Malaysian Dental Graduates' Competence in Holistic Care: What Do Graduates and Employers Think?

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Abstract: The purpose of this study was to explore the University of Malaya (UM) dental graduates' competence in holistic care in real settings from the employers' and graduates' perspectives. A self-administered questionnaire consisting of ten domains was sent to thirty senior dental officers of the Ministry of Health (MOH) and 164 UM graduates. In this article, nineteen major competencies that best represent the graduates' competence in the provision of holistic care are discussed. Each competency was rated on a scale of 1 (very poor) to 4 (very good) and was categorized as "poor and of major concern" (if less than 60 percent of respondents scored good or very good), "satisfactory and of minor concern" (60–69 percent), or "excellent" (70 percent and above). One hundred and six out of 164 graduates (64.6 percent) and twenty-nine out of thirty employers (96.7 percent) responded. Overall, the employers rated the graduates lower than what the graduates rated themselves on all items. While the graduates felt they were excellent and satisfactory in sixteen out of nineteen items (84.2 percent), the employers felt they were poor in fourteen out of nineteen (73.7 percent). Both groups agreed that the graduates were excellent in communication, but poor in life-saving skills, obtaining patient's family and psychosocial histories, and recognizing signs and symptoms (not intraoral) indicating the presence of a systemic disease. In conclusion, although the graduates felt competent in the majority of the holistic care competencies, the employers had some reservations over such claims. Outcomes of the study led to recommendations to incorporate longer community-based learning hours, an improved behavioral science component, a module for special care patients, and multidepartmental collaborative teachings in the new integrated program aimed for implementation in 2011.

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Global trends in dental education programs show a shift towards integrated over discipline-based curricula with competency-based outcomes driving learning and assessment. Albeit the integrated curriculum concept claims firm footing in many developed countries, the discipline-based curriculum remains dominant in many dental schools particularly in developing countries. The existence of various curriculum formats illustrates the disparity of curriculum growth and development, emphasis, and relevance between countries and regions. In some circumstances, lack of educational reform, uncertainties of the impact of new curricula on the roles of dental disciplines, and the indistinct prospect of interdisciplinary collaborative teaching and assessment may be prime factors to remain with discipline-based curriculum. As much as it is presumptuous to assume discipline-based programs are no longer able to produce practitioners who are competent in holistic patient care, the need for systematic evaluation and improvement of the discipline-based curriculum is unequivocal.

The concept of holistic care refers to the provision of care with a holistic view that embraces all

aspects of patients' need including psychological, physical, and social.[1] According to Chambers and Gerrow,[2] competence refers to behaviors expected of recently graduated practitioners, incorporating cognitive, psychomotor, and affective values in an integrated response to the full range of circumstances encountered in general professional practice. The level of performance needs to be consistent with patient well-being but not at the highest level possible. It also requires an awareness of what constitutes acceptable performance under the circumstances and a desire for self-improvement. Competence in holistic care requires the internalizing of the behavior related to the holistic approach in caring for individual patients.

At the University of Malaya (UM) Dental Faculty, despite early introduction of the holistic care concept, students undergo discipline-based teaching throughout the entire program except in problem-based learning (PBL) sessions and in the final year in which students spend limited clinical hours in the general dental practice clinic. Students are required to fulfill separate requirements outlined by respective disciplines, and a similar inclination continues in professional examinations, both written and clinical assessments. In the wake of a major curriculum review and as part of curriculum development efforts, the faculty decided to conduct a client survey to evaluate the current five-year discipline-based program. The objective of the study was to explore UM graduates' competence in holistic care in real community settings from the employers' and graduates' perspectives. Employers were chosen because past evidence indicates that curriculum assessments that rely solely on in-house evaluations or graduates' self-assessment may be one-sided and contain limitations especially when graduates encounter actual demands of general practice in the community.[3-18] The faculty was thus of the opinion that employers' feedback on the graduates' performance in real settings was a crucial element of program evaluation and would serve as a valuable guide to strengthen the new integrated curriculum, aimed for implementation in 2011.

