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ORAL HEALTH EDUCATION IN THE UNDERGRADUATE NURSING CURRICULUM OF AUSTRALIAN AND MALAYSIAN INSTITUTIONS

ABSTRACT

A high degree of training is necessary to prepare student nurses for their roles as oral health care partners that can promote a holistic approach to health in the community. This study aims to determine the extent of oral health education in Australian and Malaysian nursing institutions, as well as investigate educators' perceptions of education and practice in this area of care. **Methodology**: An audio-recorded, semi-structured qualitative phone interview was conducted with the heads of 42 nursing schools across Australia (*n*=35) and Malaysia (*n*=7) during the 2015 academic year. Qualitative data were analysed via thematic analysis. Quantitative data, wherever appropriate, were measured for frequencies. **Results:** The response rate was 34.2% (*n* = 12) and 71.4% (*n* = 5) for the Australian and Malaysian subjects, respectively. Findings revealed that although all the nursing schools measured provided didactic and clinical training in oral health, curriculum content, expected learning outcomes, amount of clinical exposure, and assessment approach lacked consistency. Most nursing educators across both countries perceived an overloaded curriculum as a barrier to providing oral health education. Whilst educators demonstrated their support for training in this area of care, they expressed the need for an established national guideline that highlights the educational requirement for future nurses in oral health maintenance and their scope of practice. **Conclusion:** This study provides valuable information for further developing oral health education for nurses, to improve their competency and ultimately the health of the communities that they will serve.

Keywords: nursing, dental education, teaching, learning, curriculum

Introduction

Poor oral conditions are associated with poor overall systemic health and general wellbeing (1). Impairment resulting from systemic illness and its co-morbidities may also affect an individual's functional capacity to undertake efficient oral hygiene care, resulting in increased risk of developing oral complications (2). Owing to the synergistic relationship between oral and systemic health, a comprehensive approach to patient care demands multidisciplinary intervention in oral health maintenance.

Occupying a strategic position that affords them wide access to patient care, nurses play a vital role in ensuring the maintenance of oral health, which is an essential component of systemic health and general wellbeing (3). Evidence supports that intervention from nurses in oral health care results in improved treatment outcomes and quality of life, particularly among patients with special health care needs (4).

Training students in this area of patient care is vital to producing a population of nurses who are empowered to make the most of their role in oral health maintenance. The extent of teaching and learning in oral health care, therefore, needs to be reviewed and updated to ensure its adequacy, effectiveness and relevance to current needs, demands, and standards of practice. This study aims to investigate the educational content, teaching conduct and assessment methods pertaining to oral health-related areas in the undergraduate nursing curriculum in Australian and Malaysian institutions. It also aims to explore nursing educators' perceptions of education and practice in this area of patient care.

Materials and Methods

This is a qualitative study, conducted via a semi-structured phone interview with the heads of Australian and Malaysian nursing schools, followed by descriptive and thematic data analysis.

Ethical approval was granted by the Human Research Ethics Committee of the University of Melbourne (Australia) (HREC ID: 1136596), and by the Research Ethics Committee of Universiti Teknologi MARA (Malaysia) (Ref. No: 600-RMI [5/1/6]).

Participants

Participants were the heads of nursing schools across Australia (n=35) and Malaysia (n=7). In Australia, 35 institutions offered an undergraduate program in nursing (5). Four of these institutions were members of the Group of Eight (Go8) universities, a coalition of highly regarded research-led institutions in Australia (6), and seven Australian nursing schools had a dental institution within the same university (5). In Malaysia, seven public nursing schools offered an undergraduate nursing program, five of which had a dental school within the same university (7). In terms of program establishment, five of these institutions had been providing undergraduate nursing courses for 10 years or more (7).

Materials

A semi-structured questionnaire was developed based on the existing literature (8-10). The questionnaire contained open- and closed-ended questions (Table 1) divided into the following sections: 1) sociodemographic characteristics; 2) oral health teaching; and 3) perceptions of oral health education.

Teaching oral health

This section consisted of questions relating to didactic and clinical training in oral health, as a module or as an integrated component of other subjects or areas of practice. It explored the teaching methodologies adopted, the amount of time allocated for such teaching, training sites utilised to deliver clinical teaching, as well as the approach to evaluating students' knowledge and competency. A list of oral health-related learning areas guided the interview process.

