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Impact of an Interventional Program on ICU Nurses' Practices toward Oral Care of Intubated Patients in Al-Diwaniya Teaching Hospital

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Abstract

Oral care is vital nursing action when caring for intubated patients, that aims to reduce the mortality and morbidity among intensive care unit patients by preventing hospital-acquired infections such as Ventilator-associated pneumonia. However, oral care is neglected by the nursing staff in intensive care units, due to a lack of knowledge and practices. The study aimed to evaluate nursing staff's practices toward oral care of intubated and to determine the effectiveness of an interventional program on nursing staff's practices about oral care at ICU in Al Diwaniya Teaching Hospital, Iraq .Pre experimental (one group, pre/post test) design is used to conduct this study that starting from 26 September, 2020 to 1 May, 2021. The purposive sample used to select 27 from nursing staff working in ICU in Al Diwaniya Teaching Hospital. The study instrument is composed of two-part, a demographic data form, and a practice checklist that consists of 15 items to evaluate nurses' practices. The study revealed that there are poor practices among nursing staff regarding oral care in the pre-test period, where the overall evaluation of nurses' practices was low, with a statically mean (1.24). In the post-test, the study shows improvement in nursing staff' practices, and there are highly statistically significant differences between nurses' practice scores in pre and post-test, where the mean score of overall nurses' practices in post-test was (2.47). This indicates that the interventional program positively affects the nurses' practices regarding oral care of intubated patients. The study recommended the need to use the oral care protocol in ICUs and urged the nursing staff to participate in educational and training courses on oral care.

***Keywords**:* An Interventional program, nurses' practices, oral care, intubated patients.

Introduction

Centers for Disease Control and Prevention (CDC, 2016) reported that oral care is practice that aim to prevent disease by maintaining the mouth cavity clean and healthy. Khasanah et al. (2019) reported that in ICUs, oral care considered vital nursing procedure that

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influence both clinical outcomes, and wellness of patients those receiving intensive care. It is worth noting that, the basic goal of providing oral care is to keep oral cavity clean, to decrease both the oropharynx microbial colonization and dental plaque, and to prevent the contaminated saliva from being aspirated in to lungs.

According to the American Association of Critical-Care Nurses (2017), efficient oral care practices includes, brushing the tongue, teeth, and gum two times per day, using a soft pediatric toothbrush. In addition to providing a moisturizing for the oral mucosa and lips each 2 to 4 hours. Use chlorhexidine gluconate (0.12%) rinse twice daily is effective to manage dental plaque and be protective against oral bacteria biofilm.

Oral intubation may be required for ICU patients to maintain their patent airway, for this purpose, an endotracheal tube (ETT) is used. EET passed to the trachea through the oral cavity, under this circumstance, oral care becomes challenging. ETT closely linked to ventilator-associated pneumonia (VAP), which occurs 48 hours after the patient has been ventilated (Ghauri et al., 2020).

VAP represents 47 % of all infections among ICU patients. The occurrence of VAP increases the burdens of intubated patients, as it increases the length of their stay in the ICU in addition to increasing the financial cost of treatment and increasing morbidity and mortality. The increase in the therapeutic cost of VAP can be resulting from the increase in the length of stay in ICU, which is estimated by 5-7 days (Samra et al., 2017). Gupta et al. (2016) declared that oral care could reduce the incidence of VAP by 60%.

Many barriers prevent optimal oral care from being given to intubated patients. Among these barriers are: lack of priority given to oral care, as well as the lack of numbers of nursing staffs, fear of causing trauma or injury in patients' mouth, also fear of dislodging tube, and many nurses incorrectly believe that oral care does not provide significant health benefits. In addition, the nurses' knowledge and practices could influence the provision of proper oral care practices to intubated patients (Ibrahim et al., 2015). Furthermore, Khasanah, et al. stated that nurses usually lacked evidence-based knowledge to provide proper oral care practices for intubated patients.

Objectives of the Study

1. Evaluate the nursing staffs' practices toward oral care of intubated patients.

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2. Investigate the effectiveness of the interventional program on nursing staffs' practices toward oral care of intubated patients.
3. Identifying the relationship between the nursing staffs' practice and their demographic characteristics (age, gender, and level of education, years of experience in ICU).

Method of the study

A pre-experimental design is used to carry out this study that applied using the pre and post test approach for one sample group (study sample). The study started from 26th September, 2020 to 1st May, 2021 at the ICU in Al-Diwaniya Teaching Hospital, to evaluate the nursing staffs' practices toward oral care, and to determine the effectiveness of the interventional program on nursing staff' practices regarding oral care of intubated patients. Non- probability (purposive) sampling method was used to select (27) nursing staff who work in ICU in Al-Diwaniya Teaching Hospital.

