

ORIGINAL RESEARCH

Oral health behaviour, knowledge, and attitude among nursing students

Lea Ladegaard Grønkjær *¹, Natasja Nielsen¹, Marie Nielsen², Camilla Smedegaard²

¹Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus, Denmark

²Education of Nurses, VIA University College, Aarhus, Denmark

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ABSTRACT

Background and objective: Nursing students play an important role in oral health promotion, after they graduate and start working within the health care system. The aim of this study was to determine the oral health behaviour, knowledge, and attitude among Danish senior nursing students.

Methods: A cross-sectional study was carried out among students at the Education of Nurses, VIA University College, Aarhus, Denmark, using an electronic questionnaire consisting of 22 questions regarding oral health behaviour, knowledge, and attitude.

Results: One hundred students completed the questionnaire, yielding a response rate of 79%. A majority of the students brushed their teeth twice daily (89%), visited the dentist at least once a year (55%), and described their teeth and gingiva as extremely good or very good (80%). The students had good oral health knowledge regarding plaque and dental caries. However, the knowledge about periodontal diseases such as gingivitis and periodontitis was insufficient. Nearly all students stated that oral health is an important part of nursing care (97%) and important for the general health (87%). Over half of the students (64%) thought that oral health training should be updated and expanded in the nursing education.

Conclusions: The participating students had good oral care behaviour. In some areas, the students had adequate oral health knowledge, while the knowledge about especially periodontal disease was insufficient. The majority of the students had a positive attitude toward oral health and wanted oral health training to be prioritised in the nursing education.

Key Words: Attitude, Behaviour, Oral health, Knowledge, Nursing students, Questionnaires

1. INTRODUCTION

The proportion of people who retain their own teeth through old age is increasing. However, many of these people experience decreased oral health, and the need for oral hygiene is significantly different and more complex than just a decade ago.^[1] Thus, a recent study has shown that 91% of the patients hospitalised at medical departments at admission had one or more problems related to the oral cavity. The most frequent problems were plaque and damaged or missing teeth.^[2]

This is consistent with other studies of patients from different departments.^[3,4]

Several studies have shown that oral health care is being neglected by general health care professionals, including nurses.^[5] One study which examined nursing home residents found that 78% needed help with oral hygiene, but only 7% received such help.^[6]

Explanations for this neglect include low priority, high workload, lack of training, lack of routines to assist with oral

*Correspondence: Lea Ladegaard Grønkjær; Email: lealad@rm.dk; Address: Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus, Denmark.

health care, and poor understanding of the importance of oral health for the general health.^[5,7,8] Moreover, it has been indicated that oral health care has not been a sufficient part of the training of nursing students, and that the literature used was outdated, resulting in oral health care not being carried out on the basis of the newest available evidence.^[9]

Oral health knowledge is considered to be an essential prerequisite for health-related behaviour and attitude,^[10] and studies have shown an association between increased knowledge and better oral care.^[11]

Since nursing students after graduation are specialised in nursing care, preventive information, and health promotion, it is important that their own oral health knowledge is good, and that their oral health behaviour and attitude conform to professional recommendations. With proper behaviour, knowledge, and attitude, they can play an informant role in health education and act as role models for patients.^[12,13] Unfortunately, studies on oral health and nursing students are limited, and it was therefore the aim of this study to determine oral health behaviour, knowledge, and attitude among a cohort of nursing students.

2. METHODS

A cross-sectional questionnaire-based study was conducted to investigate the oral health behaviour, knowledge, and attitude among Danish nursing students at Education of Nurses, VIA University College, Aarhus, Denmark.

2.1 Instrument development

A self-administered questionnaire was developed based upon a review of the relevant research literature. The students were asked questions regarding their oral care habits and self-perceived oral health, using a questionnaire from the oral health study of the Danish Health Examination Survey. Other questions were developed based on previously validated surveys^[1,14] with minor modifications, and still other questions were composed by the authors. The questionnaire consisted of 22 questions that were divided in four parts:

- (1) Background: Gender and age.
- (2) Oral health behaviour: Last dental visit, purpose of dental visit, experience of oral pain, description of teeth and gums, tooth brushing frequency, supplements to tooth brushing.
- (3) Oral health knowledge: Role and cause of plaque, caries, gingivitis, and periodontitis. Role of tooth brushing. Role of fluoride in toothpaste.
- (4) Oral health attitude: Training in oral health and oral health as part of nursing care.

With respect to the questions regarding oral health knowledge and attitude, the response format included three to five multiple-choice questions, and the students were instructed to choose only one response from the provided list of options. The students received a full explanation of how to fill in the questionnaire in a standardised manner.

The questionnaire was distributed electronically to the college email addresses of all senior students during spring of 2016. One week after the questionnaire, a reminder email was sent to those students who had not yet completed the questionnaire. This was repeated the following week after which the questionnaire was closed.

2.2 Pilot study

In order to eliminate misunderstandings in the questionnaire and to ensure that important details would not be missed, a pilot study was conducted, including eight students who were randomly selected by one of the authors. The pilot participants found the language and questions understandable. One minor correction was made to the questionnaire. Data from the pilot study were not included in the final analysis.