Materials and Methods

A client survey aimed at assessing employers' perceptions of UM dental graduates' competence in holistic care was conducted using a self-administered questionnaire. The questionnaire was adapted from competency statements assembled by a working committee based on working documents and efforts of various dental education institutions and professional organizations from the European Union, South America, the United States, and Canada[19] and the American Association of Dental Schools (AADS) competencies for the new dentist in effect at the time (the AADS, now the American Dental Education Association, approved new competencies in 2008, after we had developed our survey).[20]

Our questionnaire covered ten domains under which suitable questions were included: information gathering at chairside (seventeen questions), diagnosis (twelve questions), treatment plan (four questions), treatment and prevention (twenty-four questions), community-based skills (five questions), management and administration (fourteen questions), communication (six questions), and personal management and professional development (seven questions). A panel of two senior practicing dentists and three senior academics (with at least ten years of practice) was given the questionnaire and the objectives of the study. They were asked to independently comment, based on their experience, on the relevance of each question to the concept and objectives of the study and the UM curriculum. They also provided feedback on overall content and structure, missing and redundant questions, and the language and instructions for respondents. The panel agreed to all the questions and suggested minor changes to question construction. The questionnaire was then pretested by three experienced government dental officers representing the employers and ten final-year students representing the graduates answering the questionnaire. After the pretest respondents were asked about the questionnaire's clarity and wordings, comprehensiveness of statements, utility of instructions, formatting, and time taken to answer all items, their feedback led to minor changes to the final questionnaire. For the purpose of this reporting, three of the researchers discussed and selected nineteen questions that best represent the dental graduates' competence in the provision of holistic care. The selected nineteen questions came from five out of the ten domains in the questionnaire.

The questionnaire was sent to all senior dental officers (SDOs) in charge of districts and UM graduates undergoing the three-year compulsory public service immediately after graduation. Only graduates undergoing compulsory public service were included as they were directly supervised by the SDOs. During the three-year vocational training, the SDOs acting as employers were responsible for monitoring the

graduates' performance through regular meetings, discussions, clinical supervisions, and oversight of the school dental service and antenatal outreach programs in which the graduates were involved. At the end of the three-year period, the SDO submits a written report to the health ministry about the graduate's performance.

In the questionnaire, the respondents were reminded of the requisite competence for safe, independent practice of dentistry at the level of new graduates and were given instructions on scoring. The employers were asked to rate the graduates' competencies in aspects of holistic care based on the information given, answering each question on a scale of 1 (very poor) to 4 (very good). It was assumed that the SDOs had equal exposure to graduates under their care and were well suited to assess the graduates' performance. The SDOs were also reminded that they had no obligation to complete the questionnaire and were permitted to return it if they wished. Based on the responses, each competency item was categorized as "poor and of major concern" (if less than 60 percent of the respondents scored good or very good for the item), "satisfactory and of minor concern" (60–69 percent), or "excellent" (70 percent and above).

Ethical approval for the study was granted by the ethics committee of the UM Dental Faculty. Informed consent from the respondents for participating in the study was also obtained. Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS), version 12.0 for Windows.

Results

One hundred and six out of 164 graduates (64.4 percent) and twenty-nine out of thirty employers (96.7 percent) responded. Nearly three-quarters of the graduates were female (74.0 percent). Sixteen employers (55.2 percent) had at least five UM graduates working directly under them.

Tables 1 and 2 show direct comparisons of the employers' and graduates' perceptions of the graduates' holistic care competencies across multiple items of interest. Overall, a higher proportion of graduates rated themselves good or very good (range=32.8–88.4 percent) than their employers (range=27.3–73.1 percent) in all competencies across the five domains. In the domains information gathering, diagnosis, and treatment plan (Table 1), both groups agreed that the graduates had excellent competence in communication and establishing rapport with patients (73.1 percent employers versus 88.4 percent graduates) and were satisfactory in assessing the general physical status of patients (61.6 percent employers versus 66.7 percent graduates). At the extreme end, both employers and graduates agreed that the graduates were poor in obtaining pertinent family and psychosocial histories (47.7 percent employers versus 53.5 percent graduates) and recognizing general signs and symptoms (not intraoral) indicating the risk or presence of a systemic disease (50.0 percent employers versus 50.9 percent graduates).

Despite agreeing on four competencies, both groups showed disagreements on the graduates' competence in the remaining seven skills of the first three domains (Table 1). While the graduates felt they were excellent in six other skills and were satisfactory in one skill, the employers felt the graduates were only satisfactory in two skills but were poor in the other five. The employers felt the graduates were satisfactory in assessing the patient's goals, values, and concerns about his or her oral function (61.5 percent employers versus 78.8 percent graduates) and recognizing the effects of oral diseases on systemic well-being (65.3 percent employers versus 71.5 percent graduates).

However, contrary to the graduates' belief, the employers felt that the graduates were poor in assessing the general behavioral status of patients (48.0 percent employers versus 62.8 percent graduates), explaining to patients the need for gathering information (52.4 percent employers versus 77.0 percent graduates), assessing patient's goals, values, and concerns about oral health (53.8 percent employers versus 79.8 percent graduates), incorporating patient's goals, values, and concerns into the treatment plan (56.0 percent employers versus 86.7 percent graduates), and developing a comprehensive treatment plan incorporating total patient care including prevention and health promotion (57.7 percent employers versus 79.8 percent graduates).

