



Original Article

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## ***Knowledge, Awareness, and Practices of Oral Health for Debilitated Patients, among Nursing Staff of Krishna Hospital***

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### **ABSTRACT**

Oral diseases qualify as major public health problems owing to their higher incidence and substantial social impact. Many systemic diseases are related to oral conditions and affect general health. Dental care for chronically ill and non-ambulatory, debilitated patients has an impact on clinical outcomes and well-being. Poor oral care results in infections and affects the quality of life. Hence, oral healthcare of these patients is the nursing staff's significant responsibility. The aim of the study was to evaluate the attitudes and practices among nurses concerning the oral health care of debilitated patients in hospitals of Krishna Institute of Medical Sciences. A specially designed questionnaire was used consisting of 15 questions to assess the knowledge and attitude among nurses toward oral health care of debilitated patients. Data were collected among 180 nurses using a self-administered questionnaire. Data were analyzed using SPSS software. The results of the study stated that the majority of the nursing staff strongly agreed that the health of the teeth and gums affects the general health of the patients. Also, nurses feel there is a need to receive regular training on oral health management for debilitated patients. To conclude the attitude of nursing staff, towards oral healthcare of debilitated patients care is positive. However, respondents opine that a clinical training module at a dental institute would be more beneficial and effective delivery of oral health care.

**Key words:** Debilitated patient, Nosocomial Infection, Oral hygiene care, Periodontitis

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### **INTRODUCTION**

The dramatic increase in average life expectancy during the 20th century ranks as one of society's greatest achievements. With the rising number of aged people in society, the number of older people in need of health care and nursing care is rising [1]. The acceleration in an elderly group population is posing tremendous challenges in care for this group and their chronic conditions. A chronic progressive disease possibly will debilitate or lead to unconsciousness of the patient. A debilitating condition is interpreted as “causing serious impairment of strength or ability to function”.

Debilitating conditions include most commonly maxillofacial fractures and brain injury. Numerous patients with Acquired brain injury admitted for neuro-rehabilitation have difficulty in eating such as ingestion, chewing, and swallowing as defined in the International classification of functioning, disability, and health [2]. Apart from accidental causes, the systemic conditions include patients with cancer, immune suppression, diabetes, chronic renal failure, and severe neurological conditions such as Parkinsonism or spinal cord injury.

Regardless of oral health's role in systemic health, the oral health care phase is often neglected [3, 4]. Oral health in such patients is one of the most abandoned aspects of health care. To prevent oral complications leading to serious complications like systematic diseases can cause fatality in debilitated patients [5].

Patients with systemic disease have a greater risk of compromised oral health, which further progress to loss of teeth [6].

Debililitated patients are dependent on caregivers or the health care workers for their oral health care and thus the role of nurses is pivotal. Deficient oral care during the hospitalization period of the patient has been reported, it is commonly due to not following the oral care policies [7]. Lack of oral care education, low precedence is given to oral care because of inadequate [8, 9] and the insight that oral care does not present substantial advantages [10]. In such debilitated patients, it is challenging for the nursing staff to give proper oral health care [11]. Therefore, interventions should be aimed toward nursing students in a culturally suitable and adequate manner that will improve their knowledge and awareness as well as their attitude, toward debilitated patients, in providing an optimal level of oral care. To provide good oral health care to such debilitated patients, Nurses must understand the complexities of these people, and their special needs and also have the knowledge about the oral health care to be given to the debilitated patients.

Thus, the current study aims to evaluate the knowledge, awareness, and practice of nursing staff in performing oral health care among debilitated patients.

## MATERIALS AND METHODS

This cross-sectional questionnaire-based study was conducted among the nursing staff in private hospitals Karad. The ethical clearance was obtained, before commencing the study. Minimum sample size of 173 was determined using a formula  $n = Z^2Pq/L$ . Nurses who were working in the KIMSDU were the source population.

Total 180 nurses willing to participate were included in this study. The nurses who were posted in the respective debilitated patient wards/units during the study period of January 2020 to March 2020 were included in this study. The participant nurses belonged to either Diploma (G.N.M) or Graduation nursing course (B.Sc.) and had their regular posting to the respective wards/units. The study was conducted by distributing a close ended pre validated questionnaire amongst the participants after explaining the objectives of the study through a one-to-one interview. Adequate time was given to each participant for answering the questions.

The questionnaire included wide range of questions designed to identify the knowledge, awareness and practices about Oral health care. The questionnaire and observational checklist were constructed so as to achieve the objectives of the study, which consisted of two parts; the first part is concerned with the socio-demographic characteristics of the nurses which included; age, gender, level of education; the second part consists of 15 items on the general information about the oral health care given to hospitalized debilitated patients. These items were measured, scored and rated using a 4-level Likert rating scale (measuring statements of agreement); a) Agree b) strongly agrees c) Disagree and d) Strongly disagree. English version of the questionnaire was used for the data collection. The questionnaire for the study was formulated by referring the similar study materials [12, 13]. The data collected was analysed using SPSS (statistical package of social science) software.

