

Influence of early clinical exposure for undergraduate students on self-perception of different aspects of geriatric dental care: Pilot study between two colleges from Japan and India

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Abstract

Objective: The objective of this study is to identify the influence of early clinical exposure for undergraduate students on self-perception of different aspects of geriatric dental care. **Materials and Methods:** We have selected two different colleges from Japan and India, namely, Tokyo Dental College (TDC), Tokyo, and Government Dental College (GDC), Nagpur, respectively. The GDC students exposed to patients in a 3rd year and TDC in the 5th year of course. Survey of 74 undergraduate students GDC and 95 of TDC was conducted. The questionnaire was developed based on to the 50 points undergraduate curriculum by European College of Gerodontology. The questionnaire categorized into four parts; Part I (15 questions) on aging and medicine, Part II (15 questions) on communication skills, Part III (15 questions) on diagnosis/treatment, and Part IV (5 questions) on need of more training in Gerodontology. Their own-perception on self-knowledge and competency was scored on 4 level scale as 3, 2, 1, and 0 for response yes, rather yes, rather no, and no, respectively. Average scores were calculated and presented. **Results:** The differences of the opinions as per students' perception level were found to be slightly more affirmative in GDC students (1.9 for the 4th year and 2 for the 5th year) than TDC students (1.1 for 5th grade and 1.5 for 6th grade). Both clinical and didactic hours should be increased in curriculum according to the TDC (89%) and GDC (79%) students. Separate gerodontology subject is suggested from TDC (76%) to GDC (81%) students. **Conclusion:** Average scores about own-perception of knowledge and competency about aging, medicine, and communication skills were almost same in both GDC and TDC students. With early clinical exposure, GDC students appear have better self-perception regarding the different aspects of the geriatric dental care including subject knowledge, communications, diagnosis, and treatment planning than TDC students with late clinical exposure.

Key Words: Aging, dental education, geriatric dental care, gerodontology

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INTRODUCTION

Aging is associated with disabilities, compromised general health and quality of life. Oral health is an essential component in general health.^[1] Geriatric dentistry is a science pertaining to the multidisciplinary and multidimensional approach to the management of the oral health problems of the elderly. Awareness and knowledge would facilitate the setting up of separate health care units for the elderly along with oral health care clinics and involvement of multidisciplinary teams, mobile oral health services, domiciliary services in the urban and rural areas, and provision of systematic oral health care.^[2] Anehosur and Nadiger (2012) studied the attitude toward the elderly population in 98 5th year students and concluded that there is a need to change the perspective of the students toward elderly by the inclusion of geriatric dentistry in the dental curriculum.^[3] Komabayashi *et al.* studied the pattern of didactic, practical, and clinical activities taught in India as well as in Japan and found out that there is a considerable difference between two countries.^[4] India and Japan are two countries with fastest growing geriatric populations.^[3] In absolute size of the aged population, the India ranks 4th (population 77 million).^[5] The average life expectancy at birth increased from 50.5 years for males and 49.0 years for females in 1970–1975 to 61.8 years for the males and 64.1 years for females in 1999–2001; it is expected to reach 69.8 years for males and 72.3 years for females by 2021–2025.^[6,7] In the West, geriatric dentistry is a subject that is spread across the dental undergraduate curriculum and pertains to every aspect of oral health needs of the young old (65–74 years); old (75–84 years), and the oldest old (85 + years). Careful consideration of all coexisting medical problems before initiating treatment is a cardinal rule in geriatric care.^[8,9] Shah described that gerodontology is not structured as an independent specialty at postgraduate level, and the undergraduate curriculum does not have any significant component about the subject in India.^[5] The lack of training results in poor understanding of special needs of older adults. Even in Japan, there is no such official training program exist in the undergraduate curriculum.^[5] Oral care guidelines designed to assist elderly should consider not only prevention and treatment modalities but also the means of implementing such therapies in varying settings and utilizing the whole dental team.^[10] Any preparation toward the provision of oral health care should not be limited to treatment alone but more importantly focus on empowering this elderly community with information and education programs.^[11] Increasing numbers of older people and decreasing rates of edentulism highlight the importance of dental education that focuses on oral health and aging. Exposure of students to didactic and clinical setting appears to be a critical element toward positive knowledge and attitude of the elderly.^[12]

The educational goal of gerodontology is to raise awareness of barriers to care and to prepare dental students, in terms of knowledge, attitudes, ethics, and skills to provide appropriate oral health care for the older adults. Part of the problem is related to the limited training of undergraduate dental students in all the factors relevant to the oral care of the elderly. Modifications are required in the dental undergraduate and postgraduate curricula to provide appropriate knowledge, attitudes, and skills. The survey was planned with the preparation of the questionnaire to know students' own-perception about their knowledge and competency in various curriculum components of gerodontology. The representative dental schools Government Dental College (GDC) and Tokyo Dental College (TDC) from India and Japan were selected, respectively, for a pilot project. We hypothesize that the early clinical exposure may influence the student's self-perception of different aspects of geriatric dental care including subject knowledge, communication skill with geriatric patients, and diagnosis and treatment planning.