Perceptions of oral health education

This section consisted of questions relating to nursing educators' perception of oral health education in the nursing curriculum, including its importance and barriers to implementation.

The questionnaire was submitted to Australian and Malaysian senior academics for an assessment of face validity. The modifications suggested were applied to the questionnaire before being utilised in the main survey.

Procedure

Administration and data collection

The heads of nursing schools across Australia (n=35) and Malaysia (n=7) were contacted via email to invite them to participate in the study. A 'plain language statement' attached to the email to all participants outlined the objectives of the study as well as issues regarding confidentiality and consent. Those who did not respond to the first email were contacted again four weeks later, with a final reminder eight weeks from the initial email. Malaysian respondents were additionally supplied with a 'subject information sheet', and those who agreed to participate in the study were asked to complete a consent form. On average, interviews took around 60 minutes; with participant consent, they were audio-recorded for later analysis. The interview was conducted in the researcher's office, using a university telephone connected to a recording device. Participants were asked to respond based on teaching performed during the 2015 academic year.

A phone interview was selected over a paper-based or online survey given evidence that interviews are associated with greater rapport between researchers and subjects, strengthened professional relationships through direct contact, greater participant interest in the research topic, and increased opportunity to obtain in-depth information that may be missed in a paper or online form (11). In this study, phone rather than face-to-face interviews were conducted for logistical and financial reasons, as respondents were situated across two countries.

Data analysis

Following the interview session, a verbatim transcription of the audio-recorded conversation was produced. Answers to open- and closed-ended questions were reconciled for thematic analysis via coding and identification of emerging themes. The coding process

was validated by comparing codes identified by co-investigators (n=2). Qualitative data, wherever appropriate, was measured for frequencies for comparative purposes.

Results

Demographic characteristics

The response rate was 34.2% (*n* = 12) and 71.4% (*n* = 5) amongst Australian and Malaysian nursing schools, respectively. Table 2 presents the numbers of participating nursing schools. Australian institutions who were members of the Group of Eight Universities (Go8) (6) and Malaysian universities with nursing programs active for more than 10 years were classified as 'established'.

Teaching oral health

No nursing school in Australia or Malaysia offered a specific module in oral health. Instead, schools reported that aspects of oral health were embedded into the didactic and clinical components of teaching throughout their nursing programs. Three (25%) Australian respondents indicated specific learning outcomes that highlighted components of oral health within the curriculum. In contrast, other respondents from both countries reported only general learning outcomes without specific reference to oral health care. In both countries, basic skills in oral hygiene care were taught primarily in the first year, in which students developed foundational nursing skills. Such knowledge and competency would be applied during their practicum period in which students were posted to various facilities. Students also learnt other topics related to oral health, which were integrated into the undergraduate curriculum in its entirety (Figure 1).

Teaching content & methodology

Table 3 presents the various teaching methodologies associated with integrated oral health content. Almost all respondents in both countries cited that the teaching sessions were conducted by academic staff or practitioners from the nursing department, rather than a professional in dentistry, regardless of having a co-existing dental school within

the same university. However, one Australian nursing school reported having a dentist to deliver a two-hour lecture on general oral health care.

Assessment approach

Nursing schools in both countries reported no specific requirement for students to demonstrate knowledge or competence in oral health. Nevertheless, aspects of oral health, as components of the overall context of nursing care, could be evaluated by means of a formative or summative assessment in the context that it was deemed vital to the nursing care in a given scenario. Table 4 presents the assessments used to evaluate students' oral health knowledge and skills.

Perceptions of oral health education in the nursing curriculum

All Australian and Malaysian nursing educators agreed that oral health should be taught to nursing students. However, two (16.7%) Australian universities reported that oral health education should be integrated into the context of professional nursing care rather than being addressed as specific learning units. On the other hand, two (40%) Malaysian respondents raised the importance of having a guideline to determine the level of knowledge and competency considered appropriate for nursing students to acquire in order to avoid interprofessional conflict while performing their roles and responsibilities in patient care.

"There is a need to teach, but we need to set a clear guideline on the depth that nursing students should know. Because we don't want them to do so much that It will affect other nursing aspects or interfere with dentists' roles".

