat and enjoy a variety of foods. The cranio-facial complex allows a person to speak, smell, taste, and chews also provide protection against infections and environmental threats [1, 2]. Additionally, poor oral health affects the ability to sleep well, especially in the presence of pain, and impacts on a person's perception of self – both their self-esteem and self-confidence [3].

In Egypt, the first nationwide survey of oral health conducted by the World Health Organization, (2014) involved different sectors of the society, including orphanages, school children, adults and pregnant mothers, the study results showed that nearly 70% of examined children had some untreated caries experience; meanwhile, 80% of participants were suffering from some form of periodontal disease. Forty percent of participants reported that they experienced dental problems at the time of examination but did not seek a dentist for treatment. 20% had never been to a dentist.

Diabetics and smokers were at a higher risk to develop gingival and periodontal problems [4].

Since dentistry is essentially a Primary Health Care (PHC) discipline, oral health was later integrated into the countrywide primary health care network in Egypt and Primary oral health care (POHC) became as an integral part of PHC. The majority of patient care in dentistry takes place in community settings and involves simple procedures which are provided by general practitioners. Primary oral health care includes preventive services, health education & promotion and basic treatment such as examination, bitewing radiographs, scaling and polishing, simple (1–3 surfaces) fillings and emergency relief of pain and sepsis [5].

The competencies of nurses who were working at primary dental clinic consisted of abilities to promote oral health, encouraging people to join the process of dental care, dental disease control & prevention, dental treatment and emergency dental care. Sometimes dental nurse has to provide complicated dental service under control of a dentist in each primary dental clinic. This work needs professional skills at a high to the highest level. Dental nurses working in the PHC settings need to integrate all dental tasks by using their skill and knowledge to carry out their work covering the main target in PHC level [6].

Aim of the Study

- The aim of the current study was to assess dental nursing care knowledge and practice of oral health among nurses working at primary dental clinic.
- Propose a training program on dental nursing care based on nurses knowledge and skills.

Operational Definition

Oral and Dental nursing care: knowledge and practices necessary for nursing staff to recognize both normal and abnormal oral conditions, direct curative care, health education, illness prevention, and referral as needed in for clients attending dental clinics at primary health care settings.

Ethical Consideration

An official permission to conduct the proposed study was obtained from the ethical committee, faculty of nursing, Cairo University to carry out the study. Another approval was granted from The Human Research Ethics Board Committee of the Central Directorate for Research & Health Development, Training & Research Sector affiliated to the Egyptian Ministry of Health and Population after reviewing the research tools and discussing the main objectives of the research, ethical consideration. Participation in this study was entirely voluntary. Informed consent was obtained from the study subjects. Anonymity and confidentiality were assured through coding the data; subjects were assured that this data will not be reused in another research without taking the permission of the participants.

MATERIALS AND METHODS

Research Design

Cross-sectional survey design was utilized to assess oral and dental care provided by nurses working at settings providing primary health services.

Setting

This study was conducted at (46) PHC centers, Cairo Governorate, Egypt providing primary dental health care services including (thirty -one family medicine centers, nine MCH centers, and six general clinics) Which randomly selected through coding all centers providing primary dental health care services in Cairo (92) then the odd number from centers was randomly selected.

Sample

A cross-sectional A total sample of all nurses 112 nurses at the randomly selected dental clinic at primary health care setting at the period of six months from March 2017 untill the end of September 2017 were performed.

Data Collection Tools

After reviewing the related national and international literature, Tools of data collection were developed by research investigators to assess dental nursing care knowledge and practice among nurses working at primary health care level as follows:

Frist Tool

Nurses' knowledge regarding oral and dental nursing care: is composed of (16 questions) divided into 2 sections as follows:

- **1st Section** Direct patient care: it contained (10 questions) to assess nurses' knowledge related to the care of a patient with dental health problems, health education, and post-operative instructions.
- **2nd Section** dental clinic policies & procedures: it composed of (6 questions) related to commonly used dental instruments, correct usage, handling, storage and disposal of materials and equipment during general chairside procedures and infection control.

