

Revised Curriculum of BDS with Optional Subjects: A Thought Process

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Abstract

There is a lot of saturation of conventional career opportunities when it comes to practicing in dental sciences. As a result, there is remarked observance of unemployment, drastic shifts in the careers which are seldom related to bachelor studies. This can often lead to a lack of job satisfaction and complete arrest of the conventional clinical practice. In such scenarios, it is necessary to seek for the alternative applied career options where the students as well as established dentists work and manifest expertise in such different career spectrums. In addition to the conventional subjects in masters of dental surgery, these courses might help the students who cannot afford the fees required for the masters. Exposure to the new fields can lead to better demand for jobs and the experience adds on to the expertise, better patient compliance, and development of better interpersonal and interdisciplinary clinical practice.

Keywords: Alternative career, BDS, customized curriculum, dental care, future scope, job opportunities, saturation

INTRODUCTION

As the days of graduation approach, students think of the other tributaries in the field of dental science while considering subjects in the conventional Master of Dental Surgery. Furthermore, some dentists who have already completed their masters and wish to update their clinical knowledge also seek for such differential career alternatives. These different branches assist students as well as dentists to expand their conceptual understanding supplementing the additional clinical expertise^[1]

INCREASING NEED FOR ADDITIONAL COURSES IN THE BDS CURRICULUM

To consider a successful clinical practice in complex situations, there is a need of incorporating dental health care in various occupation sectors. It is extremely necessary to create such additional optional courses in addition to the existing curriculum to widened the future scope of dentistry. Such optional subjects with a basic customized curriculum in dentistry can also diversify the scope of interdisciplinary practice and research in future at the BDS level itself. With

easy access to the technology, a team of dentists too can create and become a role model for other potential aspirants.^[2]

FUTURE FIELDS FOR PRACTICE – A THOUGHT PROCESS

The following fields that can be considered in the current era, especially in India, include:

Sports Dentistry

It includes the prevention and management of athletics-related orofacial injuries and associated oral diseases. The sports or team of dentists would assist athletes in the prevention, treatment, and diagnosis of oral injuries. To inculcate comprehensive care, a dentist must be knowledgeable and adaptable in the areas of oral surgery, endodontics, operative dentistry, orthodontics, hospital dentistry, and patient behavior

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management. Specific counseling regarding the prevention of trauma, correction of malocclusion, removal of impacted teeth, use of mouth protectors, and treatment of any anomaly and prevention of pathology is important. With the increasing trend of sports participation in schools and colleges, protective devices and preventive options gain significance. Students with this knowledge can offer their services at national and international levels. Such courses should be available at the BDS level so that students can pursue this branch as a career.^[3,4]

Dental Photography

Digital Dental Photography is an accurate recording of the clinical manifestations of the oral cavity along with legal documentation, publishing, education, communication with patients, dental team members, colleagues, and technicians, and finally marketing. Effective communication skills are essential for all dental professionals, and digital dental photography is an exceptional tool for communication and documentation. The necessity of dental photography in the new age dentistry includes diagnosis and treatment planning, enhancing patient education and communication, legal documentation, insurance verification, specialist consultation or referral, laboratory communication, professional advertising/marketing, professional instructions on surgeries, self-education or improvement, and treatment philosophy and work ethics.^[5]

Veterinary Dentistry

It is the art and science of prevention, diagnosis, and treatment of disorders of the oral, and maxillofacial region and its associated structures as it relates to animals. Veterinary services can be offered in the fields of endodontics, oral and maxillofacial radiology, oral and maxillofacial surgery, oral medicine, orthodontics, pedodontics, periodontics, and prosthodontics similar to human dentists. They can treat conditions such as jaw fractures, malocclusions, oral cancer, periodontal disease, stomatitis, and other conditions unique to veterinary medicine. Dentists with this extra knowledge would work in collaboration with veterinary physicians. Currently, this branch is not existing in India. General physicians have been treating orofacial diseases in animals. If the basic curriculum of veterinary dentistry is available in India, the oral health of domesticated and non-domesticated animals can be better handled by dentists as a teamwork with veterinary physicians.^[6]

Sign Language

Sign Language (also known as signed languages) are languages that use the visual-manual modality to convey meaning. Sign languages are expressed through manual articulations in combination with non manual elements. Sign languages are full-fledged natural languages with their own grammar and lexicon. Linguists consider both spoken and signed communication to be types of natural language; both emerging through an abstract, protracted aging process and evolving over time without meticulous planning. The use of sign language in the deaf community can enable those patients with special needs to learn about dental health care and practice with them.

