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## Graduate perception on the Undergraduate Medical Curriculum

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### Abstract

**Introduction:** Graduate perception is supreme in assessing the effectiveness of the Undergraduate medical curriculum. The curriculum of the Faculty of Medicine, University of Colombo consists of the Basic Sciences Stream, Applied Sciences Stream, Community Medicine Stream, Behavioral Sciences Stream and the Clinical Sciences Stream. Quality assessment and improvement programs similar to this study are undertaken routinely to ensure optimum teaching.

**Objective:** To assess the perception of recent graduates regarding the overall MBBS curriculum, outcome of the programme and career goals, administration, services provided, infrastructure and opportunities.

**Methodology:** The study population consisted of 198 graduates with a response rate of 66.1%. A routinely used self-administered questionnaire was used.

**Results:** Majority of participants had a positive impression regarding the overall MBBS programme (96.2%). Overall agreement regarding the academic curriculum was that the learning outcomes, teaching activities and examinations matched appropriately in all streams. While it was suggested to focus more on clinically relevant subjects throughout. The final year professorial clerkships were identified as stressful by a considerable proportion of graduates, but it was highly dependent on the discipline. However the ability to manage emergencies and the satisfaction with the programme were rated as positive overall. Majority was satisfied with the examination procedure although a proportion of students have also agreed that they had been treated unfairly by the examiners.

**Conclusions:** Graduate's perception is that it is optimum if more clinically relevant theory is taught in integration with the clinical appointments. Measures need to be taken to reduce stress and increase time available for self-studying specially during the professorial appointments.

**Keywords:** Graduate perception, Curriculum

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### Introduction

The perception of graduates in regard to the MBBS curriculum is paramount to assess the effectiveness of the education program. Student feedback is considered binding and dependable by educators worldwide and is accepted as a

valuable input in formulating curriculum changes in keeping with the changing demands of medical education over time (Clack, 1997).

The Faculty of Medicine, University of Colombo has first made changes in the MBBS curriculum in 1995 and there have been series of changes undertaken since then to change the system of didactic lectures to a more integrated and student-centered learning system. This setting has been identified as a favorable environment for curriculum reforms from the days of initial changes made (Jayasinghe, 1996). These have

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been made considering the new trends in medical education along with the feedback provided yearly by the previous graduates.

Current curriculum structure is organized as five “streams” which run longitudinally throughout the course as depicted in Figure 1. Content is arranged into body system/ topic based modules which add up to constitute the relevant stream. The Basic Sciences Stream enables undergraduates to acquire core knowledge in Anatomy, Physiology, and Biochemistry. Pathophysiology with fundamental management of disorders in structure and function is learnt in the Applied Sciences Stream. The Community

stream follows mainly field-based teaching in order to create a more community-friendly medical professional. Behavioral Sciences stream facilitates inculcating skills in effective interaction and ethical practice. Clinical clerkships are carried out in the setting of the Colombo group of hospitals and other specialized hospitals attached to the ministry of health. Professorial clerkships provide ward based training in the five major specialties; Medicine, Surgery, Pediatrics, Gynaecology and Obstetrics, and Psychiatry. Each stream carries out a set of assessments to ensure objectives are met as expected.