- Malaysia educator 1

Nursing educators in both countries also expressed willingness to collaborate with dental schools for an improved quality of nursing education.

"I would just say that it's [the nursing curriculum] undergoing a lot of change. There's a bit of momentum around particularly when it comes to oral health, that it's being recognized a

lot more than it has in the past. And that there is a need for collaboration, certainly with the dental school… I think we're doing a reasonable job. We've got a long way to go".

- Australian educator 1

Calls from nursing educators for greater collaboration with the dental faculty included the introduction of an interprofessional education that incorporated elements of collaborative oral health care. It was further suggested that clinical posting in dentistry, which is currently not available in Malaysia, should be developed to introduce nursing students to such areas of patient care.

"One of the models that works incredibly well is the palliative care model. They [university interprofessional education team] provided online resources, so you could pull those resources and put them into individual courses, where you could pull that in a case base. I think with oral health and the disability - I've often done something like this".

- Australian educator 2

"I think I need to plan to send my students for dental posting… maybe for one week in the future. Nowadays, more and more of our nurses work in the dental side… meaning there's a demand for our nurses to be [employed] there".

- Malaysian educator 2

Barriers to providing oral health education for nursing students

Most Australian and Malaysian educators expressed concern over a currently congested curriculum. Inadequate resources and expertise were identified as further challenges to quality training.

"The program is already bursting. While I acknowledge that oral health education is very important, I also have to be aware that we have limited resources and clinical area for this… and we have to see the balance between time and availability of resources".

- Malaysian educator 3

Some respondents from both countries perceived oral health education as a low priority in the nursing curriculum. Malaysian respondents also noted that oral health competency was not highlighted as a guideline for standards in education and practice produced by the Malaysian Nursing Board.

A few Australian respondents reported a lack of awareness amongst teaching staff on the importance of oral hygiene care. In their estimation, this may be the result of reduced registered nurse involvement in assisting with personal health care. It was opined by one of the Australian respondents that registered nurses were experiencing a shift of roles into managerial and educational leadership, with tasks in personal hygiene care being transferred to nursing assistants or enrolled nurses.

Creating oral health awareness amongst teaching staff and championing for curriculum changes for greater focus on oral health care was also perceived as challenging.

"I wish there were more opportunities. I wish it wasn't so difficult to arrange and I wish it was valued more. But I do understand what other faculty members may think, as they know there are limitations and challenges. I need to appreciate their point of view as well".

- Australian educator 3

A respondent from Australia noted as a further obstacle to delivering oral health education being curriculum design that fails to provide every student with the opportunity to be trained equally in the various areas of practice. This is particularly evident during clinical training in which some students may not be exposed to oral health procedures or partake in oral health-related promotion activities.

Meanwhile, some nursing educators also cited the siloed nature of healthcare practice as a key barrier to providing oral health care. It was reported that nursing staff often were not involved with dental patients, rather they were often exclusively cared for by the dental team.

"Our nurses actually do not work in the dental clinic in the faculty of dentistry at all. Even if there's a patient with oral and maxillary surgery, let's say, and he's warded in the hospital, our nurses, which we train, do not actually look after that patient. I think the faculty of dentistry send their own nurses because in our nursing training, we do not have all the specific skills as a must-have to manage their [dental] patients".

- Malaysian educator 4

Another perceived barrier highlighted by Australian respondents was the geographical challenge, particularly for institutions with restricted access to dental education facilities.

"Don't forget our students are all over the country. They are not here in their classroom like everybody else. We have a totally different delivery system in our course, so we do a lot of work bringing people together for discussion groups and things like that".

- Australian educator 4

"Dental school? They're based in XXX. My students go to five different campuses. Not every student will be on the same campus as the dentistry students, and they're in a separate building quite far from the XXX campus. We do share the labs, but not at the same time".

- Australian educator 5

Other perceived barriers quoted by the Australian and Malaysian educators are depicted in Figure 2.

Discussion

This study was conducted in Australia and Malaysia, where there is a high incidence of patients with oral health conditions presenting at non-dental healthcare facilities (12). As a world leader in nursing education and services (13, 14), Australia has been held as a benchmark for Malaysia, a developing country, to emulate, by adopting initiatives aimed to achieve high standards of patient care.