## RESULTS AND DISCUSSION

A total 180 of participants participated in the study out of which the participants' age ranged from 21 to 50 years with a mean age of 27.2 years. Most participants' ages ranged from 21-to 30 (54%). More than half of the nurses (60.55%) were females. The majority of participants, 103 (57.22%) were with a higher level of education i.e. B.Sc. Degree while 77 (42.77%) were with diploma G.N.M. in nursing.

**Table 1.** Practice of nurses regarding periodontal disease and oral health care of debilitated patients (n = 180)

Oral health management a part of your education	Yes	No
GNM	77 (100%)	0 (0%)
BSc	103 (100%)	0 (0%)
Total	180 (100%)	0 (0%)
Training on oral health for debilitated patients		
GNM	74 (96.1%)	3 (3.9%)
BSc	85 (82.5%)	18 (17.5%)
Total	159(88.3%)	21 (11.66%)

p >0.05 – no significant difference \*p<0.05 – significant \*\*p<0.001 – highly significant

Do you use mouthwash in oral health care of the patients		
GNM	59 (76.6%)	18 (23.4%)
BSc	96 (93.2%)	7 (6.8%)
Total	155 (86.1%)	25 (13.9%)

Chi square test value = 10.128, p value = 0.001\*  
p >0.05 – no significant difference \*p<0.05 – significant \*\*p<0.001 – highly significant

#### Practice assessment

All the participated nurses had the oral health management for the patients admitted to the hospital as a part of their education, the response was 100% n=180 and about 88.3 % (n=159) of nurses were trained for the oral health care to be given to the debilitated patient. Most of the participants (86.1%) used mouthwash as a part of oral hygiene care (Table 1). About 54.65% of nurses agreed that cleaning the oral cavity in such patients is a difficult task showing high significance according to the chi-square test with (p-value <0.001, Chi-square test value = 54.249) (Table 2). About 97.3% of nurses believed that there is a need for specialized training in oral hygiene care to be given in debilitated patients and while 98.9% felt the need to involve dental hygienists in the oral care in debilitated patients.

**Table 2.** Practice of nurses regarding periodontal disease and oral health care of debilitated patients (n = 180)

Is cleaning the oral cavity of patient is a difficult task	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	0 (0%)	37 (48.1%)	39 (50.6%)	1 (1.3%)
BSc	24 (23.3%)	39 (37.9%)	15 (14.65)	25 (24.3%)
Total	24 (13.3%)	76 (42.2%)	54 (30%)	26 (14.4%)

Chi square test value = 54.249, p value <0.001\*\*  
p >0.05 – no significant difference \*p<0.05 – significant \*\*p<0.001 – highly significant

Is there a need for specialized training for oral care in debilitated patients	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	43 (55.8%)	34 (44.2%)	0 (0%)	0 (0%)
BSc	57 (55.3%)	41 (39.8%)	5 (4.9%)	0 (0%)
Total	100 (55.6%)	75 (41.7%)	5 (2.8%)	180 (100%)

Chi square test value = 3.94, p value = 0.189  
p >0.05 – no significant difference \*p<0.05 – significant \*\*p<0.001 – highly significant

Need to involve dental hygienists for oral care in debilitated patients	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	48 (62.3%)	29 (37.7%)	0 (0%)	0 (0%)
BSc	44 (42.7%)	57 (55.3%)	2 (1.9%)	0 (0%)
Total	92 (51.1%)	86 (47.8%)	2 (1.1%)	0 (0%)

Chi square test value = 7.695, p value = 0.021\*  
p >0.05 – no significant difference \*p<0.05 – significant \*\*p<0.001 – highly significant

#### Knowledge assessment

The results suggest that a maximum number (68.9%) of participants have knowledge that oral health of teeth and gums affects the general health of the patients and poor oral hygiene maintenance can lead to loosening of teeth and further leading to tooth loss. Most of the respondents (62.2 %) strongly agreed that the oral health care frequency in such patients should be twice a day, out of them, G.N.M (66.2%) respondents had a good knowledge compared to B.Sc. (59.2%) respondents. According to Chi-square test (p-value of 0.295, Chi-square test value = 3.709) shows no significant difference. GNM nursing responders had good knowledge that poor oral care can lead to hospital-acquired (Nosocomial infection) infection compared to B.sc responders. About 11.7% of B.Sc. responders had no knowledge about the relation between oral health care and hospital-acquired nosocomial

infection according to the Chi-square test (p-value 0.003, Chi-square test value = 13.70) shows significance (Tables 3 and 4).

