International Journal of Current Research and Review
DOI: https://doi.org/10.31782/IJCRR.2022.141803

Research Article

IJCRR
Section: Healthcare

Comparative Study of Dental Education between South Asian and Southeast Asian Countries - An Empirical Analysis

Kajal Agarwal[1], Prashanthy M.R.[2], Bharathwaj V.V.[3], Sindhu R.[3], Dinesh Dhamodhar[4], Prabu D[5], Rajmohan M.[4], Suganya P.[1]

[1]Undergraduate student, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India; [2]Post graduate, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India; [3]Senior Lecturer, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India; [4]Reader, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India; [5]Professor and Head of the Department, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India.

ABSTRACT

Introduction: Dentistry is the field which brings back one's smile. It is this field that teaches about the importance of oral hygiene. Dental education varies in all Southeast Asian and South Asian countries.

Aim: To compare the dental education concerning fees structure, dentist population ratio, year of graduation between South Asian and Southeast Asian countries.

Methodology: This study was conducted for comparison of dental education between South Asian and Southeast Asian countries. Southeast Asian countries were classified as Group A and South Asian countries were classified as Group B. Data was retrieved from the manual and electronic databases using the search engines (Pubmed, google scholar, Web of Science). In this study, the keywords were Dentistry, Southeast Asian, South Asian, Dental colleges, and Dentist population ratio used in the search.

Result: This study determined the difference between dental education, dentist population ratio, and the dentist's average salary among the Group A and B. The number of Dental colleges were maximum in India (71%) among all other Group A and B.

Conclusion: Nevertheless South Asian had plethora of colleges, high-paying dental jobs were possible only in Southeast Asian countries. Hence substantial numbers of dental colleges with proper apportionment and job contentment is obligatory for better treatment outcome of patients.

Key Words: Dentistry, Dentist, South East Asian, South Asian, Dentist population ratio, Dental colleges, Fees structure

INTRODUCTION

Asia is divided into several peripheral coastal regions, namely East Asia, South Asia, Southeast Asia, and the Middle East. **Southeast Asia** is a vast region of Asia situated to the east of the Indian subcontinent and south of China. It consists of two distinct portions, mainland Southeast Asia and insular Southeast Asia. Southeast Asian countries were classified as Group A which included Singapore, Malaysia, Thailand, Vietnam, Philippines, Cambodia, Indonesia, Brunei, Laos, Myanmar and Timor Leste. Southeast Asia stretches 4,000 miles at its greatest extent from northwest to southeast and includes 5,000,000 square miles (13,000,000 square kilometers) of land and sea. Currently, Southeast Asia's population is approaching a half-billion or one-twelfth of the world's total.[1]

Dental education in Southeast Asian countries highlights the high-quality dental services for dental graduates and dental practitioners' free movement. The Southeast Asian Nations (ASEAN) Dental Councils had proposed the Common Major Competencies for ASEAN General Dental Practitioners to support undergraduate dental education.[2]

South Asia extends south from the central part of the continent to the **Indian Ocean.** The western boundary is the desert region where Pakistan shares a border with Iran. South Asian were classified as Group B which included Sri Lanka, India, Bangladesh, Bhutan, Nepal, Pakistan, and the Maldives.[3]

Corresponding Author:
Dr. Prabu D, Professor and Head of the Department, Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram, Chennai, India; Phone: 8072019608; E-mail: researchphdsrm@gmail.com

ISSN: 2231-2196 (Print) **ISSN:** 0975-5241 (Online)

Received: 25.03.2022 **Revised:** 02.05.2022 **Accepted:** 12.06.2022 **Published:** 24.09.2022

People in developing countries were burdened excessively by oral diseases, such as periodontal diseases, dental caries, etc. Such conditions were aggravated by poverty, poor living conditions, ignorance concerning health education, and lack of government funding and policy to provide sufficient oral health care workers. World Health Organization (WHO) and the FDI World Dental Federation had identified the problems and developed strategies. However, acceptable goals and standards of oral health have to be agreed upon.[4] It contains human resource indicators that provide us with an overview of the availability of trained and specialized medical, dental, nursing, and paramedical workforces in the country. It also provides information regarding regional distribution and disparities.