Within the nursing profession, a registered nurse (RN) refers to a nurse with an undergraduate qualification (5, 15). The scope of practice of an RN involves assessing,

planning, implementing, and evaluating nursing care, including aspects relating to personal hygiene maintenance (15, 16). Nurses with an undergraduate qualification are also responsible for undertaking evidence-based provision and coordination of nursing care, within their scope of professional practice, through critical thinking process and application of scientific knowledge (15, 16). Nurses also contribute towards oral health promotion through participation in public health educational activities, as well as support for research activities and collaborative practice (15, 16). Other roles of an RN include providing training and mentorship to other health care workers involved with nursing care. With nurses acting as mentors, oral health educational activities designed for caregivers of people with special health care needs have resulted in enhanced knowledge, skills and positive attitudes amongst these individuals towards oral hygiene maintenance (17). Nurse intervention has also resulted in improved oral health status and quality of life for patients, especially those with special health care needs (18). Educating nurses in oral health is therefore an invaluable contribution to improving oral health care amongst colleagues within the health profession, patients and their caregivers as well as the community at large.

It was reported in this study that oral health education for undergraduate nursing students in Australia and Malaysia was integrated into the various areas of nursing practice. While it was difficult to accurately measure the number of teaching components related to oral health care, the integrative educational approach reported in both countries reflects a higher order of learning that thrives on the principle of the practical application of scientific knowledge (19). Students were also expected to undertake analytical thinking and evaluation of learning activities while addressing the different oral health care needs of various patients. As reported in this study, the training of nurses on multiple levels of the learning process prepares students to apply a myriad of skills when creating and implementing patients' healthcare plans, in accordance with various models of nursing care (20).

Although such an educational approach has its merits, the teaching and learning of oral health in the absence of learning objectives reported herein, may compromise the quality of training. Furthermore, students may be misguided by the level of knowledge and skills that a healthcare provider must possess to function effectively within their scope of practice.

Teaching quality was further compromised by a lack of structured assessment in some institutions. In the absence of assessment outcomes, the effectiveness of the teaching and learning methodologies could not be measured and any pedagogical deficiency could not be identified. Furthermore, inadequate attention to assessment outcomes may impact students' interest in and attitudes towards education and practice in this area. The lack of standardised learning objectives and assessment approach between institutions highlighted substantial inconsistency in oral health knowledge and competency both between graduates from within the same university and across institutions (21).

Pedagogical deficiencies detected in the current study may be related to the absence of specific requirements for the training and duty of care in oral health maintenance, imposed by the relevant bodies that regulate the standards of nursing education and practice in both countries (5, 15, 16). Such inadequacies may impact the ability of future nurses to play an effective role in collaborative oral health care. For example, the acquisition of knowledge and skills among nurses in oral health care is particularly important to meet the accreditation standards for residential aged care facilities in Australia, which seek to protect residents' rights to receive an optimal level of oral and dental care (Schedule 2, Part 2 [2.15] of the Quality and Care Principles 2014; Part 4.1, Division 54 [54-1], Aged Care Act 1997) (22, 23). Nursing home operators are also legally obligated to manage residents' oral and dental complaints by arranging for necessary referrals to oral health care professionals in a timely manner (Schedule 2, Part 2 [2.15] of the Quality and Care Principles 2014; Part 4.1, Division 54 [54-1], Aged Care Act 1997) (22, 23). Such requirements can only be met if nursing staff are adequately trained in maintaining oral health and recognising oral health issues.

Despite the legal requirements for nurses in Australia to be an efficient provider of oral health care, it was interesting to note the challenges perceived by nursing educators in this country to providing training in this area. Perhaps, it is time for healthcare facilities to strictly impose a structured delegation of roles between various categories of nursing personnel, developed in accordance to the National Competency Standards for the Registered Nurse by the Nursing and Midwifery Board of Australia (16). Moreover, demonstration of daily oral health care for patients provided by registered nurses to nursing

students undergoing training within the same institution, should be encouraged and introduced as a recommended model of 'best mentoring practice' in all facilities. As such, students will not be disadvantaged by lacking or having no exposure to oral health training, as cited by the Australian nursing educators in this study.

