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ORIGINAL ARTICLE

Geriatric oral health care content and barriers to its incorporation in undergraduate nursing curricula: New Zealand survey

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Abstract

Introduction: An increasingly older population demands major remodeling of our health care system. Older adults are most likely to be affected by the oral-systemic connection due to their impairment in functional capacity and reduced ability to undertake routine oral care. An economic way to improve oral health outcomes in older populations is by involving nurses and caregivers in ensuring the maintenance of oral health for older adults. This study aimed to investigate the present educational content relevant to the oral health of older adults, the oral-systemic connection, and assessment methods in New Zealand nursing education.

Methods: A cross-sectional survey was conducted among nursing educators to understand the extent of oral health care education. Quantitative descriptive data were analyzed using SPSS software and qualitative data were analyzed descriptively and presented as themes.

Results: The results indicated that the majority of oral health topics were already incorporated into nursing education, however most important topics such as risk factors associated with dental caries, periodontal health, and risk factors are not taught in almost 40% of the schools. The four themes identified in qualitative analyses are "no barrier", "lack of expertise", "no space for more content" and oral health content "already included".

Conclusion: Educators reported that oral health topics are already incorporated into New Zealand undergraduate nursing curricula. However, the quantity and quality of oral health content relevant to older adults need to be improved and updated to suit the current oral health care needs of the growing older population.

KEYWORDS
geriatric oral health, oral health care in nursing, oral health education, oral health in long-term care, oral-systemic connection

1 | INTRODUCTION

An increasingly older population demands major remodeling of our health care system. The strong association between oral health and general health is accepted and well described in the literature.[1–6]

As a result of this association, older adults are most likely to be affected by the oral-systemic connection due to their impairment in functional capacity and reduced ability to undertake routine oral care,[7] against a backdrop of increased systemic conditions affecting oral health.

In New Zealand, the older population does not receive any funding for oral health care and there are no organized oral health services available for older people at residential centers or long-term hospital facilities.[8] A recent national survey in New Zealand identified increased treatment needs among older people, especially in highly dependent older adults.[9] In 2016, Kelsen and Thomson examined written oral health care policies in randomly selected care facilities in New Zealand. One hundred and thirty-nine care facility managers and nurses participated in the study, and it was found that only 36% of care facilities had a written, oral care plan for residents and only 11% had a baseline oral examination at admission. A qualitative study was conducted by Stephenson, Sweetapple, and Thomson among clinical managers, often nurses, and nursing staff who all held a Bachelor of Nursing degree or an equivalent qualification.[10] The participants had very minimal knowledge of dental caries and had never received any information regarding periodontal disease, the benefits of fluoride, and oral-systemic health relationships. The authors concluded that poor oral health care knowledge among nurses and managers was due to a lack of oral health care education in nursing education. Hence, a strategic way to improve and maintain good oral health in older populations would be if nurses and/or carers were involved in ensuring the maintenance of oral health for older adults.[11] The New Zealand Dental Association has been conducting workshops for carers in rest homes on oral health care, which is funded by the Ministry of Health. In fact, only 10% of carers received this service due to a lack of funding.[12] In addition to providing training to the current staff at residential centers, providing oral health education to the current nursing students would be ideal and the most economical option. The quantity and quality of oral health care content in current nursing curricula have been poorly investigated to date. Hein et al.[13] investigated the oral health content in non-dental undergraduate health programs in an international survey and only one New Zealand institute participated in that study. The evidence reported in that study was not helpful in assessing the current situation. To understand the extent of oral health care education needed for nursing curricula, as a first step, the current level of oral health care education provided should be investigated to provide baseline data. This current study aimed to investigate the present educational content relevant to the oral health of older adults, the oral-systemic connection, and assessment methods in New Zealand nursing education. In addition, barriers to incorporating oral health care education in nursing curricula were also investigated.

2 | METHODS

A descriptive cross-sectional design was used to assess the level of oral health education curricula in nursing programs in New Zealand. Ethical approval, for this study, was received from the Human Ethics Committee, University of Otago (D19/264).

2.1 | Sample and sampling procedure

In New Zealand, there are 18 nursing schools offering undergraduate nursing programs on 22 sites; in addition, seven of the 18 schools offer the New Zealand Diploma in enrolled nursing. The Nursing Council of New Zealand (NCNZ) in partnership with the New Zealand Qualification Authority and the Council for University Academic Programmes aims to align and provide accreditation for these programs.