The number of dental schools and the total number of dentists had increased in the past two decades, but the dentist/population ratio was decreased.[5] However, to serve the need for this massive population's oral health care, India had organized many dental educational institutes. Also, the dental field and educational sector had grown up during the past decades.[6]

Dentistry is a health science department that involves analysis, prognosis, prevention of surgical and non-surgical ailments of the oral cavity. [7] The majority of dental infections and therapies were carried out to stop or deal with the most typical oral conditions such as tooth decay, periodontal illness, etc. Dental education aims to prepare students to be competent enough to meet public oral health needs. In the region of South Asian and Southeast Asia, the population's living and health conditions reflect the unequal distribution of dental health determinants and the disparity in the means to compensate for this inequality. The present study aims to compare dental education concerning fees structure, dentist population ratio, year of graduation between group A and group B.

METHODOLOGY

This study was conducted for comparison of dental education between South Asian and Southeast Asian countries. Southeast Asian countries were classified as Group A which included Singapore, Malaysia, Thailand, Vietnam, Philippines, Cambodia, Indonesia, and Myanmar .South Asian were classified as Group B which included Sri Lanka, India, Bangladesh, Bhutan, Nepal, Pakistan, and the Maldives. Data were retrieved from the manual and electronic databases using the search engines (Pubmed, Google Scholar, Web of Science). The total number of institutes, years of education for both undergraduates and postgraduates, fee structure, and the total dentist population ratio for different countries were the main source of the data collected. The Southeast Asian, dental colleges, South Asian, postgraduates, undergraduates, and dentist population ratio were keywords used to retrieve the data. Articles related to dental education in group A and group B were only included other than native languages were excluded. Documents like Letters, Meeting abstracts were excluded.

RESULTS

The present study aimed to analyze dental education's current situation in group A and group B. Information regarding the total number of colleges in each country, undergraduate and postgraduate in dental colleges and duration of the course, entire fee structure of different colleges in different countries, were obtained and tabulated to provide an insight about dentistry in group A and group B.

Table 1: Distribution of the Dental Course Duration, Total Course Fees Structure, and Dentist Population Ratio in Group A[15].

Group-A	Duration of course (Undergraduates)	Duration of course Postgraduates	Total Fees structure both undergraduates and postgraduates (approx.)	Dentist population ratio
Singapore	5yrs	3yrs	28900 dollars INR-1565275	1:10000
Malaysia	5yrs	3yrs	RM299700-386650 INR-5,34,2316-6892247	1:9000
Thailand	5yrs	3yrs	1,350,000 Bhat-1,500,000bhat INR-31,94,342-3549269	1:12000
Vietnam	5yrs	2yrs	15851747dong-475552435dong 50,000-1500000 INR	1:43000
Philippines	6yrs	3yrs	48000 peso- 60000 peso INR-167656-209570	1:22300
Cambodia	7yrs	Not Available	INR-2,15,249-10,01,345	1:119000

Table 1: *(Continued)*

Group-A	Duration of course (Undergraduates)	Duration of course Postgraduates	Total Fees structure both undergraduates and postgraduates (approx.)	Dentist population ratio
Indonesia	5yrs	3yrs	75000000 IDR INR-372003	1:11535
Myanmar	6yrs	3yrs	7077431- 2654036 kyat 400,000-150000 INR	1:16000

Table 1 depicts the average fee structure, duration of course and the total dentist population ratio in other countries. Cambodia had the lowest dentists' population ratio than other Group A. The duration of the course was almost the same for every country.