The support for increased oral health training from nursing educators in both countries demonstrates the important role of nurses in oral health care. In this regard, the formulation of proper guidelines concerning their duty of care would serve to highlight their roles and responsibilities as partners in oral health promotion and maintenance. In order to ensure high-quality professional care, a national workforce committee should be established to steer the development of training in oral health, keeping abreast of the global standards of nursing education and practice. Furthermore, liaison with dental counterparts should be established to ensure the effective delivery of educational content and conduct of clinical training and practice. Such training should be based upon scientific evidence, with well-defined learning objectives, structured clinical training and standardised assessment approaches. Involvement of dental counterparts in teaching and learning sessions, particularly during nursing students' clinical training in facilities in which dental personnel are involved in the provision of multidisciplinary care, would significantly add to their learning experience. Models of interprofessional oral health learning exercised in other countries may also be adopted to enhance integrated teaching in oral health related areas for nursing students in Australia and Malaysia (24-27).

Although comparable to previous studies in this field (9), the present study is limited by the low response rate amongst the Australian subjects. Despite this limitation, the current study was successful in capturing subject data that represented a wide array of demographic characteristics such as establishment status, presence of a dental school within the same institution, and geographical location. Besides, the qualitative nature of the study generated valuable in-depth data, sufficient to address the research objectives. Another limitation may relate to participation bias, with some responses being self-reported, rather than a formal review of the curriculum content.

The findings of our research provide useful information for relevant bodies and stakeholders seeking to enhance the quality of oral healthcare-related training for undergraduate nursing students in both countries. It is hoped that their educational experience would provide these future practitioners with adequate knowledge and skills in oral health maintenance, which are aimed at improving the quality of patient management and the standard of nursing care.

Conclusion

The results of this study reveal a lack of consistency in educational content, learning outcomes, amount of clinical exposure, and approach to assessment in training areas related to oral health care in Australian and Malaysian nursing schools. Whilst the current training protocol incorporated elements of oral health, a more structured curriculum design specific to oral health education is required in order to ascertain the competency of nursing graduates to undertake roles in this particular specialty. Accordingly, this study contributes valuable information that can enhance nursing education, such that it promotes the effective interventional abilities of nurses in a collaborative oral health care environment.

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TABLE 1

Table 1 Examples of open- and closed- ended questions

Open-ended questions	Closed-ended questions
• Is oral health taught in your nursing curriculum?	• In your nursing course, do you teach students about the effects of smoking on oral health? • In your nursing course, do you teach students about oral hygiene care for patients on mechanical ventilation?
• How is oral health taught to your students?	• In your nursing course, do you conduct workshops or hands-on training in performing oral hygiene care? • In your nursing course, do you conduct problem-based learning sessions? If yes, does the program incorporate oral health elements into the case scenario?

TABLE 2

Table 2 The number or participating nursing schools within the different categories (Established Australian nursing schools= members of the Group of 8 Universities; Established Malaysian nursing schools= institutions with nursing programs running for >10 years).

Country	Established nursing schools		Less established nursing schools	
	With co-existing dental school	Without co-existing dental school	With co-existing dental school	Without co-existing dental school
Australia	n=1	n=1	n=3	n=7
Malaysia	n=3	n=0	n=1	n=1

Note: n=number.

TABLE 3

Table 3. The conduct of teaching and learning in oral health

Teaching methodologies	Description
Lecture - Australia: *n* = 12 (100%); - Malaysia: *n* = 5 (100%)	Oral health care elements were integrated into different lectures that discussed the various aspects of nursing practice. Lectures were delivered by nursing academics. Afterwards, notes and recommended readings were uploaded onto the university's online learning platform. Mode: - Australia: Mixture of face-to-face and synchronous online distanced learning. - Malaysia: Face-to-face Length of session: - Australia: About 1 to 2 hours (cumulative) of lecture in oral health, with video demonstration. - Malaysia: Approximately 2 hours (cumulative)
Practical - Australia: *n* = 12 (100%); - Malaysia: *n* = 2 (40%)	Practical sessions were conducted in the laboratory using oral hygiene instruments and teaching aides. Students learned about tooth brushing, denture cleaning, mouth swabbing, performing basic oral screening and performing oral hygiene care on unconscious or mechanically ventilated patients. Mode: Hands-on practice on dental models, role-play and simulation activities. Length of session: 30 minutes to 1 hour (cumulative).