Second Tool

Nurses' practices observational check-list: A list of dental competencies for nurses working at primary dental clinics. It included 2 parts:

- **Part 1-** Nurses practices related to a dental clinic policies & procedures: to assess the nurses' role at dental clinic, practices related to dental clinic physical setup, pre- care duties, post care duties during general chairside procedures; and infection control at the dental practice.
- **Part 2-** Nursing care for a patient with dental health problem: it was an observational check-list developed by the investigator to assess nurses' practices related to direct patient chairside care during common dental treatment done at primary care level and health education provided to clients on home oral care and post-operative instructions.

Tools Validity and Reliability

The questionnaire items were tested for content validity by a panel of experts in dentistry and community health nursing fields. Each of the experts asked to examine the instrument for content clarity, wording, time duration, format and overall appearance. Based on experts' comments and recommendations, some items had been added, modified

and/or canceled in the tool. Internal consistency and reliability were determined using Cronbach's alpha coefficient of internal consistency to estimate the reliability of knowledge questionnaire: Internal consistency for knowledge questionnaire using Cronbach's alpha was 0.83 and for an observational checklist was 0.94.

PROCEDURE

- An official permission was obtained primarily from scientific research ethics committee, faculty of nursing, Cairo University. Another approval was generated from the Ethical Committee of the ministry of health & population.
- Data was collected for six months from March 2017 until the end of September 2017. The time spent with each study subject during the interview to complete knowledge questionnaire was approximately 20 minutes.
- For observational checklist: In order to understand the flow of work at the dental clinic; observations were conducted by the investigator at the following settings: primary dental clinic, pregnant dental clinic, dental lab and sterilization room. Nurses were not informed that they were observed to avoid bias and to ensure accurate assessment of their actual performance.
- Data were analyzed to determine whether nurses have the necessary knowledge and skills to consistently perform clinical tasks that are within the expected scope of practice and address any identified gaps in knowledge and practice.
- Based on the results of the nurses' knowledge and practice assessment, researchers proposed a training program to meet the nurses' needs and improve the dental nursing care knowledge and practice at the primary health care level. The dental nursing training program for nurses working at primary dental clinic was designed by investigators in consultation with an expert panel comprised of nurses, dentists, and academics in nursing and dentistry disciplines focusing on the prevention and control of periodontal disease & caries, the restoration of cavities, the extraction of teeth, minor oral surgery, health education provided to clients on home oral care and post-operative instructions.

STATISTICAL DESIGN

The data collected from the observations (handoff procedure and continuity of care) were coded and entered into (SPSS), Version 21.0, for analysis. Data were analyzed using the descriptive statistics in the form of Frequency distribution, Percentage, Mean and Standard Deviation, Statistical analyses were made and all the tests had the significance level of 0.05.

RESULTS

Table 1: Distribution of Nurses Regarding their Demographic Characteristics (N=112)

Demographic Characteristics	No. 112	%
Nurses' age		
18-	26	23.2
23-	60	53.6
28-	15	13.4
33-	9	8
>37	2	1.8
Mean ± SD	26.150±1.731	
Education		
Diploma nurse	80	71.4
Technical institute	32	28.6
Years of experiences		
0-	33	29.5
2-	20	17.8
4-	25	22.3
6-	14	12.5
8-	20	17.9
Mean ± SD	1.45.±0.58	
Receive Training program on oral and dental health		
Yes	44	39.3
No	68	60.7
Presence of dental health topics in their nursing education		
yes	7	6.3
no	105	93.8
Incorporation of dental health into nursing curriculum		
yes	30	26.8
no	82	73.2