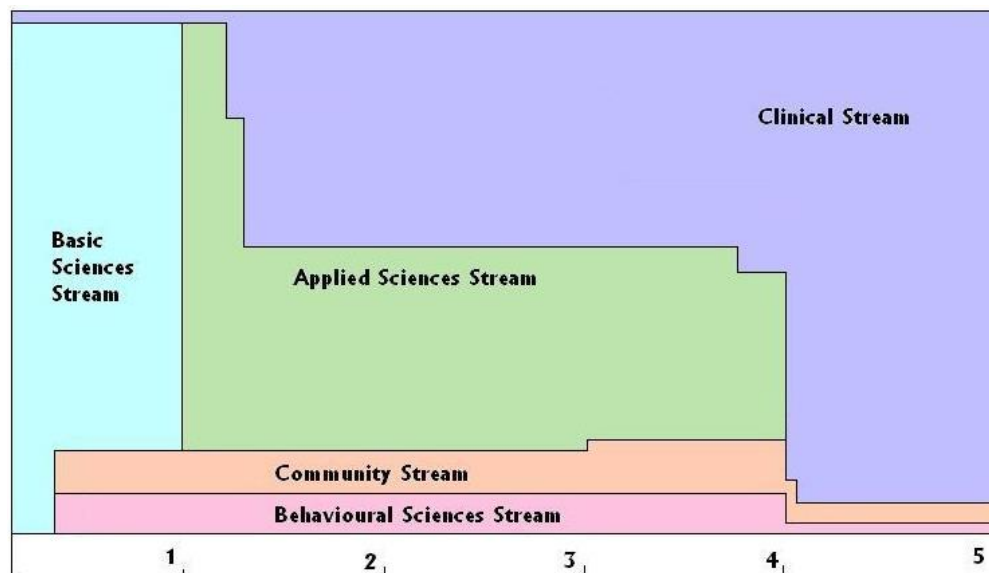


Figure 1: Five streams of the MBBS Curriculum

In addition as medical education is multifaceted catering to multiple requirements, it's apparent that quality improvement should be assessed extensively and frequently in the multitude of the components offered in the degree programme (Scheele, 2012). Therefore the objective of our study was to assess graduate perception regarding multiple aspects as discussed below.

Graduate perception is obtained yearly in the same study setting evaluating the entire medical curriculum spanning the entire 5 years. The current study too was carried out among the recent graduates of the faculty as they have completed the entire curriculum and is

competent to provide feedback on each aspect similar to a study carried out in 2011 (Ranasinghe *et al.*, 2011).

## Method

The study population consisted of 198 graduates. Data were collected in two sessions following the completion of final MBBS exams in March, 2022. A routinely used self-administered questionnaire developed over the years by the medical educationists of the institute was used as the study tool. It was focused on the Overall MBBS curriculum, Academic curriculum, Elective program, Professorial clerkships, Final

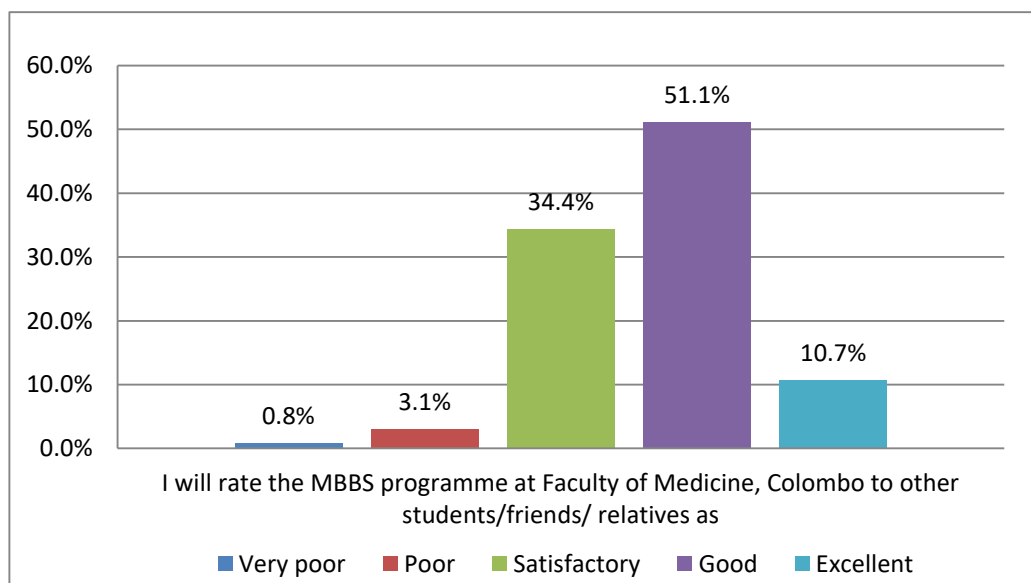
MBBS examination, Outcome of the programme and career goals, Administration, Services provided, Infrastructure and Opportunities available for extracurricular activities. The questionnaire consisted of 10 parts and each with 5-2 questions on a Likert scale. Participants were allowed to present their suggestions by adding open-ended questions.