MATERIALS AND METHODS

Our unique 50 questions validated and based on 50 point-undergraduate curriculum guidelines in gerodontology by the European College of Gerodontology.^[13] Questions were considered 4 parts as 15 for knowledge, 15 for communications, 15 for treatment, and 5 for lectures. Subsequently, the questions are scattered in the questionnaire to indicate the competency, knowledge or familiarity of the question. (1) Be competent (C) at means: The student should have a sound theoretical knowledge and understanding of the subject together with an adequate clinical experience to be able to resolve clinical problems encountered, independently, or without assistance. (2) Have knowledge (K) of means: Students should have a sound theoretical knowledge of the subject, but need only to have limited clinical/practical experience. (3) Be familiar (F) with means: Students should have a basic understanding of the subject, but need not have direct clinical experience or be expected to carry out procedures independently.^[14]

Investigation was by a questionnaire and unsigned method. Their knowledge and competency were scored as follows: 3 points for the response "yes," 2 points for "rather yes," 1 point for "rather no," and 0 point for "no." Total 52 5th grade students (just before clinical training in hospital) and 44 6th grade students (just after clinical training in hospital) of TDC were selected [Table I]. From GDC, 36 students of the 4th year and 38 students from Internship (5th year) were selected to responds for the questionnaire [Table I]. All 100% of the students enrolled to the survey have given filled up the survey form.

Table 1: Distribution of the students participated in the survey

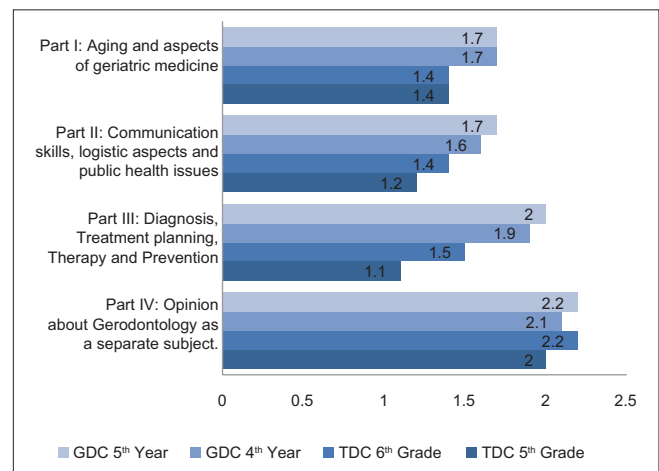
Factor	Government Dental College	Percentage	Tokyo Dental College	Percentage	Total	Percentage
Year						
4	36	100.00	-	-	36	21.18
5	38	100.00	-	-	38	22.35
5	-	-	52	100.00	52	30.59
6	-	-	44	100.00	44	25.88
Age						
21-22	47	67.14	23	32.86	70	41.18
23-24	24	30.00	56	70.00	80	47.06
25+	3	15.00	17	85.00	20	11.76
Gender						
Male	32	38.10	52	61.90	84	49.41
Female	42	48.84	44	51.16	86	50.59
Total	74	43.53	96	56.47	170	100.00

RESULTS

Average scores were calculated for all the students in, GDC Nagpur and TDC [Table 2]. Data were presented in the average score of each question from each grade/year students from GDC and TDC. The comparison of average values is described in the Graph 1. It was found that, for the questions from the part I and Part II categories, both college students had given the similar responses as per their own-perception in knowledge and competency. The difference of the opinions as per students' perception level was found to be slightly more affirmative in GDC students (1.9 for the 4th year, 2 for the 5th year) than TDC students (1.1 for 5th grade, 1.5 for 6th grade). The part III questions are principally competency related questions covering the syllabus related to the diagnosis, treatment planning, therapy, and prevention. Both clinical and didactic hours should be increased in curriculum according to the TDC (89%) and GDC (79%) students. Separate gerodontology subject is suggested from TDC (76%) and GDC (81%) students.

DISCUSSION

The average scores about knowledge were almost same before and after clinical training in TDC. On the other hand, the average scores about communication skill, diagnosis, planning, etc., after clinical training were higher than it before clinical training. Therefore, it was thought that students acquired the competency of gerodontology during clinical training, and the importance of clinical training in the competency education of gerodontology became clear anew in this study. Compare to students in TDC, average scores in many parts were high in GDR's students. Although the elderly ratio of India is 7.7% now, it will be 11% in 2020. Advance of rapid aging like Japan is expected. Since it is under such a situation, the consciousness to GDC students' gerodontology is considered to be a high thing. On the other hand, Japan is under much higher elderly ratio. However, TDC students have same or lower interest in gerodontology compare to GDC. The necessity for the



Graph 1: Average score of student responses for each question category

illuminative education about the importance of gerodontology to students is suggested in this study.