In the current study, a purposive sample selection was used to collect data to answer the research question. Hence, all undergraduate schools of nursing accredited by the NCNZ were selected for the study, and the program manager or Head of the School (purposive sampling) was asked to complete a self-administered questionnaire. The contact details of the participants were obtained from the institute's website; they were contacted through email and invited to participate in the study. As the total population size was small, a total population sampling method was used.

2.2 | Sampling procedures to increase the response rate

The study population was those who represent small proportions of the general population. These are generally busy individuals, making it hard for outsiders to reach. This population cannot, therefore, be recruited using a standard method such as random sampling, snowball sampling, or location sampling. Hence, in the current study, a respondent-driven sampling method was used. In this method, an eligible respondent helped to gain entry into the network and helped to recruit members of the population.[14] In the current study, one of the members of the research team was the current Head of one of the schools of nursing for one of the institutes, included in the study, and the other participants received the survey package from the eligible respondent to further increase response rates.

2.3 | Sampling procedure to increase the completion rate

While the idea of respondent-driven sampling is to reach hard-to-reach participants, matrix sampling is another modern sampling method[14] implemented in this study to improve the response rate and encourage participants to complete the questionnaire. An incomplete questionnaire would reduce the internal and external validity of the results as the sample size was extremely small. The questionnaire was split into three sections and the Program Manager and/or Heads of school were given an option to seek assistance from two eligible assistants to complete the questionnaire (examples include lecturer, course coordinator, program leader, and program manager).

2.4 | Instrumentation

The geriatric content used in Dolce et al. study[15] was slightly modified to suit New Zealand nursing institutes and the current study aim. Permission to use the questionnaire in our study was obtained from the study authors. The survey questions included the extent of curriculum integration related to items such as hours and days of oral health education, presence of dental or non-dental professionals in oral health teaching, the source for oral health education resources, curriculum components, barriers to inclusion of oral health curriculum, attitudes toward the integration of oral health and demographic questions regarding the location of the institute, type of the institute, number of nursing students trained per year, size of the community (location), and position of the participant within the institute. Content validity was established by reviewing the questionnaire with interprofessional educators at the University of Otago, including prosthodontic academic staff and oral health education coordinators in the Faculty of Dentistry, as well as course coordinators at the Otago Polytechnic and Supervising Committee.

2.5 | Ethical considerations

Ethical approval was received from the Human Ethics Committee, University of Otago. Māori consultation was also undertaken before data collection. Some of the individual nursing institutes required internal ethical approval prior to participation.

The survey was anonymous rather than confidential as the participants' details were not collected. The survey responses were coded and any identifying information such as location has not been included in the analysis.

1. The survey was sent with an information sheet and consent form. The participants were notified that their participation was voluntary and that they could be withdrawn from the study at any stage.
2. Every Head of school at a New Zealand nursing institute or a representative such as course coordinators or program directors chosen by the Head of school was eligible to participate in the study. Incomplete questionnaires (missing more than 75%) were removed from the study.

2.6 | Data analysis

Data were transferred to the Statistical Package for Social Studies (SPSS-IBM version 26, IBM Corp. in Armonk, NY, USA) spreadsheet and analyzed. A response rate of 68% coupled with a survey design that included a qualitative component will be presented descriptively.

3 | RESULTS

3.1 | Survey profile

Out of 18 institutes, 14 institutes participated in the study providing a response rate of 78%, and of the 14 responses, two had 80% of the survey unanswered, which resulted in 12 useful responses. The survey used a matrix sampling procedure and about 65% of Heads of schools in this project sought help from course coordinators, program directors, academic program managers, and senior lecturers to complete the survey. There was a good representative sample of institutes that had either a Diploma or Bachelor or both

TABLE 1 Demographic details

	Frequency	Percentage
Type of institute		
Polytechnic	10	83.3
University	2	16.7
Qualification		
Bachelor	4	33.3
Diploma	2	16.6
Diploma and bachelor	6	50.0
Number of diploma students		
No diploma offered (Diploma started only after 2010 in all six institutes)	6	50.0
<50	3	25.0
50–100	3	25.0
Number of bachelor students		
No bachelors offered	1	8.3
>500	3	25.0
250–500	3	25.0
100–250	5	42.0
Total	12	100%

programs. Table 1 shows the demographic details of survey participants.

3.2 | Topics related to the oral health of the older population

The oral health topics currently taught in nursing programs surveyed are reported in Table 2. Medical conditions that impact oral health and the impact of medications on oral health were taught in a majority of institutes (>80%). A third 33% ($n = 4$) and 41.7% ($n = 5$) of the participants indicated not teaching caries and periodontal conditions and their risk factors to general health. Half of the participants indicated not teaching dental examination and oral hygiene procedures within their curricula. Almost 30% of institutes reported not teaching oral health intervention methods and the use of fluoride rinses and toothpaste. Denture care and oral conditions that impact overall health were taught in all institutes except one; however, care for crowns and implants were not taught in 83.3% ($n = 10$) institutes.