Table 2: Distribution of the Course Duration, Total Fees Structure, and Dentist Population Ratio in Group B [15]

Group-B	Duration of course (Undergraduates)	Duration of study (Postgraduates)	Fee structure (approx.)	Dentist population ratio
Afghanistan	5yrs	3yrs	142289-1049772afghan 135,543-10,00,000 INR	1:250000
Bangladesh	5yrs	3yrs	1700-20000USD 124695-1467010 INR-	1:22800
India	5yrs	3yrs	50,000-15,00,000INR	1:4963
Bhutan	5yrs	3yrs	3,00,000-10,00,000INR	1:33629
Maldives	6yrs	3yrs	63040- 147585 rufiyaa 300,000INR-700000 INR	1:23100
Pakistan	5yrs	3yrs	600000-1000000INR	1:130581
Sri Lanka	5yrs	1yrs	500000-1000000INR	1:35700
Nepal	5yrs	3yrs	5000000-6000000-INR	1:80000

Table 2 reported that the average fee structure and the total dentist population ratio in other countries. The duration was same for all the country except Maldives for undergraduates. The Post-graduation's course duration was 3years in all group B, whereas in Srilanka, the course duration was one year.

Table 3: Distribution of Average Salary Among Dentist in Both Groups [18,19]

Group-A	Average salary per month (₹)	Group-B	Average salary per month (₹)
Singapore	282096	Afghanistan	119183
Malaysia	231934	Bangladesh	24711
Thailand	119497	India	75200
Vietnam	70479	Bhutan	59239
Philippines	68812	Maldives	218119
Cambodia	66049	Pakistan	82499
Indonesia	75393	Sri Lanka	57048
Myanmar	45957	Nepal	77458

Table 3 showed that the distribution and comparison of a dentist's average salary per month in group A and group B. In group A, the dentists were highly paid in Singapore. On the contrary, the least spent in Myanmar. While in group B, the dentists were highly paid in Maldives and least paid in Bangladesh.

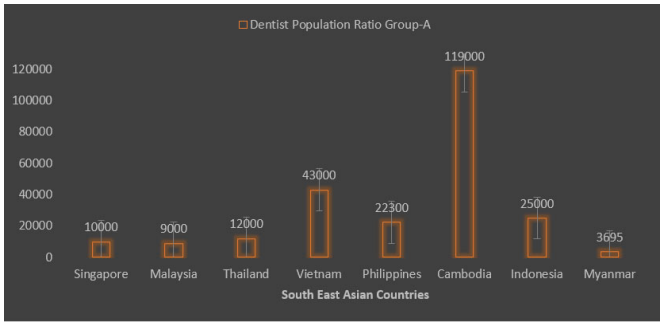

Figure 1: Distribution of Dentist Population Ratio in Southeast Asian Countries-Group A.

Figure 1 showed that the total dentist ratio population in Group A. Cambodia had the least dentist population ratio, while Myanmar being the highest dentist population ratio.

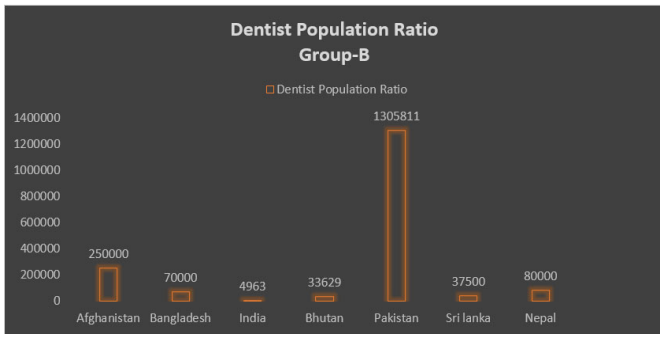

Figure 2: Distribution of Dentist Population Ratio in South Asian Countries- Group B.

Figure 2 showed that the total dentist population ratio in Group B. Pakistan had least dentist population ratio, while India being the highest dentist population ratio.

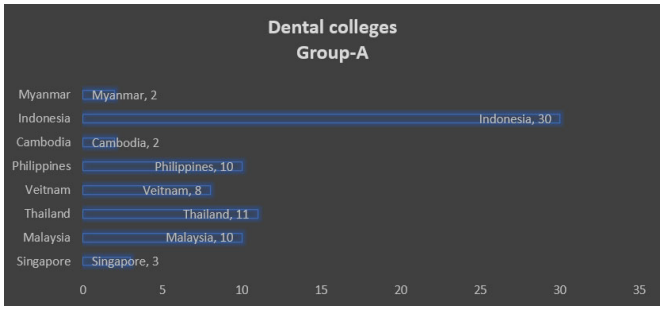

Figure 3: Total Number of Dental Colleges in Group A[13,16,18]

Figure 3 showed that the distribution of the total number of dental colleges in Group A. According to the figure, Myanmar (2), Cambodia (2), and Singapore (3) had a low number of dental colleges. On the contrary, Indonesia (30) had a high number of dental colleges.