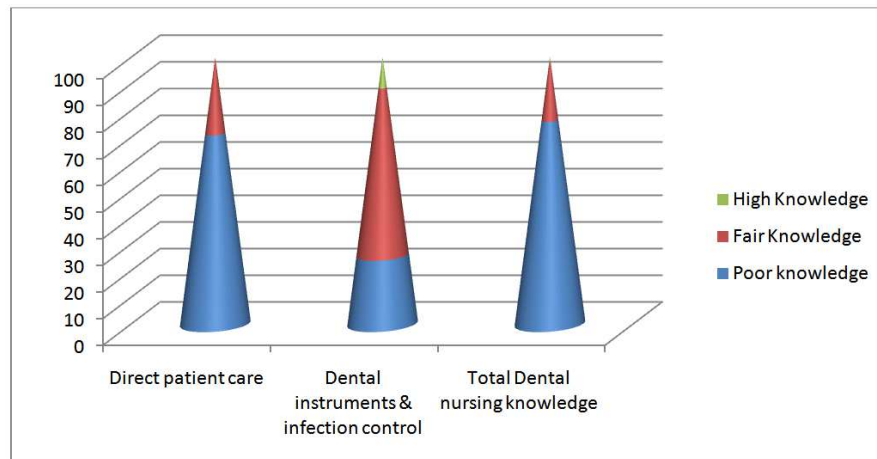


Figure 1: Distribution of Nurses Regarding their Dental Nursing Care Knowledge (N=112)

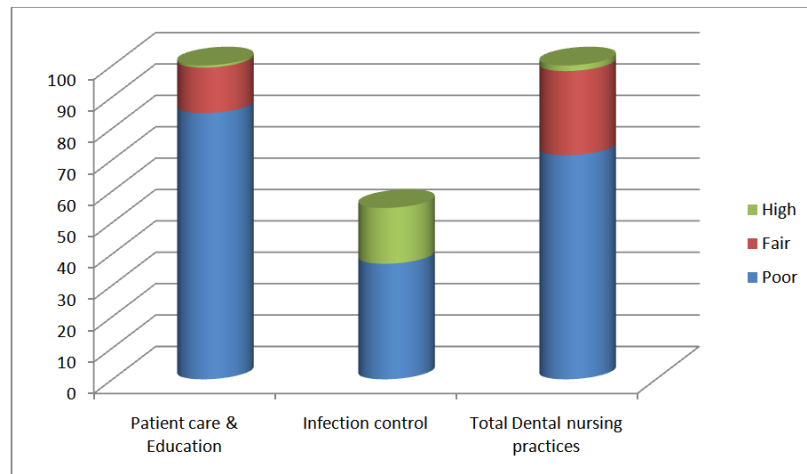


Figure 2: Distribution of Nurses Regarding their Dental Nursing Care Practice (N=112)

Table 2: Relationship between Nurses Practices and their Demographic Characteristics

Demographic Data			Total Practice Score			Fisher's Exact Test:	D.F	P Value
			Low Practice	Fair Practice	High Practice			
Previous training	Yes	no	14	28	2	1.32	1	.02*
		%	31.8%	63.6%	4.6%			
No	no	66	2	0				
	%	97.1%	2.9%	0.0%				
Yrs. of Experience	0-	no	44	9	0	1.60	1	.004*
		%	83%	17%	0.0%			
	4-	no	28	10	1			
		%	71.8%	25.6%	2.6%			
	8-	no	8	11	1			
		%	40.0%	55.0%	5.0%			

* P value is statistically significant at the level of ≤ 0.05 .

Table 3: Relationship between Nurses Total Knowledge and total Practice Regarding Oral & Dental Nursing Care

Total Dental Knowledge Scores		Total Practice Score			Fisher's Exact Test:	D f	P value
		Low Practice	Fair Practice	High Practice			
Low Knowledge	no	80	9	1	1.60	1	.002*
	%	88.8%	10.0%	1.2%			
Fair Knowledge	no	0	20	0			
	%	0.0%	100.0%	0.0%			
High Knowledge	no	0	1	1			
	%	0.0%	50.0%	50.0%			

* P value is statistically significant at the level of ≤ 0.05 .