The data was recorded and analyzed using IBM SPSS Software version 23. The questionnaire was pre-tested and all the graduates were invited to participate. Similar responses to open

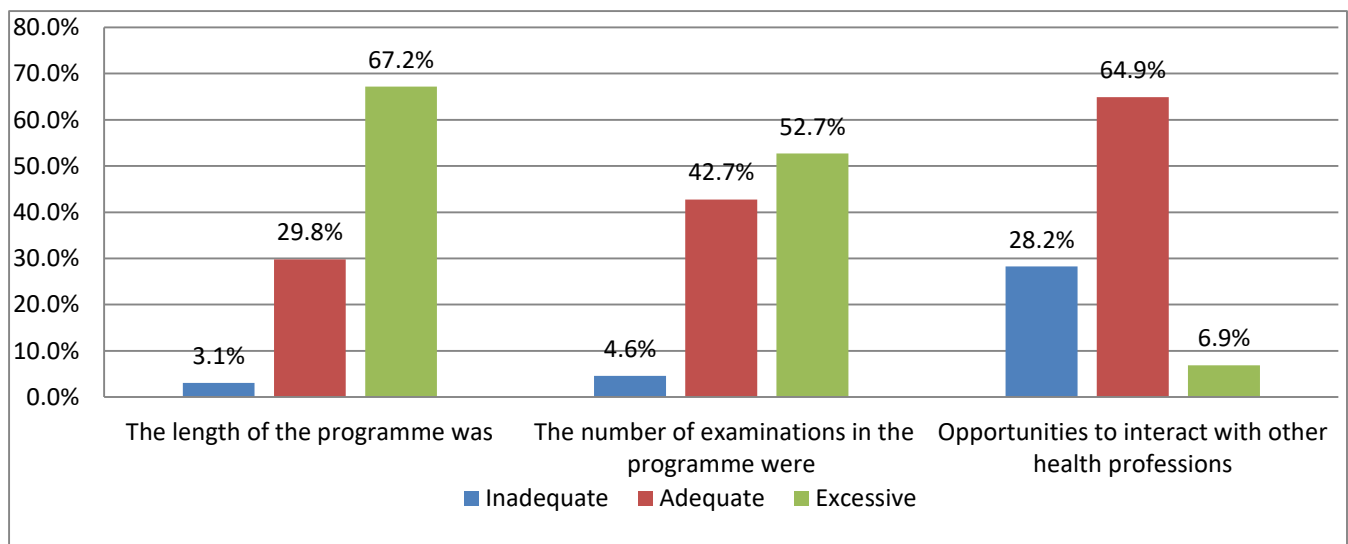
ended questions were categorized and the relevant categories were numerically assessed.

## Results

Response rate for the questionnaire was recorded as 66.16%. *Overall MBBS Curriculum* The majority of the students (96.2%) had a positive impression of the MBBS degree program at the Faculty of Medicine, the University of Colombo and majority of the graduates stated that they were competent to join the world of work (61.8%).(Figures 2,3)



**Figure 2: Response to the statement "I will rate the MBBS programme at Faculty of Medicine**



**Figure 3: Responses regarding aspects of the overall MBBS programme.**

### Basic Sciences stream

Graduates indicated that content in Anatomy, Physiology, and Biochemistry was clinically relevant (71.8%, 77.9%, and 59.5% respectively) and agreed that examinations assessed their knowledge appropriately (77.1%, 81.6%, 73.3% respectively).

When prompted to state strengths of the stream, it was mentioned as cadaveric dissections (n=15), weekly review in Anatomy (n=20), availability of resourceful teachers (n=15), practical sessions in Physiology (n=7) and practical sessions in Biochemistry (n=20).

It was suggested include more clinically relevant subject matter as improvement for Anatomy (n=13), Physiology (n=6) and Biochemistry (n=3).

### Applied Sciences Stream

The students' agreement for the adequacy of the pathophysiology knowledge provided by modules for the clinical practice was highest in the mental health and the neurology modules (91.6%) and the lowest reported was 75.6% for the Infectious diseases and the Parasitology module. Majority of the students (65.1%) had identified the huge work load in the

Applied Sciences stream as an obstacle to pay sufficient attention to the clinical appointments.