2.3 Ethical considerations

An official permission was obtained from the Director of the University College prior to the study. No formal approval was required from the Central Denmark Region Committees on Health Research Ethics due to the non-biomedical character of the study. All participating students received written information regarding the aim of the study and its voluntary nature. Return of a completed questionnaire was considered as consent to participate. The study was performed according to the Declaration of Helsinki.

2.4 Data analysis

Because of the characteristics of the study, this study was exploratory, and no formal hypothesis or prespecified sample size was propounded. Descriptive statistics were used to identify behaviour, knowledge, and attitude among the nursing students. Data were expressed as numbers and percentages, and the statistical analyses were performed by the computer software programme Microsoft Office Excel 2007.

3. RESULTS

The questionnaire was sent to 126 nursing students, of whom 100 returned a completed questionnaire, yielding a response rate of 79%. A majority of the respondents were females (93%), and the mean age was 26 years, ranging from 22-50 years.

3.1 Oral health behaviour

Most of the students (89%) brushed their teeth twice daily. A quarter of the students supplemented their daily brushing with other oral hygiene products such as dental floss, toothpicks or mouth rinse. More than half of the students (55%) visited a dentist at least once a year, and only 1% of the students had not seen a dentist for the last five years. The students stated regular dental check-up (76%) as the most common reason for the last dental visit, followed by visits due to toothache and oral pain (17%) or visits due to treatment (7%).

About 23% of the students described their teeth and gingiva as extremely good, 57% described them as very good, 15% described them as fairly good, and only 5% described them as bad or very bad. However, 46% of the students indicated that they had experienced toothache and/or oral pain within the last year.

3.2 Oral health knowledge

Almost all the students (90%) knew that plaque was film of bacteria that forms on teeth, and 99% of the students answered that the reason for brushing teeth was to remove such plaque bacteria. The overall knowledge concerning caries was high. 97% of the students reported that caries was dental decay, and 96% of the students answered that sugar and plaque causes caries. In addition, 81% of the students stated

that the purpose of fluoride toothpaste was to prevent caries (see Table 1).

Table 1. Questions related to oral health knowledge

Questions	Percentage of correct answers
What is dental plaque?	90
What is caries?	97
What causes caries?	96
What is gingivitis?	65
What causes gingivitis?	56
What is periodontitis?	73
What causes periodontitis?	28
What is the reason for brushing teeth?	99
What is the purpose of fluorides?	81

More than half of the students (65%) knew that gingivitis was inflammation of the gums, and 56% of the students knew that the most common cause of gingivitis is poor oral hygiene that allows plaque to form. 73% of the students knew that periodontitis was inflammation of the tissue that surrounds and supports the teeth, but only 28% knew that plaque bacteria was the major cause of periodontitis (see Table 1).

3.3 Oral health attitude

Nearly all the students (97%) stated that oral health and care was an important part of nursing care, and 87% of the students answered that maintaining oral health was as important as maintaining good general health (see Figure 1).

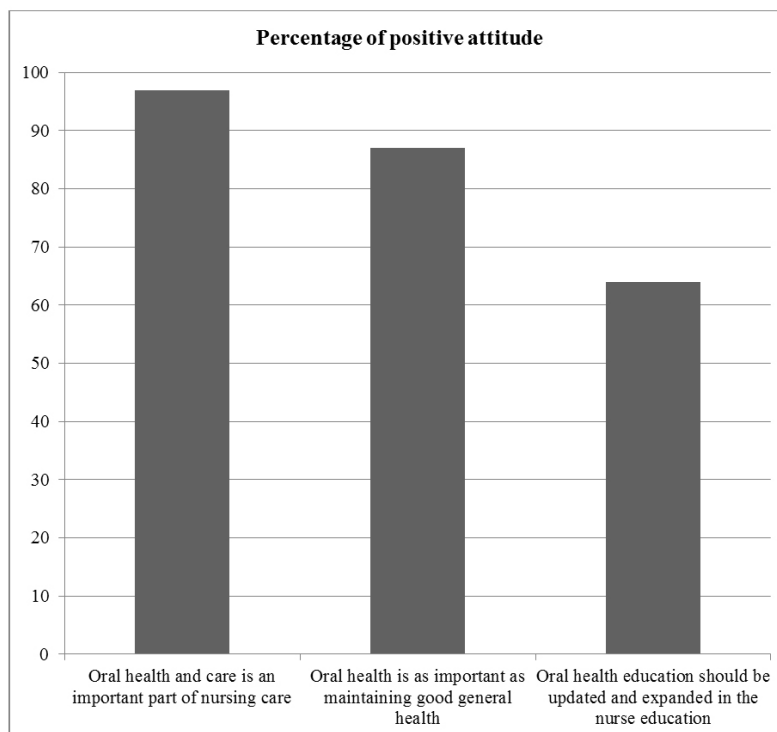


Figure 1. Positive attitude toward oral health care and willingness among nursing students to educate themselves further

The students were asked about the extent of oral health training in the nurse education. The students stated that they had learned the following: how to perform oral hygiene (90%), the importance of oral hygiene (84%), and oral diseases and their importance for the general health (43%).