**Table 3.** Knowledge of nurses about periodontal disease and oral health care of debilitated patients (n = 180)

Does the Health of teeth and gums affect the general health of the patients?	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	63 (81.8%)	13 (16.9%)	1 (1.3%)	1 (1.3%)
BSc	61 (59.2%)	42 (40.8%)	0 (0%)	0 (0%)
Total	124 (68.9%)	55 (30.6%)	1 (0.6%)	1 (0.6%)
Chi square test value = 12.83, p value = 0.002*				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				
Does poor oral health can lead to the loosening of teeth				
GNM	63 (81.8%)	13 (16.9%)	1 (1.3%)	1 (1.3%)
BSc	61 (59.2%)	42 (40.8%)	0 (0%)	0 (0%)
Total	124 (68.9%)	55 (30.6%)	1 (0.6%)	1 (0.6%)
Chi square test value = 13.167, p value = 0.001*				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				
Should Oral care be given to the patients twice a day				
GNM	51 (66.2%)	24 (31.2%)	2 (2.6%)	0 (0%)
BSc	61 (59.2%)	38 (36.9%)	1 (1%)	3 (2.9%)
Total	112 (62.2%)	62 (34.4%)	3 (1.7%)	3 (1.7%)
Chi square test value = 3.709, p value = 0.295				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				

#### Awareness assessment

Most of the participants, about 99.4% participants agree that there is a need to know more about oral cavity and oral disease. About 71.1% of total participants feel the need for posting in the dental college. Around 61.1% of the total participants have attended the dental camp conducted by the college (Table 5).

**Table 4.** Knowledge of nurses about periodontal disease and oral health care of debilitated patients (n = 180)

Does poor oral care can cause hospital-acquired infections	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	42 (54.5%)	35 (45.5%)	0 (0%)	0 (0%)
BSc	38 (36.9%)	51 (49.5%)	2 (1.9%)	12 (11.7%)
Total	80 (44.4%)	86 (47.8%)	2 (1.1%)	12 (6.7%)
Chi square test value = 13.70, p value = 0.003*				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				
Good oral hygiene showed decreased chances of hospital-acquired infection				
GNM	33 (42.9%)	43 (55.8%)	1 (1.3%)	0 (0%)
BSc	45 (43.7%)	46 (44.7%)	3 (2.9%)	9 (8.7%)
Total	78 (43.3%)	89 (49.4%)	4 (2.2%)	9 (5%)
Chi square test value = 8.366, p value = 0.039*				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				
Aware of how to use a powered toothbrush for debilitated patients				
	Yes	No		
GNM	34 (44.2%)	43 (55.8%)		
BSc	71 (68.9%)	32 (31.1%)		
Total	105 (58.3%)	75 (41.7%)		
Chi square test value = 11.128, p value = 0.001*				
p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				

**Table 5.** Awareness of nurses about periodontal disease and oral health care of debilitated patients (n = 180)

As a nursing graduate, do you think you need to know more about oral cavity and oral diseases	Strongly Agree	Agree	Strongly disagree	Disagree
GNM	51 (66.2%)	26 (33.8%)	0 (0%)	0 (0%)
BSc	56 (54.4%)	46 (44.7%)	0 (0%)	1 (1%)
Total	107(59.4%)	72 (40%)	0 (0%)	1 (0.6%)
Chi square test value = 3.098, p value = 0.212 p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				
According to you, is there any need for a clinical posting in dental college			Yes	No
GNM			45 (58.4%)	32 (41.6%)
BSc			83 (80.6%)	20 (19.4%)
Total			128 (71.1%)	52 (28.9%)
Chi square test value = 10.514, p value =0.001* p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant.				
Have you ever taken part in a dental camp conducted by a college			Yes	No
GNM			43 (55.8%)	34 (44.2%)
BSc			67 (65%)	36 (35%)
Total			110 (61.1%)	70 (38.9%)
Chi square test value = 1.571, p value = 0.210 p >0.05 – no significant difference *p<0.05 – significant **p<0.001 – highly significant				

Good oral health along with good general health is important for leading a quality life. Poor oral care is a familiar problem and if left untreated, may result in various severe health implications [14].

Periodontitis Grade B and C (AAP 2017 classification of Periodontal disease and condition) has been shortlisted as sixth most prevalent disease in 2010. About 10.8% of people around the world were found more prone to periodontal disease [15].

Periodontitis suggests affiliation with numerous systemic conditions such as cardiovascular and rheumatoid arthritis also physiological situation inclusive of being pregnant which results in preeclampsia and preterm birth [16].