This can also be used in the clinician's practice in private clinics and hospitals to ensure a better understanding of the cause of illness and thereby successful treatment. Indian sign language for health-care providers is not available. American sign language is available. This venture will develop strong bonds between such patients and doctors.^[7]

Rural Dentistry

The dental care practiced in rural areas pertains not only to the lack of access of oral health-care providers due to geographical isolation but also the awareness about oral health, lack of fluoridation in most of the rural setups, and the prevalence of tobacco usage in rural areas more than urban areas which influence the development of various benign and malignant oral lesions. In rural dentistry, the first procedure is to decide the priorities of the oral health service according to both financial conditions and the sociocultural structures of the community, followed by treatment planning. The dentists who are more proficient in communication through local languages, can easily practice in rural setups such customized curriculum to start a practice in rural areas with the minimum device should be designed.^[8,9]

Dental Technology

The new technological advancements make dental visits quicker, easier, less painful, and more reliable. A greater emphasis is given to treatment and prevention. Furthermore, these technologies have a huge impact on the dental professionals treating their patients and guiding them toward effective oral health care measures at home. Dental Technologists are well-trained, certified professionals who work closely with the dentist to fulfill the individual needs. Basic knowledge to learn mechanics of major equipment (chairs, dental vans, major machines, etc.) and infrastructure too (dental laboratories, clinics, museums, etc.) much needed for every dentist as most of the time, the equipment and infrastructure does not work in clinics and institutions, dentists are helpless.^[10,11]

Practicing dental technologies can aid dentists to guess/identify the mechanical cliches in the dental equipment and infrastructure. Such basic knowledge will help to prevent and get them repaired by experts without any hassle. At the same time, dentists will not get fooled by a technical person rectifying the problem. The different technologies that have emerged in recent years are smart toothbrushes, digital dentures, augmented realities, teledentistry, intraoral cameras, etc. The idea is to fix the mechanical aspects of the dental equipment and make it work. Basic knowledge is necessary for working on instruments, Tutorials, information, literature, and courses with customized curriculum are required.^[10,11]

Graphics in Dentistry

This emerging field is good for students with immaculate digital knowledge. Such customized curriculum at the Bachelors of Dental Surgery (BDS) level might help in the innovation of budget-friendly software developed for every specialty in dentistry in the near future. The development

of three-dimensional animation education software for learning can enable the students, dental professionals as well as patients to be well aware of the procedure of treatment. Students who are good in graphics and digital parts, software for the national level can definitely pursue this stream.^[12]

Dental Psychology

Considering the psychological aspect of dentistry, the sights, smells, sounds, and general intimacy of the dental experience assaults the sensory system from almost every angle. This leaves many people unsure as to why they dislike receiving dental care; their body just tells them it is not pleasant. Understanding the psychology of the patient behind every reaction toward treatment, the body's response toward treatment as many chronic systemic diseases are connected with emotional stress and have adverse effects on oral tissues. The effects of psychological distress on oral health should be included in the curriculum so that the students are aware of these factors and can thereby help in the correct diagnosis of the oral condition in their future practice.^[13]

Medicolegal Dentistry

Law influences every aspect of human activity, and dentistry in this regard is no exception. Ethical standards of the dental profession are seeing a steady decline, altruistic concepts being overridden by a market-driven system. A deficient knowledge regarding the medico-legal aspects halts the effective implementation and delivery of efficient services. Evaluation and maintenance of dental records are of utmost importance, and thus, medico-legal aspects in dentistry play a vital role in the administrative and legal parts of dentistry. One should be well aware of such laws, and if included in the curriculum, the student can learn and implement when any medico-legal situation arises.^[14]