Study instrument

The researcher used the socio-demographic characteristics form to collect the demographic data from nursing staff participating in this study. In order to fulfill the study's objectives, the researcher constructed the practices observational checklist based on the previous study and the experience of the researcher. An observational checklist was used to evaluate the nurses' practices regarding the oral care procedures for intubated patients; the researcher observed and checked nurses for correct or incorrect performance.

The practices checklist composed of (15) items that divided into three content areas.

- **Part one**: (6) items related to nursing staffs' practices before performing oral care.
- **Part two**: (5) items related to using a mouth rinse, moistening and antibiotic agents, and cleaning tools.
- **Part three**: (4) items related to oral care nursing staffs' practices.

The study instrument validity, which includes the interventional program and the practices checklist, was determined by (19) experts, who have more than 10 years of experience in their fields, to verify the interventional program contents and practices checklist towards the oral care of intubated patients.

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Pilot study

A pilot study was carried out on (five randomly selected nurses) who worked during the morning shift in ICU, to determine the study instrument reliability. The reliability coefficients were 0.91 and 0.90 for inter and intra examiner respectively, which means that the study instrument is reliable in measuring the study phenomenon at any time in the future.

Results and discussion

Socio-demographic characteristics of the current study

Table (1): Distribution of the Study Sample According to The Socio demographic Data (N=27).

Demographic Data	Groups	Percent	Frequency
Age / Years	21 to 25	12	44.4
	26 to 30	9	33.3
	31 to 35	5	18.5
	36 to 40	1	3.7
	Total	27	100.0
	Mean and SD	27.59 ±3.342	
Gender	Male	14	51.9
	Female	13	48.1
	Total	27	100.0
Education level	Secondary	3	11.1
	Institute	7	25.9
	College	17	63.0
	Total	27	100.0
Years of experience in ICU	1 to 5	20	74.1

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	6 to 10	7	25.9
	Total	27	100.0

ICU=intensive care unit, N= Number, SD= Stander deviation

Table (1) represents the socio-demographic characteristics of respondents. The study showed that the age of nurses who participated in the study was ranged from (21-40) years old with a statistical mean equal to 27.59 years. This result supported by the studies conduct by Thapa and Shrestha (2019), and Hammod and Muhammad (2016). Regarding the nurses' gender, the study revealed that half respondents (51.9%) were male, this result confirmed by Al-Jubouri and Jaafar (2018). Another study conducted by Jaddoue (2011), also showed that the male nurses in the study sample were more than female. Regarding marital status, (55.6%) of nurses in the study was married. As for the educational level of the nurses participating in the study, the percentage of nurses with a bachelor's degree in nursing was 63.0%. This result consistent with the studies conducted by Cherian and Karkada (2015), and Ibrahim et al. (2015). The study also uncovered that (59.3%) of respondents was had less than (5) years of experience in the nursing profession, and (74.1) of them was had years of experience less than 5 years in ICU. This result supported by the study performed by Na'el and Mohammed (2019).

Nursing Staffs' Practices Regarding Oral Care in ICU at the Pre-Test and Post-Test

Table (2). Comparison of Nursing Staffs' Practices Scores between the Pre-Test and Post-Test

Main studied domains	Pairs	Mean	Std. Deviation	t-value	d.f.	p-value
Nursing staffs' practices before performing oral care.	Pre-test	1.31	.218	-25.723	26	.000 HS
	Post-test	2.62	.127			
Use mouthwashes, moistening and antibiotic agents, and cleaning tools by nursing staffs'	Pre-test	1.27	.209	-20.835	26	.000 HS
	Post-test	2.34	.253			

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Nursing staffs' practices regarding oral care of intubated patients	Pre-test	1.07	.116	-27.766	26	.000 HS
	Post-test	2.39	.212			
Overall evaluation of nursing staffs' practices	**Pre-test**	**1.24**	**.130**	**-45.244**	**26**	**.000 HS**
	Post-test	**2.47**	**.108**			

Std. = standard Deviation, T= T. test, DF= degree of freedom, HS= High significant

During the pre-test period, as showed in Table (2), the practice observation displayed that the overall evaluation of nurses' practices regarding oral care was low with the statistical mean equal to (1.24).

This result supported by the study conducted by Thapa and Shrestha (2019) who reported that the majority of nurses (80.46%) had a poor level of practice concerning oral care of intubated patients. Another study was done by Rumagihwa and Bhengu (2019) also showed that (78.7%) of nurses in the study sample had a low practice level concerning oral care of mechanically ventilated patients.

In addition, the study conducted by Jahani & Poursangbor (2019) showed that (76%) of participated nurses had poor practice, while (24%) of them had moderate practice, and no one of participated nurses had good practices regarding oral care of ICU ventilated patients.

