

## Time to declare ophthalmology an independent discipline by initiating Bachelor of Ophthalmic Surgery programme

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### Abstract

Medical education, associated with lengthy, exhaustive pathways requisite of time, energy and efforts, restrain an individual from pursuing a career in medicine. Most students enrol in medical colleges under the influence of their family members, and only some strive to seek medicine as their own ambition. Medical students confront a number of problems in memorising huge amount of data and the various strategies are integrated in MBBS curriculum from time to time. After MBBS programme, most graduates tend to abandon studies, some migrate abroad, a few continue as general physicians and even fewer strive to get registered for postgraduate specialisation. This results in suboptimal supply of medical workforce. Inconsideration of the current ophthalmologist work ratio and growing demand for eye care services, an initiative is put forward to introduce Bachelors of Ophthalmic Surgery programme similar to Bachelor of Dental Surgery. Such initiative may facilitate effective learning, enable command in a particular area and encourage more individuals to pursue a career in ophthalmology. Using a questionnaire to undergraduate medical students, medical professors and ophthalmologists were surveyed to evaluate the efficacy of the proposed initiative. The results threw a mixed response.

**Keywords:** MBB, Curriculum, Ophthalmology, BOS, Bachelor of Ophthalmic Surgery.

### Introduction

Globally, medicine is perceived as a highly adorable profession and medical professionals are taken as symbols of those serving humanity. Lengthy, exhaustive pathways requisite of time, energy and efforts represent one major reason that number of individuals stay away from pursuing a career in medicine. Most students enrol in medical colleges under the influence of their families, and only a few go for it as their own ambition.<sup>1</sup> The current study was planned as an effort to suggest a strategy to facilitate effective learning for medical students in a specialised area.

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### Methods and Results

The study was conducted in Dow University of Health Sciences, Civil Hospital, Karachi, Liaquat National Hospital, Hashmani Hospital, from May 2014 to mid of June 2014. A questionnaire was used to extract the opinion of 50 under graduate medical student of 3rd, 4th and 5th years, 6 medical professors, and 20 ophthalmologists of government, semi-government and private hospitals.

After a brief description, the respondents were encouraged to fill the questionnaire while separately presenting their objections, suggestions and insights, if any.

The questionnaire aimed at determining satisfaction level with current MBBS curriculum with respect to its effectiveness and assistance in learning, assimilating and retaining knowledge, future scope of ophthalmology in terms of growing demand for eye care services, efficacy and endorsement for the proposed initiative of introducing a Bachelors of Ophthalmic Surgery (BOS) programme, and applicability of such an initiative in other specialties.

The respondents were required to rate each statement from 5 to 1, with 5 interpreted as definitely high, 4 considerably high, 3 slightly high, 2 slightly low and 1 considerably low. SPSS version 16 was utilised to analyse the trends observed in the responses and drawing interpretations accordingly.

In terms of satisfaction with the current curriculum, 2% respondents rated it definitely high, 41% considerably high, 45% slightly high 7% slightly low and 5% rated it considerably low. Medical students' mean score was slightly high, while medical professors' mean score was between slightly high and considerably high.

Future scope of ophthalmology was rated definitely high by 8%, considerably high by 56%, slightly high by 25%, slightly low by 8%, and considerably low by 3%. Medical students' mean score was definitely high, medical professors' mean score was slightly high, while ophthalmologists' mean score was between slightly high and considerably high.

As for the proposed BOS initiative, 7% rated it definitely high, 34% considerably high, 30% slightly high, 11% slightly low and 8% considerably low. Medical students'

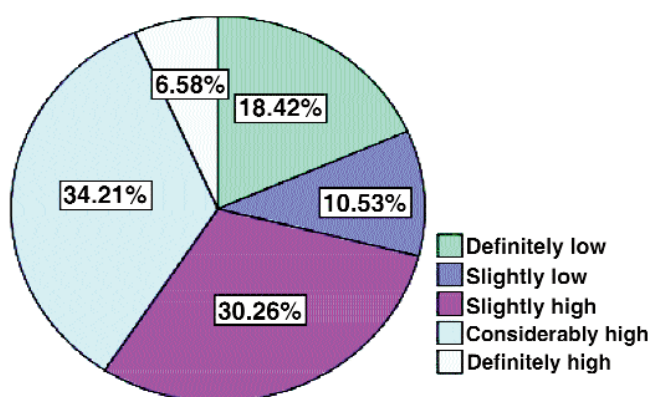
**Table-1:** Response classification.