Abnormalities or pathological changes in the oral cavity are usually seen in patients who are bedridden or those suffering from various systemic diseases [12]. The tissues of the oral cavity such as lips, tongue, mucosa, and gums all act as indicators for various pathological changes. Oral tissue changes possibly will increase uncertainties of complications. In this study, it is clear that the nursing students are highly aware that oral health is a gateway to systemic health.

All the participants in our study agreed that oral health management is a part of their education. These findings are similar to a study done by Agarwal V [13] where 92% of nursing staff responded that oral health management is part of basic nursing training. On contrary, a study by Pai *et al.* showed a negative response with 54% agreeing and 30% strongly agreeing that oral health management was not a part of their education [17].

About 55.5% of nursing staff agree that cleaning the oral cavity is a difficult task when compared to the study by Geraldine N in 2014, which shows contrasting results with (43%) agreeing and (27%) strongly agreeing that they were comfortable performing this procedure [18]. This could be due to the uncooperativeness of the patient's debilitating illness. Such patients cope with chronic conditions and emotional distress. Many grieve about their predicament while some have long-drawn-out distress and develop psychiatric disorders, mostly depression or anxiety. Dental care is overlooked when these conditions are considered and thus lack of oral care results in halitosis of patients which is a challenging task for the operator.

Our study shows most of the nurses had undergone training in healthcare for the bed ridden patients which indicates (that 88.3%) of the nursing staff was aware of oral care to be given to the patients and had good knowledge about it. These results are similar to findings in Sudan (97.4%) and in contrast to results from Texas (51.1%) [19] and India (48.7%) [20] South Africa (32%) and Singapore (43.4%) which shows that the most of the nurses were inexpert of oral hygiene among debilitated patients [21]. The possible reason may be due to most of the participants (72.8%) in India in 2013 failing to take adequate training about oral health care [21]. Our study

showed higher results this may be due to the fact that an increased education level helps them to get a chance of participating in new and different learning activities such as seminars, webinars, and workshops. These activities help them update themselves with the latest knowledge and practices.

In our study, 68.9% of respondents strongly agreed that the health of teeth and gums affects general health. There is a similar finding from another study by Philip *et al.* that most nurses were aware of the importance of oral care for debilitated patients and the effect, poor oral hygiene has on systemic health [22].

Oral hygiene care should be given to the patients at least twice a day in the morning and before bedtime, along with the use of other dental aids such as mouthwash, dental floss, etc. But in one of the studies in 2019, by Odgaard *et al.* [23] the provision of oral care for eating and non-eating patients was decided. Among the non-eating patients, they had suggestively increased frequency of use for other oral care products such as mouthwash compared to the eating patients. This indicates that eating patients need more oral care attention. In our study, 86.1% strongly agreed on the use of mouthwash while 62.2% strongly agreed that the frequency of teeth cleaning should be twice a day in line with an earlier study [24]. Teeth frequently require the removal of biofilm to avoid the build-up of plaque, which forms a reservoir of pathogenic respiratory pathogens and it has been demonstrated that electric toothbrushes have superiority in plaque removal compared to manual toothbrushes [25]. Thus, we recommend the use of powered toothbrushes in such patients. In our study more than half of the participants 58.3% were aware of the use of powered toothbrushes in debilitated patients.

A cohort multicentric international study reported at least one ICU acquired infection among 18.9% of patients, with an occurrence frequency ranging from 2.3% to 49.2% across the centers [26]. One of the most common nosocomial infections is Hospital-acquired pneumonia (HAP). As the oral cavity is the main reservoir of infection and various organisms, aspiration pneumonia was most commonly reported to be associated with an increased number of decayed teeth. The *Staphylococcus aureus* presence in saliva and *Porphyromonas gingivalis* in dental plaque in dentate patients favors such nosocomial infection [27]. In our study, 46.1% showed a positive response about awareness of hospital-acquired infections while 46.35% knew that good oral hygiene can reduce the chances of nosocomial infection.

In our study the contributors felt the want for education with regards to dental care. Thus dental experts play an vital position in interprofessional collaboration that could boom the eye to oral health care with the aid of using the Health care workers [28].

## CONCLUSION

The findings of the current study show that all the respondents have knowledge of oral health care and are aware of oral health care to be given to debilitated patients. However, there is a need for improvement in the practice of oral care among such debilitated patients.

The study highlights the need for training of nurses, in dental college with respect to oral hygiene care and standardized evidence-based oral health protocols to assist hospital nurses to provide appropriate oral hygiene in debilitated patients.

### Limitations

Our study failed to categorize patients as eating and non-eating. A longitudinal study that incorporates qualitative design and a large sample size is required to explore further correlations.

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