It has been reported that the attitude of dental students toward elderly patients is more or less neutral when the regular dental curriculum is followed. It was felt that the curriculum needed to be developed to try to modify students' attitude from neutral to positive, to enhance health care delivery.^[15] Without adequate training and personal experience of growing old, young graduates may not be able to understand the physical, socio-economic, and psychological problems of the elderly and the complexities involved in treatment planning for patients with multiple chronic diseases and medication. It is emphasized that geriatric dentistry should be included in each of the preclinical, paraclinical, and clinical subjects at the undergraduate level. Graduate students should be encouraged to treat elderly patients in clinics under supervision using a multidisciplinary approach. The knowledge and skills required for oral health care of elderly may improve the attitude to treat them more carefully and tenderly. As compare to pediatric dentistry, the geriatric dentistry in not so well-developed throughout the world. Since the ratio of the percentage of the

Table 2: Average score of student responses for each question

	Level of knowledge*	Total number of responses			
		Tokyo Dental College, Japan		Government Dental College, India	
		5 th Grade	6 th Grade	4 year	5 year
Part I: Aging and aspects of geriatric medicine					
Can you recognize the presence of the major systemic diseases in old age and how they affect the delivery of oral care?	C	1.9	2.0	1.8	1.8
Can you identify the age-related changes in the oral structures?	C	2.1	2.2	2.5	2.6
Can you assess oral health-related quality of life in elderly patients?	C	1.1	1.0	2.0	2.4
Can you identify nutritional deficiencies, perform dietary analysis and provide nutritional advice?	C	0.8	0.7	1.6	1.3
Can you diagnose xerostomia, its etiological factors and manage the condition?	C	1.2	1.5	2.1	2.0
Can you manage aged patients with compromised general health and various levels of dependency, and do you know when to refer?	C	0.7	0.6	1.2	1.9
Do you have knowledge of physiological and pathological age-related changes and age-related changes in special senses (sight, hearing, smell, and taste)?	K	1.8	1.8	2.1	2.0
Do you have knowledge of common medical conditions in the elderly population?	K	1.9	2.0	2.2	1.9
Do you have knowledge of major neurological and psychological disturbances in the aged (memory impairment, pain perception, changes in anxiety, self-esteem, and disorientation)?	K	1.6	1.5	1.4	1.4
Do you have knowledge of the effect of loss of status, health, family, employment, income and companions on the behavior, and attitude of the aged?	K	1.4	1.5	1.9	1.9
Do you have knowledge of the principles of pharmacodynamics and pharmacokinetics in the elderly patients?	K	1.8	1.9	1.6	1.4
Do you have knowledge of side effects of drugs and their impact on oral health?	K	1.9	2.1	2.1	2.1
Are you familiar with Theories of aging and the concepts of death and dying?	F	1.1	0.9	0.4	0.8
Are you familiar with the use of geriatric assessment scales (dementia, depression, and nutrition)?	F	1.1	0.9	0.7	0.5
Can you assess patients' comprehension and competency?	C	1.1	1.2	1.9	1.8
Average		1.4	1.4	1.7	1.7
Part II: Communication skills, logistic aspects, and public health issues					
Do you think you display an appropriate and ethical, caring behavior toward older patients?	C	2.2	2.2	3.0	2.8
Do you communicate effectively with the aged dental patient, taking into account the physical, psychological, and mental status of the patient?	C	2.0	2.0	2.4	2.2
Can you communicate and share information effectively with all members of the healthcare team (physicians, nurses, dental assistants, hygienists, etc.,) and the carers?	C	1.8	2.0	2.1	2.0
Can you perform a written referral to clarify the patients' general condition?	C	1.2	1.5	1.6	1.9
Can you provide oral health care in a multidisciplinary context?	C	0.8	0.7	1.3	1.9
Do you have knowledge of the oral health-care management of people with cognitive impairment?	K	0.8	1.0	0.9	1.1
Do you have knowledge of procedures in managing patients with reduced ability to consent?	K	0.6	0.7	1.0	1.4
Do you have knowledge of the organization of a safe and friendly treatment environment for the older patient for easy access to dental care?	K	0.7	0.9	1.9	2.1
Can you recognize signs of elder abuse and neglect and describe the methods of reporting it to the appropriate authorities?	C	1.4	1.3	1.3	1.3
Can you train auxiliaries and carers in basic skills of oral hygiene for the frail and dependent aged?	C	0.9	1.3	1.4	1.8
Can you train auxiliaries and carers in the perception of pain and oral impairment for dental referral?	C	1.2	1.5	1.4	1.6
Can you suggest strategies to overcome barriers to dental care for the elderly patients?	C	1.0	1.0	2.0	1.9
Do you have knowledge of the principal demographical characteristics and trends in the aged population?	K	1.6	2.2	0.6	0.9
Do you have knowledge of the principal socioeconomic status of the elderly relevant to oral care?	K	1.0	1.4	1.8	1.8
Are you familiar with the organization of general and oral health care for the elderly in the community and the hospitals, and the organization of domiciliary care?	F	0.7	1.0	0.8	1.0
Average		1.2	1.4	1.6	1.7
Part III: Diagnosis, treatment planning, therapy, and prevention					
Can you identifying the chief complaint and the needs and demands of the older patients?	C	1.5	2.1	2.6	2.7
Can you obtain a thorough general, medical, dental, and social history?	C	2.0	2.4	2.4	2.0
Can you perform an intra- and extra-oral examination?	C	1.5	2.0	2.7	2.3
Can you take and assess radiographs (head and neck) in the aged patients?	C	1.0	1.6	1.5	1.8
Can you recognize oral mucosal disorders and refer accordingly?	C	1.0	1.6	2.3	3.0
Can you take the patients' vital signs?	C	1.8	1.8	2.8	2.4