In the same context, Shetie (2019) stated that (57.4%) of the nurses in the study sample, who work in ICU, had poor practices concerning oral care of ICU patients. A study conducted in 2016 by Aboalizm and Kasemy found that 100% of ICU nurses who participated in the study had poor oral care practices. Jaddoue (2011) found that the nurses' practices regarding oral care were inadequate.

Poor practices toward oral care, among ICU nurses in Al-Diwaniyah teaching hospital, can be attributed to, most of the nursing staff lacked adequate expertise in oral care for intubated patients. In addition, the presence of the ETT may impede the procedure of oral care because the nurses fear dislodging the ETT, and this is one of the barriers that prevent the provision of appropriate oral care of intubated patients, as supported by (Handa, Chand, Sarin, Singh, Sharma, 2014; Ames et al., 2011). Other reasons represented by the lack of

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updated protocol or resources that would improve nurses' knowledge and practices towards oral care of intubated.

Post-test period revealed a remarkable development in the nursing staff's practices towards oral care for intubated patients, where the overall evaluation of nurses' practice was high and the statistical mean of all main studied domains was (2.47). The study also, showed that there are highly statistically differences (p value= 0.000) between practices score in pre and post-test, where the practices scores in post-test better than those in pre-test. This indicates that the interventional program has a positive effect on the nursing staff's practices towards oral care for intubated patients in the ICU.

This result is consistent with the studies conducted by (Behzadi et al., 2019) and Hassan (2018), where they reported that there are significant differences between the mean scores of nurses' practices, regarding oral care, before and after performing the educational program, where the mean score in the post-test was higher than it in the pre-test.

In addition, some studies conducted in different countries such the studies done by Ragotero et al. (2016), Cherian and Karkada (2015), Abd Elbaky, et al. (2015), and Abd EL-Aziz (2014), they found that the education program improved nurses' performance toward oral care, as there were significant differences between nurses' practice on pre-test and post-test.

Association between socio -demographic characteristics and nurses' practices.

Table (3) Relationship between the Overall Nursing Staffs' Practices (Post-Test) and Their Demographic Data

Demographic Data	Groups	**Overall nurses practices**			**Chi-Square**	**d.f.**	**p-value**
		Fair	High	**Total**			
Age / Years	21 to 25	0	12	0	4.900	3	**.179**
	26 to 30	1	8	1			
	31 to 35	1	4	1			
	36 to 40	1	0	1			

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	Total	3	24	3			
Education level	Secondary	1	2	3	2.042	2	**.360**
	Institute	1	6	7			
	College	1	16	17			
	Total	3	24	27			
Years of experience in ICU	1 to 5	0	20	20	3.643	1	**.056**
	6 to 10	3	4	7			
	Total	3	24	27			

DF= degree of freedom

Table (4) Means Difference (Independent Sample t-test) In the Overall Nursing Staffs' Practices (Post Test) According to Their Gender

Overall	Gender	Mean	Std. Deviation	T-Value	D.F.	P-Value
Overall Practices	Male	2.46	.107	**1.036**	**52**	**.304**
	Female	1.48	.509			

DF= degree of freedom

Table (3) shows there is no significant relationship between the overall nursing staffs' practices (post-test) and nurses' age (p value = .179). This finding is supported by the study done by Mishra and Rani (2020) and da Silva, et al. (2016) where they found that the practice scores had no significant relationship with age.

Regarding the level of education, the study showed that was no significant relationship between nurses' practices with their level of education (at p-value=.360). This result supported by the studies conducted by Al-Jubouri and Jaafar (2018) in Iraq and Hassan (2018) in Egypt, where they found that there was no significant association between nurses' level of education with their practices.

The study also revealed that there is no statistically significant relationship between nurses' years of experience in ICU with their practices toward the oral care of intubated patients (at p-value= .056). This result line with the studies conducted in different countries such the studies of Faragalla et al. (2018), Thomas and Binutha (2018) and Ibrahim, et al.

(2015), there they found that there was no statistically significant relationship between the years' experience of nurses and their practice concerning mouth care.

Regarding gender, the study, as in Table (4), showed there are no significant relationship between nurses' practice and their gender, where p-value= 304. This result supported by Mishra and Rani (2020), and Rao and Cheema (2019) where they found that there is was no association between nurses' practices and there gender.

Conclusions

The results of the current study demonstrated that the implementation of the interventional program contributed to the development of nursing staff practices towards the oral care of intubated patients.

Recommendation

The study recommended that the nursing staff should be encouraged to participate in programs and conferences related to oral care for intubated patients. It also recommended that the continuing education curriculum and workshops include lectures on oral care.

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