### Community stream

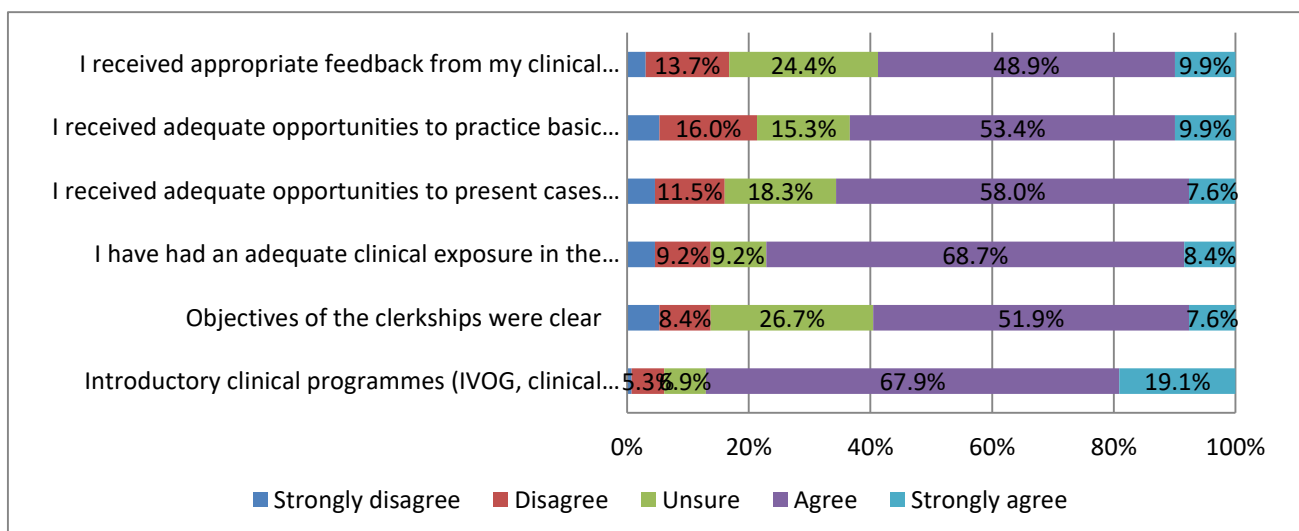
A higher proportion of graduates (58.8%) mentioned that Health-related research project under the community stream was useful in preparing them to address the health needs of the community.

### Behavioral Sciences Stream

The majority of the graduates (91.6%) agreed that they had received an adequate amount of information regarding Medical ethics, Communication Skills, and Basic behavioral sciences to function as a basic medical doctor.

### Clinical Sciences stream

Many students agreed that they have had adequate clinical exposure in major clinical disciplines (68.7%) and the majority of them agreed that introductory clinical programs (IVOG, clinical orientation) adequately prepared them for clerkships (67.9%). 63.3% of participants stated that they had received the opportunity to practice basic procedures. 59.9% of the participants agreed that they had received appropriate feedback from the clinical teachers.



**Figure 4: Aspects of the Clinical Sciences Stream prior to the professorial appointments.**

### Elective programme.

The majority of the graduates reported that the elective program had provided them the opportunity to learn in-depth about their chosen area of study (71.0%).

### Professorial clerkships

A considerable proportion of graduates found the professorial clerkships stressful and the stress levels were dependent on the subspecialty, marked least in the Obstetrics and Gynecology appointment with only 38.9% participants finding it as stressful and most in the Surgery appointment with 74.9% participants finding it as stressful for them. Respondents identified doing the professorial amidst the COVID pandemic as a special stressor (n=40). In addition increased workload due to the end of the appointment portfolio submissions was identified as stressors (n=53).

The major proportion of students were confident in managing emergencies from each subspecialty where highest response was seen in surgery (92.4%) and lowest response was seen in medicine (88.5%).