Respondents	Satisfaction with MBBS Programme		Future scope of Ophthalmology			Endorsement for BOS Programme			Applicability in other specialities	
	M.S	H.O.D	M.S	H.O.D	O	M.S	H.O.D	O	M.S	O
Definitely high	0	1	2	0	4	2	0	3	4	0
Considerably high	22	1	35	3	5	22	1	3	9	2
Slightly high	21	4	9	0	10	18	2	3	8	1
Slightly low	4	0	2	3	1	4	1	3	13	2
Definitely low	3	0	2	0	0	4	2	8	16	1

M.S: Medical Students.

H.O.D: Head of Department.

O: Ophthalmologist

**Figure:** Endorsement for B.O.S Programme.

mean score was slightly high, while medical professors' and ophthalmologists' mean score was between slightly low and slightly high.

Regarding the applicability of similar approach in other specialties, 7% rate it definitely high, 20% considerably high, 16% slightly high, 27% slightly low and 30% considerably low. Medical students' mean score was between slightly low and slightly high, medical professors' mean score was slightly high.

## Discussion

Two major degree programmes embracing MBBS and Bachelors of Dental Surgery (BDS) are regulated by the Pakistan Medical and Dental Council (PMDC). MBBS is divided into two parts; pre-clinical and clinical studies. Pre-clinical lasts two years, offers basic medical sciences like Anatomy, Physiology, Biochemistry, Pharmacology, and Pathology, while clinical studies last 3 years, offering Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Ear, Nose and Throat (ENT), Eye, and facilitate clinical exposure through wards rotation. Medical education in all

lasts five years of medical school followed by one year of internship. Residency training lasts three years for Internal Medicine to five years for Surgery to 7-8 years for Neurosurgery. Fellowships range in length from 1-3 years. Board certification is granted after completion of residency, fellowship training and clearance of written and oral exam. BDS programme lasts five academic years composed of two years of basic medical and dental sciences followed by two years of clinical dental sciences and one year training.<sup>2</sup>

Initially there was annual system in medical schools, but with the advent of the semester system, five years were further divided in to 10 semesters; each semester lasting for six months. It was aimed at reducing workload on students but it actually further amplified the workload.<sup>3</sup> In an effort to facilitate effective learning, module system was embraced by some medical colleges comprising two spirals each of 13 modules lasting 2 years. The first spiral comprises 70% content of basic sciences and 30% of clinical sciences. The second spiral comprises 70% content of clinical sciences and 30% of basic sciences. The last year (5th year) comprises structured clinical clerkships in various clinical departments.<sup>4</sup>

Curriculum design and structure significantly influence effective learning, academic progress and achievement. Medical students confront a number of problems in learning, assimilating and retaining huge data about human body that seems to be a planet in itself. It consumes a lot of time, energy and efforts, and students frequently experience difficulty in memorising and retaining complete knowledge owing to excessive workload and hectic schedules which exhaust their learning capacity and curtail social and family life. In short, rewards do not justify the efforts. The element of stress associated with depression is reported to be high in medical students than in the general population. The level of stress often results in negative effects on individual academic performance, physical health and psychological wellbeing.<sup>5-7</sup>

MBBS programme is offered in 36 public and 51 private colleges, while the BDS programme is offered by 11 public and 29 private colleges.<sup>8</sup> Female students being assiduous are able to enrol themselves in medical colleges and occupy 80-85% of seats. But unfortunately 75% of females are likely to abandon the profession after the MBBS programme due to family and societal issues.<sup>9</sup> Besides, 15,000 doctors move abroad to pursue their career resulting in reduced workforce back home.<sup>10,11</sup>

According to PMDC statistics, there are 135,923 registered general physicians in Pakistan; 46% being females, and 29,487 specialists, with 73% being males. In dentistry, there are 12,782 dentists, with 38% being males, and 1,077 specialists comprising 72% males. The World Health Organisation (WHO) recommends 1 doctor for 1,000 population. In Pakistan the average ratio is 8.1 physicians per 10,000 people.<sup>12</sup>

As for the rising need of eye care services in Pakistan, the UNDP Human Development Report<sup>13</sup> said 125,388 children are blind and 4 million children are suffering from refractive error (RE). Cataract (53%), corneal scarring (14%), uncorrected refractive error (12%) and glaucoma (7%) are the main causes of blindness. According to the National Blindness and Visual Impairment Survey, the estimated prevalence of blindness in Pakistan is 0.9%, with significantly higher rates of blindness in rural communities compared to urban, and in women than in men. Of the estimated 26,350,000 adults with REs, crude prevalence of myopia, hypermetropia and astigmatism in adults stand at 36.5%, 27.1%, and 37% respectively.<sup>14,15</sup> A population-based cross-sectional study conducted in governments school children between 6 to 16 years of age with a mean of 6, estimated 862(17.24%) students out of 5000 as ametropic (myopia 58.23%, hypermetropia 16.24%, astigmatism 25.52%).<sup>16</sup>