3.3 | Oral health teaching practices

The participants were asked about the methods, resources, and setting for teaching oral health care content (Table 3). The participants ($n = 5$; 41.7%) indicated only nurses teach oral health topics in their institutes, and 75% of participants indicated sourcing oral health topic materials from nursing textbooks.

Almost 70% of participants indicated that less than 5 h were devoted to oral health care educational teaching throughout the entire program. Fifty-eight percent ($n = 7$) of participants indicated they used direct observation in a clinical setting to assess the oral health skills of students; however, three institutes (25%) heads reported not assessing the oral health care skills of nursing students.

3.4 | Barriers to teaching oral health care topics in the nursing curriculum

Barriers to the integration of geriatric oral health care education into the nursing curriculum were also investigated and these are summarised in Table 4. About 33% indicated that there were no nursing accreditation standards that specifically addressed oral health. The participants provided feedback on perceived barriers and gave their perspectives on incorporating oral health education.

The open comments were analyzed, which generated themes that are discussed with examples as follows:

3.4.1 | No barriers

At least three participants indicated that there were no barriers to including oral health care education and, they thought it is a priority area for nursing education.

Examples

> "No barriers to report".

> "No barriers. Can add oral health topics".

3.4.2 | Already included

Some participants emphasized that the curriculum already included oral health care and there was no need to include more.

Examples

> "Peppered throughout the curriculum".

> "None of these are applicable as the general information is taught".

> "There would be minimal teaching of this as a separate topic and it would be incorporated into holistic nursing care."

TABLE 2 Oral health topics covered in the undergraduate nursing curriculum

	No		Yes	
	n	%	*n*	%
Oral health topics covered in the curriculum				
Caries/cavity risks and causes	4	33.3	8	66.6
Periodontal conditions/risk factors	5	41.7	7	58.3
Oral conditions that impact overall health (e.g., gum disease)	3	25.0	9	75.0
Medical conditions that impact overall health (e.g., diabetes, stroke)	1	8.3	11	91.7
Impact of medications on oral health	2	16.6	10	83.3
Urgent/emergency oral issues	8	66.6	4	33.3
Oral cancer	6	50.0	6	50.0
Assessment of the impact of oral health on a patient's quality of life	2	16.6	10	83.3
Oral hygiene topics				
Dental screening examination	6	50.0	6	50.0
Prevention intervention	4	33.33	8	66.66
Use of fluoride toothpaste, rinses, etc.	4	33.33	8	66.66
Brushing and flossing techniques	6	50.0	6	50.0
Effect of carbohydrate/sugar on oral health	2	16.6	10	83.4
Oral disease prevention topics in the curriculum				
Oral disease prevention	3	25.0	9	75.0
Smoking cessation	0	-	12	100
Oral hygiene instruction (e.g., brushing/flossing)	2	16.6	10	83.4
Topics on older person oral health/prosthesis issues covered in your curriculum?				
Cause of root caries	10	83.3	2	16.7
Denture care	1	8.3	11	91.7
Implant/crown and bridge care	10	83.3	2	16.7
Oral lesions such as lichen planus, mouth ulcer, and oral cancer	7	58.3	5	41.7
Effect of radiotherapy on oral health	4	33.3	8	66.7

3.4.3 | No space for more content

Another common theme that emerged was a lack of time or space for incorporating oral health care content into the nursing curriculum. In addition, participants thought it is not necessary for undergraduate programs.

Examples

> "UG programs are content heavy".
>
> "We are looking at reducing the content in the nursing curriculum".
>
> "Not important for graduate entry students".

3.4.4 | Lack of expertise

Another important theme identified was a lack of expertise to teach oral health care content.

Example

> "Very broad topic area and our only expertise is from a nursing perspective".

4 | DISCUSSION

The survey was conducted to understand the level of oral health care content currently incorporated into undergraduate nursing education in New Zealand.