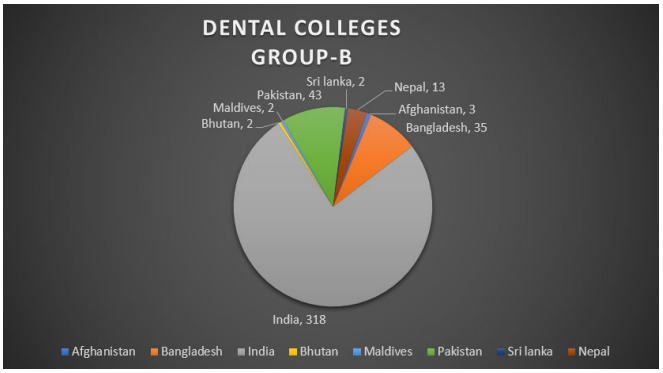

Figure 4: Total Number of Dental Colleges in Group B [13,16]

Figure 4 shows the distribution of the total number of dental colleges in Group B. According to the figure, Bangladesh (35), Bhutan, Sri Lanka, and the Maldives had two dental colleges, Afghanistan (3), Nepal (13), and Pakistan (43) had the number of dental colleges. In contrast, India (318) had the highest number of dental colleges all over the world.

DISCUSSION

The current study reported a comparison of dental education in Group A and Group B. All the nations are dissimilar in cultural, social, ecological aspects and their caste, ideology, religion, with differentiating community needs in rural and urban structures. The number of dentists available for people was varied in different countries.

The present study stated that India had the highest number of dental colleges among all other countries. In Group A, Indonesia had 30 colleges, Thailand had 11, Malaysia and Philippines had 10, Vietnam had 8, whereas Singapore, Cambodia, and Myanmar had the lowest with 3 and 2 dental colleges. In Group B, India had the highest with 318 dental colleges, Pakistan had 43, Nepal had 13, the Maldives, Bhutan, and Srilanka had 2, Afghanistan had 3, and Bangladesh had 35 dental colleges.

This study stated that the average salary of a dentist per month. The dentist pay was too less in Myanmar while Singapore was highly paid. All the other countries had a mediocre salary paid for the dentists. Data obtained for the duration of course for both undergraduates and postgraduates were mostly five years for undergraduates and 3years for postgraduates, respectively, except the Maldives, Myanmar, Philippines had 6years course for undergraduates. On the contrary, Cambodia had no post-graduation dental course.

This study reported that India (71%) had the highest percentage of dental colleges distribution among South-Asian countries (group B), followed by Pakistan (10%). Bhutan and Bangladesh had the lowest percentage of dental institutions (2%). Among Southeast Asian countries (group A), the highest percentage of dental colleges were in Indonesia (36%),

and the lowest number was in Singapore (4%). According to each country's population, there was no proper distribution of dental colleges to meet people's dental demands, especially in group A. At present, India has the highest number of dental colleges in the world.[7]

The dentist population ratio was a widely accepted measure of workforce outcomes.[8]To analyse the dentist population ratio of Group A, the ratio was 1:119000 and 1:43000 in Cambodia and Vietnam, respectively. In descending order, the dentist population ratio in other Group A followed the Indonesia dentist population ratio was 1:25000, the Philippines had 1:20,000, Thailand had 1:7000, and Malaysia had 1:6,000. In Singapore, the ratio 1:10000, and Myanmar had 1:3695.

World Health Organization recommends a Dentist Population ratio of 1:7500.[9] It should be noted that most of the countries did not meet the recommended ratio given by the World Health Organization (WHO). The reasons for such excess supply of dentists were poor (or) no workforce planning, reliance on faulty statistics, mushrooming of dental colleges, and inefficient regulatory bodies. The problem lies behind the distribution of dental colleges than the number of dentists. The number of dental colleges varied for all countries.