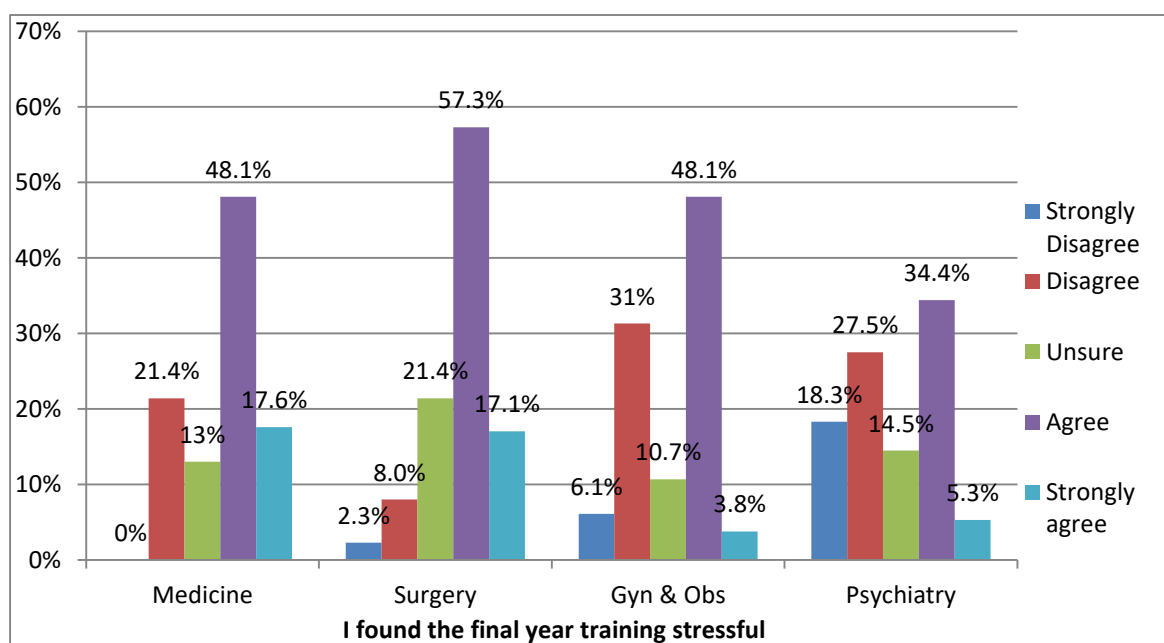
Moreover the majority of the students found that teaching was well organized with highest satisfaction in the Psychiatry appointment

(89.3%), and the least satisfaction in the Pediatrics appointment (71.0%).

The impact of the COVID-19 pandemic on the final year teaching programme has been remarkable. 13 students reported that the use of Personal protective equipment made clinical work more exhausting. The reduced clinical exposure was reported by 33. As overall strengths of the final year teaching programme, the resourceful academic staff (10) and the well-organized programme (8) were reported by the graduates.

### Final MBBS clinical examinations

The majority responded that there were adequate number of cases with conditions assessed commonly at examinations mostly in obstetrics and gynecology (95.5%) and their skills were examined adequately mostly in obstetrics and gynecology (89.3%) while the least value was recorded for Surgery (79.4%). Clinical decision-making was best discussed in Psychiatry cases (90.1%) and the Surgery cases (79.9%) were recorded with the lowest. A considerable proportion had reported that they were treated unfairly by the examiners (Medicine-23.7%, Surgery-27.4%, Pediatrics-34.3%, Obstetrics and gynecology-32.1%, and Psychiatry-27.5%).



**Figure 5: Responses to the statement "I found the final year training stressful".**

### *Outcomes of the programme and career goals*

The primary outcome of the program, patient management as an intern was satisfactorily achieved according to 99.2% participants.

Many of the graduates (41.2%) had reported that they had not decided on their career goal and 26.7% of participants were willing to work as a specialist, attached to the ministry of health - Sri Lanka. A career in fields of research and university academics was preferred by 4.6% of the participants cumulatively.

### *Administration*

Many of the students were satisfied with access to the administration (48.1%). However the responsiveness of the administration to the students' concerns appeared to be inadequate with many being unsatisfied (39.7%). The opportunity for the students to participate in key administrative/ curriculum committees was satisfactory according to many (45.8%).

### *Services provided*

Personal and academic counseling for the students were identified as satisfactory (59.6% and 55.0% respectively). Many agreed that there were satisfactory levels of assistance in career planning (43.5%) and assistance in financial aid (76.4%).

### *Infrastructure*

While the availability of library facilities, lecture halls, and multimedia facilities, IT infrastructure, and hostel facilities were at satisfactory levels (54.9%, 58.8%, 58.7%, and 57.05% respectively), the many graduates were unsatisfied with the student study spaces and canteen facilities (53.4%, 46.5%, respectively).

### *Opportunities available for extracurricular activities*

Many stated that time available for the extracurricular activities was unsatisfactory (43.5%).

## **Discussion**

There are several studies on medical student perceptions on medical school curriculum including previous studies in the same setting and others. Results of our study will be discussed in the light of this previous evidence.