Contd...

Table 2: Conrd...

	Level of knowledge*	Total number of responses			
		Tokyo Dental College, Japan		Government Dental College, India	
		5 th Grade	6 th Grade	4 year	5 year
Can you provide oral education and oral hygiene instructions to the older patients, particularly to patients with diminished manual dexterity?	C	1.0	1.3	2.1	1.9
Can you select individualized patient-centered treatment options?	C	1.	1.7	1.5	1.6
Can you prevent and manage dental and medical emergencies in clinical dental practice?	C	1.3	1.2	1.8	2.0
Can you complete following wide range of dental procedures (e.g., simple extractions, management of root caries, secondary carries, tooth wear, periodontal treatment, endodontic therapy, fixed, and removable prostheses and management of dry mouth) which are common in the elderly patients?	C	0.7	1.3	2.2	2.5
Can you recognize and manage the special difficulties in removable prostheses in the elderly?	C	0.7	1.2	1.5	2.1
Can you manage denture-related conditions?	C	1.0	1.4	1.9	2.2
Can you provide adequate treatment in patients' homes and long-term care settings using the appropriate dental equipment?	C	0.8	1.2	1.3	1.4
Do you have knowledge of appropriate laboratory diagnostic tests for the most common geriatric diseases and the interpretation of the results?	K	1.1	1.4	0.9	1.2
Are you familiar with the principles of management of geriatric medical conditions?	K	0.8	0.8	1.0	1.0
Average		1.1	1.5	1.9	2.0
Part IV: Opinion about Gerodontology as a separate subject					
Do you have an idea that country's elderly population is increasing with a rapid rate?		2.6	2.6	2.1	2.1
Would you like to have separate/more theory lecture hours on Gerodontology?		2.2	2.4	2.1	2.1
Would you like to have separate/more clinical/practical training hours on Gerodontology?		2.1	2.3	2.4	2.6
Would you like to have Gerodontology as a separate subject to learn in undergraduate syllabus similar to pediatric dentistry?		2.0	2.1	2.1	2.3
Would you like to get the PhD/MDS specialty degree in Gerodontology?		1.1	1.5	1.6	1.7
Average		2.0	2.2	2.1	2.2

*C: Competency, K: Knowledge, F: Familiarity

elderly to that of the pediatric population is approximately 7:35, there are more number of specialty clinics and postgraduation specialty courses in pediatric dentistry. However, looking at the geriatric population and their special need there are quite a few geriatric care centers or specialty courses. Currently, in some countries, there are no such official postgraduate courses available. Hence, we need to depend upon the undergraduate dental students to take care of these people. The nature of undergraduate dental training courses to treat elderly population is different in different countries. We selected two dental colleges from two different countries India and Japan to where the geriatric population proportion is relatively more. The magnitude of the dental requirements for the elderly can be gauged from the fact that, i.e., the pediatric population is 5 times the elderly population. These patients are healthy and have their parents to look after them, whereas there are no oral health care centers catering to the special needs of the elderly. In spite of these demographic pointers indicative of the future volume of geriatric oral health care needs, there is no specialist in this field and as yet, no formal training on this subject has been introduced in the dental curriculum.

CONCLUSION

Average scores about own-perception of knowledge and competency about aging, medicine, and communication skills were almost same in both GDC and TDC students. With

early clinical exposure, GDC students appear have better self-perception regarding the different aspects of the geriatric dental care including subject knowledge, communications, diagnosis, and treatment planning than TDC students with late clinical exposure.

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Conflicts of interest

There are no conflicts of interest.

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