Dental Anesthesiology

Dental Anesthesiologists provide anesthesia for dentists in their office in addition to practicing in surgery centers, hospitals, and in educational institutions to share their training in pain; and anxiety control among colleagues and future dentists. They receive specialized hospital-based training in areas including pharmacology, internal medicine, emergency medicine, and pediatric and adult anesthesiology, along with a particular emphasis on improving patient safety and research studies. This is an emerging field in different countries and if included in our existing curriculum, can assist students as well as establish a field of expertise.^[15]

Holistic Dentistry

An Holistic approach to Dentistry or Integrative Dentistry sees the mouth as an integrated part of the body and considers oral health problems as they relate to total body health. Holistic Dentistry goes much deeper than just cleaning and fixing teeth; each patient's entire well-being is taken into consideration. An Holistic Dentist focuses on balancing the bacteria in their patients' mouth to improve not only their teeth and gums, but their overall health as

well. All non-invasive ancient therapies such as naturopathy, aromatherapy, music therapy, Unani, and Ayurveda is one of the many holistic approaches to heal mind, body, and soul. Derangement of all mind, body, and soul has strong effects on oral tissues.^[16]

Hypnotic Dentistry

Hypnotic Dentistry not only provides effective sedation while maintaining patient collaboration, but also may help patients recovering from dental anxiety and phobias as well as those with severe gag reflex. While pharmacological sedation affords a temporary comfort and helps the patient to cope with a single procedure, hypnosis can effectively allow for both; an excellent sedation in a physiological way, treatment of patients' anxiety, and substantially decrease the doses used for sedative and analgesic drugs when needed. Hypnotics can be used widely in the field of endodontics too. This field should also be included in the curriculum for a broader approach toward better treatment modalities.^[17]

Palliative Dentistry

It is the study and management of patients with active progressive and far advanced disease in whom the oral cavity has been compromised either by the disease directly or by its treatment; the focus of care is quality of life. The dentist may come across the solid tumors of the head-and-neck region, or the oral manifestations of hematological malignancies. This field is generally practiced when the patients are at home and there is limited spectrum for doctors to treat them.^[18]

Genetics in Dentistry

The role of genetics has been increasingly recognized in the understanding of various dental diseases and anomalies. Gene is the basic unit of heredity; it is the segment of DNA that is passed down from parents to offspring. It is responsible for protein formation, cell structure, and function. DNA is a double-stranded structure that contains complementary genetic information. During replication of DNA (s phase), if there is matching error in the complementary structure, a protein repairs it and keeps the genome intact, but with faulty repair, protein errors accumulate, leading to genetic mutation: A permanent alteration. If a BDS graduate is aware of the genetical predisposing factors for a disease, he/she can effectively diagnose, and therefore successfully treat the patient.^[19]

Braille Dentistry

Visual impairment may have an impact on access to dental care and oral health information. An effective dental health education method has to be instituted for visually impaired children. Continuous motivation and reinforcement in the form of Braille and audio instruction are essential to achieve good oral hygiene levels in visually impaired children. Further, long-term study on larger populations have to be conducted to obtain a result that will differentiate statistically between the motivational tools for visually impaired children. For effective patient education and any learning aspect

of dentistry, a graduate level can learn, write and create a platform for education of the vision compromised. Literature in Braille should be explored more and thus should be developed and practiced. With the advancement in dentistry, digital Braille is also available.^[20,21]

E- Dentistry

This course can be customized under two basic headings – academic and clinical. Academic, where students need to be taught to create e-programming for timetable schedule, attendance, lectures, examinations, and clinical where e-programming can be done for patient appointments, charges, in-out of clinics, maintenance, phone calls, bills paid, patients education, etc. Furthermore, e-programming can be used for students to conduct lectures and clinics, for institutions where everything can be recorded, for establishing a clinical planner for students and if included in the curriculum, with sufficient knowledge, students can take up small web designing and other e-programming software projects and assist the clinics and educational institutions with their expertise.^[22]