The results indicated that the majority of oral health topics were already incorporated into nursing education. However, most important topics such as risk factors associated with dental caries, periodontal health, and risk factors were not taught in almost 40% of the schools that participated. Thomson[16] suggested that the number of edentulous 65–74-year-olds in New Zealand will fall from 314,365 in 2011 to 76,300 in 2031, hence, the majority of baby boomers and older adults entering the residential

TABLE 3 Oral health care teaching practices in the undergraduate nursing curriculum

	n	%
Who teaches oral health topics in your school?		
Nurses	5	41.7
Nurses, dentists, oral hygienists, and oral therapists	2	16.7
Nurses, oral hygienists, and oral therapists	2	16.7
Nurses and oral health promoters	3	25.0
In which of the following setting(s) is oral health education taught?		
Both classroom and clinical/practical	11	66.7
Classroom	1	8.3
Resource materials sourced to teach students about oral health		
Nursing journals	12	100
Dental journals	5	41.0
Medical journals	6	50.0
Internet site	5	41.0
Nursing textbook	9	75.0
Personal communication	4	33.33
Nurses working in aged residential care, registered dental technicians, school and primary health dental clinic staff, and public health nurses.		
Assessment methods used to test oral health skills		
Written examination/MCQ	3	25.0
Objective structural clinical examination	-	-
Assignments	1	8.3
Case-studies	-	-
Faculty supervised patient care	4	33.33
Direct observation in a clinical setting	7	58.0
Simulation exercise	5	41.0
We do not assess specifically	3	25.0
Number of hours devoted to oral health care teaching		
Less than 5 h	8	66.6
5–10	2	8.3
>10	2	16.1

TABLE 4 Barriers preventing you from teaching oral health care topics

	n	%
Insufficient time in the curriculum	3	8.3
No faculty expertise in this topic area	0	-
Don't see this as a priority area	1	8.3
No national nursing core competencies in oral health	3	8.3
No nursing accreditation standards addressing oral health	4	33.3
Others*	8	66.6

home will have more teeth with complex treatments such as implants, crowns, and bridges rather than dentures. In addition, Kahana and Kahana[17] suggested that baby boomers who have exposure to technology and modern health care services would have higher expectations with respect to the standard of care. Furthermore, baby boomers tend to retire early, live longer and suffer from financial difficulties when they are older adults, which prevents them from significant spending on oral care.[18] It is therefore recommended that nurses learn about oral health management and prevention strategies for patients with sophisticated dental treatments as the number of patients in this group will grow substantially over the coming years. Because of this, learning about denture care alone, as reported in the current study, would not be enough to care for older adults anymore, and it is therefore suggested that a curriculum review to include geriatric oral health care education is recommended to improve the oral health outcome of older people.

In general, the results indicated that nurses are used to teaching oral health care topics to students and that the

majority of them reported using nursing textbooks and nursing journals as resources for oral health care content. The content analysis study conducted by Jablonski[19] indicated that nursing textbooks had only 0.6% of content devoted to oral health and that too was outdated information. It is suggested, therefore, that using nursing textbooks or journals would not be ideal for teaching oral health care content to nursing students. The New Zealand Dental Association could initiate an oral health program similar to "Smile for life"[20] and "Nurse practitioners and dentist model"[21] initiated in the US to provide resources for nurses to integrate oral health care into nursing practice. These will provide up-to-date teaching material.

There are various barriers identified in the study to incorporating oral health care in nursing practice, such as an overloaded curriculum; lack of core competencies and accreditation standards; lack of time and expertise. These results were in agreement with Ahmad et al.'s[11] study, in which overloaded curriculum and time are considered major barriers to oral health care modules being incorporated into nursing curriculums in Australia and Malaysia. A considerable number of participants contended that oral health care content was already included in the curriculum and there was no need for a further increase as they were already looking to reduce the overloaded curriculum. Ten years ago a similar study was conducted to incorporate gerontology general health content into nursing curricula, and 65% of participants reported that "the curriculum was already overloaded".[22] This result suggests that incorporating geriatric oral health care content would not be straightforward, and a greater review of the nursing curriculum would be needed. This process could be supported by dental academicians and the New Zealand Dental Association to contribute to oral health education without further overloading the nursing curriculum.

A major assumption in the current study was that the Heads of schools, course coordinators, or program directors were familiar with their curriculum content. As indicated, if oral health care content was spread throughout nursing education, it could be difficult for them to report the quantity and quality of oral health care content in a short survey such as the one used in this study. Hence, before recommending a curriculum review, further understanding of the nursing graduates' knowledge and perspectives on geriatric oral health care would be necessary.

5 | CONCLUSION

Oral health topics are already incorporated into New Zealand undergraduate nursing curricula for the undergraduate schools that responded to this study. However, the quantity and quality of geriatric oral health content need to be improved and updated to suit current oral health care needs for the growing older adult population. A formal review needs to be initiated to review the oral health care content in New Zealand nursing curricula to develop clearly formulated oral health care content competencies and national accreditation standards for oral health care content for nursing.

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