In the domains treatment and prevention as well as community-based skills (Table 2), the employers felt the graduates were satisfactory in only one of the eight competency skills. The skill was carrying out effective verbal and written communication with all patient groups regarding their needs (65.4 percent employers versus 85.1 percent graduates). The employers felt that the graduates were poor in the remaining seven skills, especially in the graduates' ability to perform cardiac pulmonary resuscitation (CPR) (27.3 percent employers versus 32.8 percent

Table 1. Graduates' and employers' perceptions of graduates' competence in the provision of holistic care in domains information gathering, diagnosis, and treatment plan

	% Who Rated Good or Very Good	
	Graduates	SDOs
Information Gathering		
1. Communicate and establish rapport with patients	88.4	73.1
2. Assess the general physical status of patients	66.7	61.6
3. Assess patient's goals, values, and concerns about his or her oral function	78.8	61.5
4. Assess patient's goals, values, and concerns about his or her oral health status	79.8	53.8
5. Explain to patient the need for gathering information	77.0	52.4
6. Assess the general behavioral status of patients	62.8	48.0
7. Obtain pertinent family and psychosocial histories	53.5	47.7
Diagnosis		
1. Recognize the effects of oral diseases on systemic well-being	71.5	65.3
2. Recognize general signs and symptoms (not intraoral) indicating the risk or presence of a systemic disease	50.9	50.0
Treatment Plan		
1. Develop a comprehensive treatment plan incorporating total patient care including prevention and promotion	79.8	57.7
2. Consider patient's goals, values, and concerns in the decision made in the treatment plan	86.7	56.0

SDOs=Senior Dental Officers

Table 2. Graduates' and employers' perceptions of graduates' competence in the provision of holistic care in domains treatment and prevention and community-based skills

	% Who Rated Good or Very Good	
	Graduates	SDOs
Treatment and Prevention		
1. Carry out effective verbal and written communication with all patient groups regarding their needs	85.1	65.4
2. Anticipate, diagnose, and provide initial treatment and follow-up management for medical emergencies that may occur during dental treatment	67.0	52.0
3. Provide oral health care to special care patients	65.7	50.0
4. Manage fear and anxiety by the use of nonpharmacological methods	64.7	47.8
5. Perform CPR	32.8	27.3
Community-Based Skills		
1. Understand the pattern of oral diseases in society	60.6	54.5
2. Understand the needs of society with respect to management of oral diseases	67.3	47.8
3. Understand the social, cultural, and economic conditions that impact oral health and care	74.5	35.0

graduates) and understanding the social, cultural, and economic conditions that have an impact on oral health and care (35.0 percent employers versus 74.5 percent graduates). Despite poor ratings by the employers in the majority of the skills, the graduates felt they were at least satisfactory in all competencies except in CPR, in which they did not feel competent.

Discussion

Competency statements describe the knowledge, skills, attitude, and values that a graduate must have to enter into safe independent practice of dentistry. Collectively, competencies represent the

minimum safe beginner standards expected of any graduate who deals with patients in real community settings.[19]

Apart from regular assessments of students by academics, employers' evaluations of graduates' competence in managing patients in real community settings is considered a litmus test to determine the success of a dental education program. Apart from providing empirical evidence, employers are in the best position to provide utilitarian input on the outcomes and shortcomings of a dental program through their comments, and serve as an avenue for external assessment of graduates' performance in fulfilling consumers' expectations. In areas where there were high ratings by both the graduates and employers, it is reasonable to assume that the dental program has prepared students well in these important areas of holistic care for their professional role of providing holistic care for patients in community setting.[21]

In this study, the graduates rated themselves higher, and therefore appeared more confident of their abilities, in more of the holistic care competencies than did their employers, who assigned the graduates lower scores. However, upon grouping the ratings into categories, it was observed that both groups had some agreements over their ratings. As a start, both groups unanimously agreed that the graduates were highly competent in dentist-patient communication and establishing rapport with patients. As much as this finding was expected, it was reassuring to receive approval from employers. This finding is of vital importance because competence in communication is fundamental in all dental and medical education programs and underlines the core value in the dentist-patient relationship. In the clinic, a dentist with such a quality would invariably be able to promote maximum collaboration and output from dental interactions with patients, manifested through the patient's trust, high compliance with treatment and prevention efforts, and satisfaction with the service and the profession. Good communication is also key to a patient's self-empowerment towards improving health. As part of a broad perspective of communication competence, it is also encouraging to note that the employers regarded the graduates to be satisfactory in assessing patients' physical status including their goals, values, and concerns about oral function and in recognizing the effects of oral diseases on systemic well-being (Table 1).