Major drawbacks would be the unequal distribution of dentists in all the areas, lack of systemic planning and allocation, and booming of dental colleges in all the countries. In rural areas, the dentist population ratio was less compared to urban areas. Due to unemployment and low income, most dentists in Group A and Group B moved to western countries. The reasons for dentist migrations were complex and included the lure of better remuneration, professional development, career growth, better working and living conditions. Political and economic forces also had influenced the decision to migrate. A high population-to-provider ratio does not explain levels of untreated disease, potential demand, or sufficient demand. Therefore, it reveals little information about the criticality of intervention or the character of intervention. Pakistan had produced more than ten thousand dentists, but most of them left the country for a better future.[10]

The students pursuing a Bachelor's degree fail to follow a Master's degree due to the excessive fee, which has created a scenario that some dentists intend to seek alternate professions. [11,12]The predominant migration pattern in the region was the movement of dentists from middle- to high-income countries. Dentists from India, Malaysia, Sri Lanka, and Bangladesh were more likely to migrate to high-income countries in the region, having a Commonwealth connection.[13] Dental colleges also have decreased their investment in physical plant and faculty numbers. Most of the dentists in all the countries had migrated to western countries due to unemployment and low salary provided by the dentist in Group A and Group B.[14,17,18,20] To achieve universal health coverage, improved oral health care delivery with a skilled and motivated dental health workforce were necessary. Human resource shortages hinder the scale-up of health services and limit the capacity to absorb additional financial resources. Kasabah et al. study reported that efficient of dental education was better in Saudi arabia due to implementing the newer method Mini clinical evaluation exercise.[21] A clear understanding of the dental health-workforce situation is very critical to develop effective policies. Shobana et al. study reported that implementation of some ethical values and principles to motivate them to get an awareness of education.[22] The government authorities should conduct an awareness campaign to bring awareness about dental hygiene among the public.

There was gross inadequacy in dentists' availability and significant inequalities in their distribution between the different countries. In terms of health outcomes, poorly performing countries had a more substantial shortfall in dentists' number. The respective countries' regulatory bodies should reinforce the dentist's employment opportunities with dignified salaries and better living standards to retain a qualified dentist from migrating to other foreign countries. Dental graduates among group A and group B prefer to pursue higher education in western countries. Many dentists are also deviating from their profession and choosing different parts such as insurance companies, hospital administration-related jobs, and medical coding because of the less pay scale available for the dentists.

The Dental Council must be taken into action for the proper and equal distribution of dental colleges all around the Asian region according to the oral health care needs of the people. The existing framework appealing would prompt catastrophic outcomes unless intruded with the crisis without laxity to spare the profession's veneration.

LIMITATION

The major limitation encountered during the study was obtaining information about various dental colleges; dentist population ratio in three countries of Southeast Asia and South Asian countries were not retrieved. Details regarding the number of colleges, population, and an average salary of a dentist were available while regarding dental seats accessible in different colleges was not existing on any platform.

CONCLUSION

In today's world, oral health has become a significant factor to be considered. Oral hygiene habits are equally as crucial as other habits. Every year, the number of dentists is increasing, but people are still not aware of the importance of oral health. Socially appropriate strategies must be developed

to target oral health issues. Nevertheless, South Asian had plethora of colleges, high-paying dental jobs were possible only in Southeast Asian countries. Hence substantial numbers of dental colleges with proper apportionment and job contentment is obligatory for better treatment outcome of patients.