Over half of the students (64%) thought that the oral health training should be updated and expanded in the nursing education (see Figure 1).

4. DISCUSSION

This study was conducted to investigate the oral health behaviour, knowledge, and attitude among Danish nursing students. The study showed that the students had good oral health behaviour with respect to tooth brushing. Thus, nearly 90% of the students brushed their teeth twice a day. This is in accordance with the general Danish population as shown in the oral health study of the Danish Examination Survey.^[1] However, it is evident from the study that the use of supplements to tooth brushing on a daily basis is still not very popular among the students. This is consistent with a study of dental, medical, nursing, and pharmacy students^[15] and might be attributed to a lack of oral health knowledge and/or the cost of supplements.

Almost all of the students described their teeth and gingiva as extremely or very good. However, it was surprising that 46% of the students had experienced toothaches and/or oral pain within the last year. It may be due to the fact that wisdom teeth or third molars are often erupting and thus causing problems to a varying degree within the age group of the student sample. On the other hand, results might have been different if more detailed questions on dental and oral pain were asked.

The overall knowledge about caries and its cause and prevention was good among the students. However, the students' knowledge about periodontal diseases such as gingivitis and periodontitis was insufficient. This was surprising considering the academic levels of the students, but it is consistent with other studies.^[16] It might be explained by the fact that the students do not study periodontology during their training. Periodontal disease is by far the most common oral disease in adults.^[17] It has been suggested that over 50% of the European and American population suffer from some form of periodontal disease, with prevalence increasing to 70%-85% among the population group aged 60-65 years.^[18,19] There is a perception that oral health may be deteriorating within the overall population during the next decades. This is principally due to a larger number of people retaining some of their teeth into old age and an increase in the prevalence of systemic diseases which impact on the oral health.^[18] The

lack of knowledge about periodontal diseases makes the students incapable of providing the appropriate care in the form of early detection and prevention of oral diseases.

In this study, a majority of the students considered oral health as an important part of nursing care and important for the general health. These results agree with other studies which examined the attitude of oral health among nurses.^[20] This positive attitude toward oral health was reflected in a majority of the students wishing oral health training to be updated and expanded in the nursing education. Several studies have reported that nurses have high levels of interest in updating themselves on oral health and care.^[8] However, little time is devoted to oral health and disease topics in the training of non-oral health professionals^[21] such as nursing students. By providing oral health education programmes, more nursing students and nurses can improve the oral health of patients in their care. Nurses make up the largest proportion of health care professionals and encounter far more patients who need oral care than oral health care professional.^[22] Therefore, it is essential that nurses have sufficient knowledge about oral health in order that they may make appropriate referrals and interventions. Collaboration between oral health care professionals and general health care professionals could raise awareness of the importance of oral health for the general health. In addition, educational institutions should play an active role in creating interdisciplinary opportunities where dental, medical, and nursing students may develop knowledge about oral health.

The cross-sectional design of this study was a cost-efficient and ideal way to collect data on oral health behaviour, knowledge, and attitude among nursing students. However, there are limitations to this study. Almost all the respondents in the study were female which is not surprising since in Denmark, the majority of nursing professionals are females. Thus, some of the findings may be explained by the large female study sample since women tend to be more positive about oral health and care than men.^[23]

For logistics reasons this study was designed as a single-centre study with data collected from one University College. Thus, the results cannot be generalised. However, many of the results were in accordance with those of similar studies involving students and nurses from different countries.

The use of self-administered questionnaires limits the conclusion. Questions regarding oral health behaviour were asked using a questionnaire from the oral health study of the Danish Examination Survey.^[1] Questions on oral health knowledge and attitude were developed based on previously validated surveys.^[14] The questionnaire was short. This ensured a high response rate of 79% which served to maintain external

validity. Some of the questions required the students to recall things back in time, which might cause recall bias.^[24] Also, it cannot be excluded that the order and wording of the questions may have affected the students' responses which may in turn have resulted in interview bias or students providing socially acceptable responses.^[25] However, the questions have been validated and have been tested in previous studies which reduces the risk of interview bias.^[1]

The questionnaire design with multiple-choice answers may have given the participants a chance to guess the correct answer. To address the students' behaviour, knowledge, and attitude it might thus have been better with more open-ended questions. On the other hand, using a method with open-ended questions might have resulted in a lower response rate.^[26]

Despite the exploratory nature of our study, we do believe that its results will add useful information to the sparse knowledge about nursing students' oral health behaviour, knowl-

edge, and attitude. We hope that the results of the study may motivate further studies within this field and be helpful in planning oral health training, targeting nursing students or other health care professionals.

5. CONCLUSION

In conclusion, this study revealed that Danish nursing students have good oral health behaviour. In some areas, the students had adequate oral health knowledge, while the knowledge about especially periodontal disease was insufficient. Thus, further training in oral health seems to be needed. The majority of the students had a positive attitude toward oral health and wanted oral health training to be prioritised in the nursing education.

CONFLICTS OF INTEREST DISCLOSURE

The authors have no financial disclosures or conflicts of interests to declare.

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