DISCUSSIONS

Distribution of Nurses Regarding their Demographic Characteristics

The findings of the present study revealed that, More than half of nurses aged between 23 to less than 28 years old with a mean age = 26.150 ± 1.731 . Regarding educational level, less than three- quarters of nurses completed the secondary nursing school. These results in contrary to a study conducted by [7] aimed to assess primary care nurses' knowledge of

oral health care (OHC) and their attitudes toward delivering OHC. The study reported that nurses varied in age from 22 to 56 years with mean age= 37 ± 8 and majority of them had higher educational degrees (BS and MS). From the investigator point of view, Variation of nurses' age may be due to the difference in educational level between both study subjects.

Regarding nurses work experience, current study results reported that near one- third of nurses have less than two years of work experience with mean years of experience = 1.45 ± 0.54 . This study results were in contrast with the study done by [8] who found that the mean nurse career experience was 11 years. The differences between two studies results may be due to the inclusion criteria at the current study. Nurses working at a primary dental clinic were selected. There's a common work norm that newly hired nursing staff should rotate in the primary dental clinic at the beginning of work to ensure orientation with the dental clinic policies, procedures, and skills.

Oral& Dental Health in Nursing Education and Practice

The results of the present study conveyed that majority of nurses didn't receive any dental health topic in their academic education. These study results were in the same stream the study conducted by [9]. The researchers reported that none of the nursing students received structured training or special module regarding oral health. The lack of integration of oral health and dental education into the nursing curriculum was also confirmed by the study done by [10] aimed to evaluate the effect of an oral health education program on pediatric nurse practitioner students' knowledge, confidence, attitudes, and behaviors regarding the provision of oral health care to young children during well-child visits at the University of California, San Francisco. The study declared that eighty percent of pediatric nurse practitioner students didn't receive any oral health education in their nursing curriculum.

Furthermore, Current study results reflected that the majority of nurses recommended incorporating dental health into the nursing curriculum. These findings were in the same line with the study done by [11] researchers found that more than eighty percent of nurses think that it was necessary to obtain an oral health curriculum education and it is necessary to assess oral health curriculum competence level to pass an oral health exam.

Same attitude toward incorporating oral health education course into the nursing curriculum also indicated by [9] who stated that approximately eighty- five percent of nursing students would like to obtain formal oral health curriculum and to implement activities during their nursing training and career. From the research investigator point of view, this positive attitude toward oral health education did a reflect on the direction but not magnitude of willing to introduce oral health subjects to the curricula of nursing schools and should be met by efforts nursing academics to introduce oral health courses into the curriculum of nursing. Such courses were examined both on undergraduate or postgraduate training their proved efficacy.

In addition, the current study results confirmed that two third of nurses didn't receive any training programs related to oral and dental health as part of the continuous professional development of nurses at primary care level. More than half of previously trained nurses had training on sterilization, but none of them received any training on dental health care. These study findings were congruent with [12] who examined factors associated with practices of health care workers toward integrating oral health into primary health care in Kenya. Kaguru found that eighty percent of the respondents didn't have any form of training in oral health and only twenty percent specified that they had some form of training briefly on mouth care and normal dentition.

Also, previous results were in agreement with a study conducted by [13] aimed to explore the training requirements and curriculum content for primary preventive oral health services to children enrolled in Medicaid. The study indicated that only eight states out of the surveyed forty-eight states provided training options through access to various resources posted as links on their websites and forty-two states either required training or recommended supporting educational materials. That study finding is a stepping stone towards the organization of a training course on oral and dental health for nurses to improve their oral & dental health knowledge and practice competencies enable them to provide preventive and curative oral & dental health care at PHC settings.