Acknowledgement: Nil

Conflict of Interest: Nil

Funding: Nil

Kajal Agarwal- concept and study design, data collection

Prashanthy M.R- Concept and study design. Data collection, and manuscript write up

Bharathwaj V.V- formulated the write up

Sindhu R- Performed the analysis and interpretation

Dinesh Dhamodhar- Data analysis and interpretation

Prabu D- Provided revision scientific content to manuscript

Rajmohan M- Correction done

Suganya- Data collection

REFERENCES

1. Southeast Asia [Internet]. Britannica. 2020 [cited 7 December 2019]. Available from: https://www.britannica.com/place/Southeast-Asia.
2. Poolthong S, Chuenjitwongsa S. Facilitating the movement of qualified dental graduates to provide dental services across ASEAN member states. In Interface Oral Health Science 2017; 6(1):73-79.
3. Véron J, Horko K, Kneipp R, Rogers G. The demography of South Asia from the 1950s to the 2000s. Population. 2008; 63 (1):80-89.
4. Pack AR. Dental services and needs in developing countries. Int. Dent. J.1998; 48 (S3):239-247.
5. Bezroukov V. Structure and types of dental manpower. Int. Dent. J.1979 ; 29 (3):191-200.
6. Jaiswal AK, Srinivas P, Suresh S. Dental manpower in India: changing trends since 1920. Int. Dent. J. 2014; 64 (4):213-218.
7. Availablefrom:https://www.researchgate.net/publication/322071029_Introduction_to_Dentistry_httpwwwarticlesbasecomdental-carearticles_introduction-to-dentistry-3357352html_Published_on_Sep_27_2010.
8. Tennant M, Kruger E, Shiyha J. Dentist-to-population and practice-to-population ratios: in a shortage environment with gross mal-distribution, what should rural and remote communities focus their attention on? Rural and Remote Health 2013; 13(4): 2518-2525.
9. Kakkar M, Pandya P, Kawalekar A, Sohi M. Evidence and Existence of Dental Education System in India. Int. J. Sci. Study. 2015 ; 3 (1):186-188.
10. Khan MA, Qazi HS, Farooq U. Demographics of orthodontists in Islamabad and Rawalpindi division. *Pak*. orthod. j. 2009; 1(2):10-14.
11. Prabu. D, Nirmala. S, Bharathwaj. V.V, Manipal S, Rajmohan, Aurlene N. Dental Manpower in Tamilnadu State, India, and its Implications - A Systematic Trend Analysis. Int. j. curr. res. 2018; 10 (8):72713-72718.
12. Divya L N, Prabu D, Bharathwaj V. V, Rajmohan, Manipal S. A Diligent Analysis on Dental Education and Manpower in the Southern States and Union Territories of India. Int. j. inf. res. Rev.2020; 7(6):215-225.
13. Balasubramanian M, Short S. The Commonwealth as a custodian of dental migratory ethics: views of senior oral health leaders from India and Australia. Int. Dent. J.2011; 61(5):281-286.
14. Tandon S. Challenges to the oral health workforce in India. J. Dent. Educ. 2004 ; 68: 28-33.
15. Fendall NR. Dental manpower requirements in emerging countries. Public Health Reports. 1968 ; 83(9):777-786.
16. The Straits Times - Breaking news, Singapore news, Asia and world news & multimedia [Internet]. The Straits Times. 2020 [cited 30 September 2020]. Available from: https://www.straitstimes.com/global.
17. Komabayashi T, Srisilapanan P, Korwanich N, Bird WF. Education of dentists in Thailand. Int. Dent. J.. 2007; 57 (4):274-278.
18. Top Colleges and Universities in all southeast and south Asia [Internet]. Collegedunia. 2020 [cited 30 September 2020]. Available from: https://collegedunia.com/.
19. Bangladesh M, Education S. List of Recognized Private Medical and Dental Colleges. Available from: https://www.mbbsbangladesh.com/list-recognized-private-medical-dental-colleges.
20. Here's how much money seven types of dentists make [Internet]. Business Insider. 2020 [cited 30 September 2020]. Available from: https://www.businessinsider.in/strategy/heres-how-much-money-7-types-of-dentists-actually-make/article-show/68855367.cms
21. Kasabah S, Gokul K. Mini-Clinical Evaluation Exercise in Dental Education in Kingdom of Saudi Arabia-A pilot study. Int J Curr Res Rev 2017;9(2):20.
22. Shobana S, Kanakarathinam R. Awareness and need of ethics and values in education for students: A study among college teachers in Pollachi region. Int J Curr Res Rev 2017 May 1;9(9):26-31.