Dentistry on Wheels

This can be practiced using a vehicle which can provide dental health care similar to the cases of camps and emergency services. Where health care can be provided from place to place with the establishment of the required equipment; and set up in the vehicle itself. To provide care in different parts of the states, many students from various departments can collaborate as a team and set up. This field can be viewed as a future prospect to provide full-fledged service on the field. The expert team can move from place to place as per the demand of the population.^[23]

Dentistry on Bed

Maximum dental services can be provided for medically compromised patients, especially for bedridden patients at home. With devices which can be foldable, disposable devices, different equipment can be established which are easily movable and with an outlook of a future prospect, this can be very serviceable for maintenance of successful oral health care and satisfaction among patients as well as dentists. This can be a successful venture in future dental practices. For this specialty, expert technologists, and dentists are needed. Such a curriculum should be made available for students to learn and help society.^[24]

Biomedical Waste Mangament in Dentistry

Bio-medical waste is defined as waste that is generated during the diagnosis, treatment, or immunization of human beings and is contaminated with patients' body fluids. This can be syringes, needles, ampoules, organs, and body parts, placenta, dressings, disposable plastics, and microbiological wastes. Proper disposal of waste from dental clinics is of paramount importance because of its infectious and hazardous characteristics. Every dentist must be aware of the significance of appropriate scrapping and discarding

of the wastes and so it is essential to incorporate it in the curriculum. Basic knowledge of future ventures is required to prevent major epidemics and pandemics.^[25]

Aeronautical Dentistry

Aeronautic Dentistry is a developing science which studies the influence of flying and its effect on the oral cavity. It is challenging to provide dental services due to gravity issues but not impossible. Emergency dental services may be needed as it is difficult for astronauts to maintain good oral hygiene. Spitting and brushing is not possible in space. This is a very challenging subject where astronauts or other people associated with aviation and aerodynamics or conditions where maintenance of appropriate oral hygiene is not possible; the dentists can aid such situations arising on the field.^[26,27]

Dentistry on Ships

It is used in people associated with ships, navy populations, and other seafarers. When the oral health is compromised, dentist on board is required. A dentist should be trained to offer services on ships.^[28]

Dentistry for the Third Gender Population

This population is usually prone to high-risk lesions. Dentists need special care while treating these groups of people, especially eunuchs. They should also have schools (with customized curriculum) and job opportunities so that families will not abandon such kids with genetic abnormalities for begging. A proper customized curriculum should be developed for such people as they are more prone to diseases, and a special course for dental education should be inculcated.^[29,30]

Dental Material Experts

Through this field, a BDS student can potentially collaborate with experts for research and contribute to dental material science in India. The development of low-budget dental materials, the strategies for such development and production in India can be produced effectively by students who have learned about the techniques and thus, such new techniques can also be implied.^[31]

Basic Medical Researchers at Bachelor's Level

Every health care provider needs a researcher. If a BDS student too is an efficient researcher, through such customized curriculum he/she can join any research project at any platform and can expand his/her growth as researcher in future.^[1]

Tobacco Control and Cessation Expert

Dentists play a very important role in promoting tobacco cessation activities as tobacco mainly affects the oral cavity. There is a lack of time, monetary gains, and training to promote awareness. It is essential to include the theoretical as well as clinical aspects of the effects of tobacco on oral health in the curriculum for undergraduates.^[32]

Dental Practice Managers

Along with a successful treatment, a successful business

is essential to run any dental or medical organization. Active Dental Practice Managers who can distribute the workload effectively into different sections such as marketing strategy and other business aspects of dentistry along with upgradation of the training requirements are a necessity as they can aid in effective management of the organization.^[33]

CONCLUSION

All the above optional subjects allow students to take up small projects too related to their chosen subjects. It will help them contribute to dentistry with innovations at the BDS level too. All BDS students cannot afford postgraduation due to financial reasons, but such customized curriculum will definitely help them to explore their skills after BDS, which are yet to be explored currently. Some of the career options mentioned are not studied vitally till date, but considering the future, these fields may also contribute toward the widened spectrum of providing dental health care in various sectors.

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There are no conflicts of interest.

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