Problem-based learning (PBL) - Australia: *n* = 5 (41.7%); - Malaysia: *n* = 1 (20%)	PBL cases were prepared to discuss holistic patient management. Examples of cases with integrated oral health components included cancer, leukaemia, cerebrovascular accident, physical disability, congenital heart disease, prosthetic heart valves as well as those who are terminally ill and requiring mechanical ventilation.
Online learning - Australia: *n* = 9 (75%); - Malaysia: *n* = 1 (20%)	Online discussion forums between students and lecturers were conducted on a platform via the university learning management system (Malaysia, *n* = 1, 100%). Students also participated in self-directed learning by referring to an online educational package containing evidence-based oral health promotion resources, developed by the State government for nurses practicing within community settings, including aged care facilities, nursing homes and schools (Australia, *n* = 3, 25%). Some students participated in self-directed learning by referring to articles on general nursing care, with integrated oral health care components (Australia, *n* = 6, 50%).
Seminar/tutorial - Australia: *n* = 1 (8.3%)	Students attended seminars conducted during an annual 5-day intensive program to discuss various areas of nursing practice, with integrated oral health care elements.
Journal club - Australia: n=2 (16.7%)	Students took part in journal club sessions to discuss general nursing care, with integrated oral health components.

Research - Malaysia: n=5 (100%)	All nursing schools in Malaysia imposed a requirement for undergraduate students to undertake individual research projects in their area of interest. Two (40%) Malaysian respondents noted having a few students every year who conducted oral health-related studies. In Australia, students with a research interest may pursue an Honours degree in post-nursing studies.
Clinical training - Australia: *n* = 12 (100%); - Malaysia: *n* = 5 (100%)	In Australia, oral health education was provided during clinical training in a variety of clinical environments, including acute care, geriatric nursing and community health care settings. Other avenues that incorporated oral health training was during indigenous health placement (*n* = 2, 16.7%), intensive care/anaesthesia (*n* = 7, 58.3%) and emergency/trauma care (*n* = 10, 83.3%). In Malaysia, training in oral health was provided during clinical postings in: - Hospital nursing (4-8 weeks): students performed oral hygiene maintenance on patients with physical disabilities who are unable to undertake independent self-care. - Community nursing (4-8 weeks): students took part in oral health promotional activities during training in maternal and child health, primary care nursing, school health program and outreach nursing practice within patients' home, schools, residential aged care facilities, community-based rehabilitation centres and long-term care facilities for people with disabilities. - Public health (4-8 weeks): students organised oral health educational activities, including tooth brushing demonstration for children, oral hygiene advice to pregnant mothers and promotion of healthy diet and lifestyle to the public. Example of activities reported were the *Masyarakat Jaringan* ('Networking within the Society' in Malay) and *Akar Budi* ('The Root of Good Deeds' in Malay) programs. - Emergency and trauma care (*n* = 5, 100%).

TABLE 4

Table 4. Assessment approaches to evaluate students' knowledge and skills in oral health

Assessment methods	Oral health-related topics or areas
Formative:	
Logbook record	Performing oral hygiene and denture care; performing oral assessment; partaking in oral health promotion activities such as talk, toothbrushing demonstration and exhibition (Australia, n=1, 8.3%; Malaysia, n=1, 20%).
Summative:	
Practical examination	Performing oral hygiene procedure (Malaysia, n=1, 20%)
Written- multiple choice question	Oral health as part of general nursing care (Australia, n=2, 16.7%; Malaysia, n=1, 20%).
Written- long essay question	Questions about oral health are integrated into scenarios that require students to discuss the implications of oral health as part of comprehensive patient care (Australia, n=2, 16.7%; Malaysia, n=1, 20%)
Written- short answer question	Integrated in the holistic aspect of nursing care e.g. nursing care of bed-bound elderly patient (Australia, n=2, 16.7%).
Objective structural clinical examination	Performing oral examination (Australia, n=5, 41.7%; Malaysia, n=2, 40%). Performing oral hygiene and denture care (Malaysia, n=2, 40%).
Case study (i.e. assignment)	Students are to prepare case studies that discuss holistic patient management. Examples of cases with integrated oral health components included the care of patients undergoing oxygen therapy, tracheostomy or treatment using continuous positive airway pressure devices (Australia: n=8, 66.7%; Malaysia: n=5, 100%).