Ophthalmic diseases have been correlated with various factors, including age, inheritance, deficiency of vitamin A, prolonged exposure to ultraviolet (UV) light, excessive use of electronic devices, diabetes, etc. These factors are held indirectly responsible for poor eye health status of the population.<sup>17</sup> In Pakistan, these include high-risk factors associated with prolonged UV exposure with UV index ranges between 7 and +11.<sup>18,19</sup> Vitamin A deficiency with overall prevalence of 12.5%; 10.9% in urban and 13.5% in rural population,<sup>20</sup> diabetes with 6.9 million people and figure may rise to 12.8 million by 2035 if steps are not taken to halt its prevalence,<sup>21</sup> growing sale of computers, cell phones, television sets and other visual devices indicate excess usage and exposure to electronic devices.<sup>22</sup>

Ophthalmology is studied as a course in 2nd part of the MBBS programme, as a specialty comprising both surgery and medicine. It is divided into sub-specialties including

cataract and refractive surgery, uveitis and ocular immunology, ophthalmic plastic surgery, ophthalmic pathology and neuro-ophthalmology. MBBS graduates are encouraged to pursue career in ophthalmic specialisation through a residency programme. Number of programmes offered in ophthalmology include B.Sc. (Honours) in Optometry, Orthoptics and Investigating Ophthalmology, Ophthalmic Technician Training Programme, and Ophthalmic Nursing Diploma.

According to the International Council of Ophthalmology, (2012)<sup>23</sup> there are 1,860 ophthalmologists in Pakistan with work ratio of 11 ophthalmologists per million. Besides, 70% of ophthalmologists reside in urban areas, while 70% of the population lives in rural areas. According to a study, 7.5% medical graduates, including 84.5% females and 14.5 % males, prefer to pursue career in ophthalmology among other specialties but the percentage of female ophthalmologists is negligible compared to males.<sup>24</sup>

Ophthalmology as a discipline requires both male and female doctors in equal proportion to serve the eye care sector. The role of female ophthalmologists is specifically important in rural/district areas constituting 70% population and having high prevalence of eye disorders among women. Besides, hesitation to see a male doctor may lead to poor vision accompanied, and together with inaccessibility to eye care, it can impede quality of life.

To ensure optimum supply of eye care professionals, the initiative is put forward to introduce a BOS programme similar to BDS, divided into two parts, Basic medical sciences and Clinical medical sciences. Changes incorporated in the second part should focus on more relevant subjects by compromising on a detailed study of irrelevant subjects. Such an initiative may assist students in learning and enable a prehensile grip in a particular area. The effectiveness of the proposed initiative was evaluated in the light of the response rate of medical students, medical faculty and ophthalmologists by the current study.

The idea is to turn specialties into independent disciplines at the undergraduate level by incorporating changes in the 2nd part of MBBS. Exposure to Basic medical sciences is sufficient to develop understanding about different compositions, organs systems, functions and mechanisms. Specialisation in the second part of MBBS curriculum, covering the relevant and skipping the irrelevant, may enable command in the particular area. When this initiative was proposed, the general argument put forward was that the constitution of the human body is very complex and interdependent. Our findings reveal that most students are unable to retain complete knowledge acquired during 5 years of the MBBS

programme, and they intend to seek opportunity cost in terms of their area of interest. In such a scenario, there is hardly any need to over-burden the student.

After MBBS, most graduates tend to abandon studies due to societal issues, some immigrate abroad, a few continue as general physicians and even fewer get themselves registered for specialisation. According to the PMDC statistics, the gap between the registered physicians and specialists is quite evident. With respect to this dilemma we determine the applicability of similar approach in other specialties by revising and restructuring the current undergraduate MBBS curriculum facilitating assimilation, retention and command in a particular area of knowledge, encourage serious students to pursue career in medicine and regulate optimum supply of medical professionals in all specialties.

The random and unequal proportion of medical students, medical faculty and ophthalmologists is a limitation of our study.

## Conclusion

Current ophthalmologist-to-patient ratio and growing demand for eye care services stress the fact that the proposed initiative needs to be taken into consideration to facilitate effective learning and to encourage more individuals to pursue a career in ophthalmology.

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