The UM Dental Faculty has incorporated a practical communication workshop into the program including a series of lectures and seminars on the topic. At the same time, collaborative efforts with the Ministry of Higher Education have led to an additional soft skills module being incorporated into the curriculum aimed at elevating graduates' leadership quality and interpersonal, teamworking, and critical thinking skills upon graduation. It is likely that these efforts had an influence on the graduates' high competency scores of soft skills as perceived by both groups.

In the domains information gathering, diagnosis, and treatment plan, in spite of employers' positive perceptions in four competencies, they regarded the graduates as being poor in the remaining seven competencies, in contrast with much higher ratings provided by the graduates (Table 1). These large discrepancies between the groups justify several interpretations. One possibility was that the graduates were literally poor performers as witnessed by the employers. However, as much as this could be true, it is highly contradictory to the excellent ratings by the graduates in five of the seven competencies.

Another possibility is that the graduates were satisfactory in these competencies but were not observed to the degree necessary by the employers due to employers' lack of time or busy working schedules or the graduates' poor record keeping. In support of this, many of these competencies functioned as stepping stones for gathering broad patient histories including oral health perspectives and social circumstances, which are necessary for accurate diagnosis and treatment plan. For example, the graduate might ask the patient about his goals, values, and concerns about his oral health, explain to the patient why certain information was needed, or assess the patient's behavioral status before arriving at the most suitable preventive actions. As much as these competencies were vital ingredients of holistic care, they were less overt but were influential in determining the course of treatment and outcomes. This may account for plausible differences in ratings, except when both felt the graduates were poor. In this example, serious attention should be given to the graduates' poor competence in obtaining family and psychosocial histories and recognizing general signs and symptoms (not intraoral) indicating the risk or presence of a systemic disease, as perceived by both groups.

The graduates' high self-ratings on some of the competencies were in agreement with a study in Trinidad in which a group of graduates had high self-perceived competence in developing comprehensive and sequential treatment plans for their patients.[6] In Canada, Greenwood et al.[14] found that

recent graduates were highly competent in developing a prioritized treatment plan. A comparative study between graduates in Toronto and Adelaide revealed that both groups felt highly competent in developing and discussing sequenced treatment plans with patients prior to implementation.[12]

In our study, in the domains treatment and prevention and community-based skills (Table 2), both groups agreed that the graduates were at least satisfactory in carrying out verbal and written communications with all patient groups regarding their needs. This finding supports the previous excellent rating provided by both groups on the graduates' competence in dentist-patient communication and agrees with similar findings on dental graduates elsewhere.[10,12]

A skill that was rated lowest by both groups was the graduates' competence in cardiopulmonary resuscitation (CPR), in which less than one-third of the graduates (32.8 percent) and employers (27.3 percent) perceived the graduates were competent. As far as the graduates' competence in CPR was concerned, low ratings by both groups indicated that the current curriculum has not completely met its principal aim of producing graduates fully prepared for emergencies in general practice.[21] The low competency scores could be attributed to the limited exposure to CPR the graduates have in the working environment. This is because treatment options utilizing conscious sedation or general anesthesia for dental treatment are uncommon at district hospitals, main dental clinics, and health centers where most graduates were posted, except at main teaching hospitals whose facilities demand a standard competence in life-saving skills and dental emergencies. It is also likely that those who provided high ratings of the graduates' competence in CPR were graduates and employers who worked in such facilities and who underwent regular training in CPR.

Despite poor ratings by the employers on the remaining competencies (Table 2), the graduates felt they were at least satisfactory in managing anxious patients using nonpharmacological methods, treating special groups, and managing medical emergencies during a course of treatment. They also felt positive of their knowledge on oral disease patterns in society, the society's needs with respect to oral disease management, and the social, cultural, and economic conditions that have an impact on oral health and care. These perceptions were in agreement with findings from other studies in which graduates felt competent in oral health diagnosis of a community, managing anxious dental patients, and delivering care to special groups including child patients and those with mental, physical, and medical disabilities.[5,6,14]

The overall higher ratings by UM graduates in the majority of the competencies reflected favorably to some extent on their undergraduate program during which they were exposed to numerous self-directed and PBL sessions that helped to consolidate knowledge, inculcate self-confidence, and develop holistic approaches to patient care.[22] Also, as students, they attended behavioral science modules in the second, third, and fourth years of study during which they learned concepts of health and the social, cultural, and economic determinants of health and disease. In Year 4, their learning curve extended beyond the classroom to include visiting patients' homes and applying their knowledge in community settings to acquire and analyze evidence on the influence of environment and social status on diet, oral health-related knowledge, values, behaviors, and practices. Community-based cases provided hands-on opportunity for students to appreciate multifactorial causes of oral diseases in society and the impact of family, community, and environment on oral health and disease outcomes.