High response rate observed in this study is indicative of acceptability of the method of self-administered questionnaire by the respondents. This method is considered beneficial as it creates a favorable environment for the students to express their independent views on the curriculum while being a cost effective and manageable method of data collection (Ranasinghe *et al.*, 2011). However as a lengthy questionnaire was administered students may have been less motivated in providing responses reducing the reliability of the results (Morrison, 2003).

Considering the vitality of academics in ensuring a competent junior doctor major emphasis in this study was given to student perception on academic aspects.

It is imperative that a Medical school generates adult learners who are keen on lifelong learning. It has been suggested that the Medical school curriculum has to be changed in such a way that undergraduates engage in student-centered active learning while identifying their educational goals and objectives independently (Lempp, 1992). This curriculum which underwent changes across time with a similar intent currently has an overall positive feedback from the student as elicited in the results of this study. In the 1st year subjects are taught with the least interdisciplinary interaction. It has been previously demonstrated that out of the diverse teaching activities undertaken student's preference is higher for activities such as practical sessions and small group activities including cadaveric dissections (Gupta *et al.*, 2014). In our study too students had emphasized the importance of dissections and practical sessions providing a more pragmatic approach to the massive theory content. The

overall views of these graduates regarding the Basic sciences stream seem to be satisfactory. However many suggest that more clinically relevant content should replace redundant theory knowledge. This is justifiable as the curriculum's primary goal is to create a competent clinician. Moreover many students highlighted the fact that the stream was fast paced. This has been stressful to the students as they were also adjusting from a teacher oriented study setting to a more student oriented teaching. Since this issue was repeatedly noted previously, it has already been addressed by the curriculum reforms that occurred in the junior batches following this batch. Students have also suggested that the modules in Applied sciences stream should be more integrated with the clinical appointments. This lack of integration of modules with clinical appointments was identified as a detrimental factor in 2011 too (Ranasinghe *et al.*, 2011).

One of the most appreciated aspects in the community medicine stream was the research programme. Although including a research component in the medical curriculum has been controversial it is apparent that research is essential to maintain integrity in the medical field. Moreover the health-related issues in the community can be identified by research and specific patterns can be followed (Sreedharan, 2012). In our study many students expected more guidance from their mentors while allocating sufficient time to undertake a successful research.

Undergraduates require guidance before starting the clinical appointments in order to adjust to the clinical environment which is completely different from the text book based class room setting. There are studies that have shown that pre-clinical introductory sessions tend to mitigate students' fears regarding the particular discipline (McKinley *et al.*, 2020). Similarly in our study graduates have appreciated the available introductory sessions.

Despite the efficacy of a student-centered learning, in a study carried out in Birmingham

Medical School, students have reported that lack of guidance in the medical curriculum is exceptionally stressful, especially in students adjusting from pre-clinical to clinical years (Radcliffe *et al.*, 2003). Similarly in our study many graduates have reported that lack of guidance provided during the pre –professorial clinical appointments had a negative impact on their performance. A Canadian study explains the importance of the subjective feedback provided by supervisors depending on their observations. Here it has been identified that feedback should be strong enough to compete with other numerous learning cues in the learning environment and should be credible to be effective (Watling *et al.*, 2012). However, it has been identified that during ward based clinical teaching some teachers encourage haphazard teaching methods and humiliation of the students, during clinical training in our study. This is contradictory to the idea of having a well-organized reformed curriculum to provide relief to already overburdened students (Lempp *et al.*, 2009).

An elective program is an opportunity for undergraduates to expand their academic desires beyond their usual setting and fields. A study has suggested students' satisfaction must be considered when predicting the future needs of elective in order to make them more student-centered (Ramalho *et al.*, 2020). In our study many students are satisfied with the well supervised opportunity to learn a selected area in depth.

Perceived causes of stress during medical school which is most in the final year of clinical training could be categorized into four themes as stress due to the load of work, professional socialization, and poor guidance by mentors resulting in ambiguity and the challenge of adapting to several transition points along the preclinical and clinical years (Radcliffe *et al.*, 2003). In this study graduates have reported all professorial appointments as stressful in different frequencies, where it varied across each discipline. In addition, they have suggested that final year teaching should be more guided



and had identified end appointment submissions resulting in increased workload as stressors in this program further highlighting two of the above categories. Although the end of appointment portfolios was identified as a stressor it has been demonstrated that portfolio assessments are a worthy tool with a dynamic approach to assessing a wide array of curriculum outcomes not possible by other methods (Davis *et al.*, 2001).