Distribution of Nurses Regarding their Oral and Dental Nursing Knowledge

Regarding total knowledge scores in direct patient care, table (1) illustrated that, the majority of nurses have low scores. These results were in harmony with the study conducted by [14] aimed to determine the health education barriers encountered by 125 nurses at oral health care units in Alexandria, Egypt. The study reported that, the nurses at oral health units have a serious lack of knowledge regarding health education and there are several barriers and difficulties faced them in providing oral health education related to nursing staff training, patients, health setting and health staff.

The current study results mentioned that more than two third of nurses had a fair knowledge of instruments and infection control, near one quarter had low knowledge. These results were similar to the study done by [15] that showed that dental practitioners had lack of knowledge and neglected the principles for the personal protection and cross-infection control. Regarding total knowledge score on dental nursing care, the majority of nurses had low knowledge scores. These findings were contradicting with the study done by [16] aimed to assess the knowledge of dental nurses regarding the scope of practice of the dental team members in London. The study reported that, almost of dental nurses were fully aware of the role of the dental nurse.

The Discrepancy in knowledge level may be due to the difference in a qualification of nurses between both studies; while Durkan et al. reported that majority of dental nurses had from 2 to 32 years of experience, with a mean of 14 years of experience in dental practice. Also, all dental nurses registered in The General Dental Council (GDC) scope of practice or enrolled in Continuing Professional Development (CPD) training courses that include sets out the skills and abilities for dental nurses.

On the other hand, the study done by [16] reported that almost by nurses were fully aware of the role of the dental nurse. This discrepancy between the results is not surprising since all of the nurses involved in the current study reported that they didn't receive any training on the nursing care and health education for dental patients. Furthermore, the results of the present study convey that majority of nurses didn't receive any dental health topic in their academic education.

Nurses' Practices Related to Oral and Dental Nursing Care

Figure (2) showed that Majority of nurses had low total practice scores on the direct patient care. This is well accepted because nurses working at the primary dental clinic are being chaired side assistants, often without formal training and lack of awareness of required standards. Regarding total practice scores on infection control, less than half of nurses have fair scores, more than one third has low practice scores. These results were in agreement with the study done by [17] who reported that A lack of compliance towards infection control was common among nurses working at the dental

clinic.

The Current study represented that, a majority of nurses had got poor practice scores and about one -quarter of nurses had got fair scores. These results were supported by the study done by [6] aimed to investigate the relationships between job characteristics, motivation, role stress and performance effectiveness of dental nurses in primary care units in Thailand, researchers found that dental nurses' performance was reduced and nurses had more stress caused by role conflict at the primary care level. Low practice scores may be due to low knowledge and training of nurses working at the dental clinic and also the role conflict. It is necessary to help construct training modules of dental tasks and other public health tasks in obvious forms at primary health care level.

Finally, results of a current study reflect that significant relationship was found between nurses total practice scores and nurses previous training regarding oral & dental health at ($p= 0.02$). Also, a significant relationship was detected between nurses total practice scores and training topics at ($p= 0.04$). These results were in the same line with the study done by[18] aimed to evaluate the effect of Scotland's national child oral health improvement program (child smile) on dental nurses' performance to support the delivery of prevention in general dental practice, the study reported that there's a significant relationship between dental nurses skills and training program. These results emphasize the urgency of development and implementation of a training program to improve the care provided by nurses working at the primary dental clinic.

CONCLUSIONS

Overall, the study concluded that nurses working at PHC centers had poor knowledge and practice related to oral and dental nursing care. A Majority of nurses were lacking knowledge regarding patient care and dental clinic policies and procedures. The Majority of nurses didn't receive either oral &dental health topic in their academic education or training programs in their nursing career. A Significant relationship was found between total practice scores and previous training in dental nursing care. Also, a significant relationship was detected between nurses' total knowledge and total practice scores. The study recommended a training program on oral and dental nursing care for nurses at primary care level. The program will need to be tested for its effectiveness. Also, conducting comprehensive research on oral health care in nursing education is recommended.

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