FIGURE 1

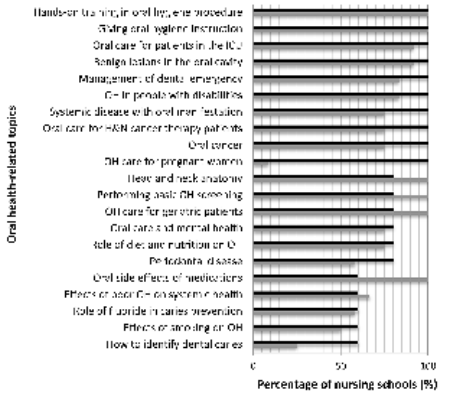

Figure 1. Training provided for undergraduate nursing students (Black Boxes = Malaysia, Grey boxes = Australia).

Note: ICU=intensive care unit; OH=oral health; H&N=head and neck.

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FIGURE 2

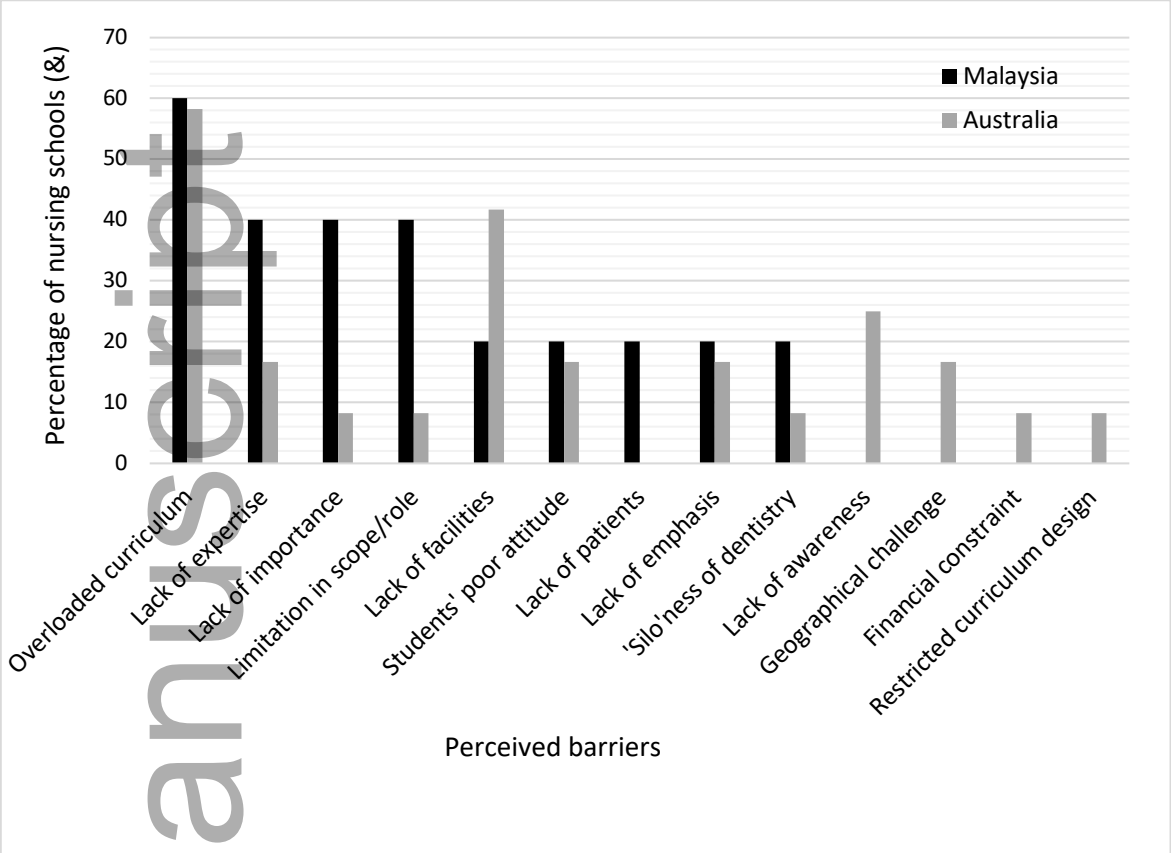

Figure 2. Perceived barriers in providing oral health education

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