Many students identified that doing the professorial during the COVID pandemic reduced clinical exposure due to reduced patient number and caused interruptions. It was a special stressor not experienced by previous batches. A cross-sectional study carried out in the United States suggests that although medical schools implemented many measures to continue clinical training amidst the crisis as effectively as possible, further modifications should be undertaken to ensure the well-being of students (Chakladar *et al.*, 2022).

In previous literature some of the students have felt that the judgment of the examiners is biased on their desire and intention, where the students were unfairly treated (Chowdry *et al.*, 2014). To overcome such scenarios, clinical examination structure must be carefully formed, enhancing the reliability of the procedure for both candidates and examiners. Various components could be added to assess the knowledge and skills, yet justified according to the depth of the assessment and marking criteria (Waas *et al.*, 2001). Many graduates in our study had perceived the actions of some examiners were unjust similar to the previous literature. It is important to establish an independent body to address these concerns to maintain credibility of examinations.

It has been demonstrated that the field of post graduate study, the time taken to complete studies and the proportion of students opting for post graduate education is dependent on their initial medical school (Goonasekara *et al.*, 2013). However in our study many graduates

have recorded that their future career choice is undecided so far.

According to Pathmini *et al.* (2014) in order to ensure high levels of student satisfaction it is crucial that the administration appears reliable and empathetic. Accordingly it's apparent that although tangibility and competency of the administration is considered pivotal more attention should be paid to reliability and empathy. According to our findings even though the accessibility to administration was adequate majority was dissatisfied with the responsiveness of the administration to student concerns. This remarkable disparity between the student concerns and reciprocation by the administration will most likely result in loss of reliance and discourage students from reaching the administration with their concerns in the future.

Students are provided confidential counseling services on a wide range of issues from the first year in the faculty by the student's counselors. In addition each student is assigned a Personal Tutor as a mentor for the entire faculty life. However it is alleged that intrinsic motivation among students is often underrated by curriculum developers although ensuring students' autonomy and providing feedback on performance and emotional support is paramount to improve intrinsic motivation among students (Kusurkar *et al.*, 2012). In the background of such tendencies it is admirable how the personal and academic counseling provided to students is identified as satisfactory by a majority in this study.

Despite being a state funded university in a developing country all facilities including lecture rooms, library facilities, computer labs, hostel facilities etc. are provided to all students free of charge in our study setting. Accordingly, majority of the students indicated that they were satisfied with the availability of infrastructure. However many graduates were unsatisfied with the adequacy of the student study spaces, canteen facilities. In a study carried out in 1992 regarding the University system of Sri Lanka, it has been

demonstrated that the quality of food provided by the university canteen was not at a satisfactory level forcing many to buy food from outside (Marasinghe et al., 1992). 30 years later in our study the status of canteens remain same showing lack of intervention from relevant authorities. These factors need to be addressed as infrastructure is a crucial factor that affects the students' satisfaction on higher education (Weerasinghe et al., 2018).

## Conclusions and Recommendations

Many reforms have been undertaken since 1995 aiming to improve the quality of the graduate produced from this curriculum.

It has been suggested that the Basic Sciences Stream should be more integrated with the clinically relevant study material. This issue has been addressed in curriculum reforms that took place in the later years and we suggest a similar study to be carried out among those students.

In the Applied Sciences stream, it has been highlighted that the burden of theory modules reduces time available to focus on the clinical appointments and it is imperative that the exam burden on students to be reduced. This too has already been addressed by reducing the number of modules in the Applied Sciences stream and the effectiveness of such measures need to be objectively measured.

Allocating more time and guidance in the Research programme in the Community Stream is likely to be beneficial to the future graduates of this curriculum.

Moreover introducing continuous assessments and pre professorial clinical examinations to the curriculum in the Clinical sciences stream is considered beneficial. Studies have proved such measures would predict the students' performance in the final year and it would be beneficial for the students to work on their weaknesses before the storm and as well in improving their strengths to achieve a higher goal (Nagandla et al., 2018).

As our study group experienced COVID-19 pandemic as a special stressor, the economic crisis in the country is likely to become a significant stressor to the current undergraduates, therefore a similar study should be undertaken paying special attention to the this stressor.

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