The differences in ratings between self-assessment and employer assessment is not unique to dentistry. In a study by Nickel et al.,[23] a group of nursing students nearing graduation ranked their public health and general nursing competencies at higher levels than their educators and administrators. In medicine, a study by Jones et al.[21] on a group of preregistration house officers in Manchester found that the graduates felt they were competent in more than half of the broad areas of competence required as a preregistration house officer than their educational supervisors.

There were a few issues that ought to be mentioned in our study. To a certain extent, it was likely for the employers to rate the graduates with relatively lower ratings. As knowledge and competence need to be built upon after graduation, the employers' standard of assessment would be influenced by their long-standing experience; therefore, they would be likely to perceive the graduates as lacking experience and skills in managing patients in real settings, or the employers might be comparing new graduate functioning with that of experienced dentists. Secondly, due to the faculty's high expectations, our cut-off point for achieving satisfactory competence was set at 60 percent and above. Had it been set at 50 percent and above, the graduates

would be deemed competent by the SDO in another eight additional competencies, a 50.4 percent jump from five to thirteen out of nineteen competencies. However, comparison with other studies was not available. Some employers had several graduates under their care, and this made it difficult to reflect on general perceptions of the UM graduates as their views might be skewed by a particularly good (or poor) dental officer they had supervised recently.[21] Last but not least, despite instructions, the graduates and employers who responded to this survey might have different perspectives on the scope, extent, and depth of the competency statements. Although differing perspectives may be only semantic, they will influence rating outcomes and the overall rating of the graduates' performance.

Based on the findings of this study and taking into account the several limitations, the curriculum review committee made recommendations to be incorporated into a new integrated program. First and foremost, in response to the outcomes of the study that did not support the current curriculum in preparing graduates for holistic care competencies, it was recommended that collaborative multidepartmental teaching and assessment be reinforced in a new program with emphasis on holistic care competence. The traditional discipline- and items-based learning methods should be reduced to minor roles. Areas that require attention such as history taking and its constituents, patient's roles in decision making, managing dental emergencies, and good record keeping should be improved in accord with the study findings. Properly structured community-based attachments, possibly with longer learning hours, was recommended to allow students to gain first-hand experience in learning the community's oral health trends and needs and to be able to conduct meaningful community-based oral health assessment and promotion projects including follow-ups and evaluations. In response to the students' longer community learning hours, the behavioral science module, albeit unchanged, would be shifted towards early exposure especially on topics related to managing fears and anxiety and social determinants of health.

Other recommendations to improve the new curriculum included incorporating an annual CPR refresher course beginning in Year 3 onwards as well as in postgraduate programs and developing students' competence in managing special care patients. As far as looking after special care groups is concerned, improving their oral health would require improving graduates' competence in effective management of these patients. This would mean enhancing students' knowledge, values, and skills in this area and their ability to collaborate with parents of disabled children, caregivers in institutions for the elderly, and doctors and allied health personnel. Competence in domiciliary care for the elderly was also recommended as the number of this population with an increasing number of retained teeth is rising.

In recognizing the faculty's efforts to boost its graduates' competence in holistic care and promote patients' quality of life, higher recognition is placed on the role of the Department of General Dental Practice (GDP), which serves as a center for multiprong teachings, replacing the old discipline- and items-based training. The faculty is in the middle of strengthening its postgraduate teaching infrastructure, which impacts favorably on the undergraduate teaching facility. The GDP clinic would be extended to accommodate more students from as early as Year 3, and they would spend longer clinical hours in preparing themselves to become all-round graduates who are competent in providing holistic care for all age groups including prevention and oral health promotion.

Conclusion

Employers, as the ultimate stakeholder, were an important group of individuals who could offer exclusive feedback on the success of our dental education program by assessing the graduates' performance in real clinical settings. In this study, despite the graduates' feeling confident in most of the holistic care competencies as general practitioners, the employers had differing opinions and gave the graduates lower scores. Outcomes of this study highlighted aspects of the current curriculum that required revision and served as a guide for strengthening the new integrated curriculum aimed for implementation in 2011.

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