MEDICAL STUDENTS' PERCEPTION OF THE NEW COMPETENCY BASED UNDERGRADUATE CURRICULUM FOR MBBS - A STUDY IN MEDICAL COLLEGES IN DELHI

Submitted by

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(Roll No 4807)

48th APPPA

under the guidance and supervision of

DR PAWAN KUMAR TANEJA

48th ADVANCED PROFESSIONAL PROGRAMME

IN PUBLIC ADMINISTRATION (2022-23)

INDIAN INSTITUTE OF PUBLIC ADMINISTRATION

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A Research Work submitted to the Panjab University, Chandigarh for the award of degree of

Master of Philosophy in Social Sciences (Public Administration),

in partial fulfilment of the requirement for the

Advanced Professional Programme in Public Administration (48th APPPA 2022-23)

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CERTIFICATE

I have the pleasure to certify that the dissertation titled ***"Medical Students' Perception of the New Competency Based Undergraduate Curriculum for MBBS - A Study in Medical Colleges in Delhi"*** is a bonafide research work carried out by Air Cmde (Dr) Gurpreet Singh Bhatia under my guidance and supervision. The dissertation is a result of research done by him and to the best of my knowledge, no part of it has earlier been published in other monographs, dissertation or book.

This is being submitted to the Panjab University, Chandigarh, for the award of Master of Philosophy in Social Sciences (Public Administration) in partial fulfillment of the requirement for the Advanced Professional Programme in Public Administration (APPPA) of the Indian Institute of Public Administration (IIPA), New Delhi.

I recommend that the dissertation of Air Cmde (Dr) Gurpreet Singh Bhatia is worthy of consideration for the award of M. Phil degree of the Panjab University, Chandigarh.

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Date: Mar 2023

Place: New Delhi

CERTIFICATE

It is hereby declared that this research submission is my original piece of work and to the best of my knowledge and belief, it contains no material previously published or written by any other person. I am aware of the University's norms and regulations regarding plagiarism including the disciplinary action that it may invite. I further certify that use of any work, of any other author in any form, is adequately acknowledged at their point of use or in the Bibliography.

Date: March 2023
Place: New Delhi

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DISCLAIMER

The findings, interpretations, views, recommendations and conclusions in the dissertation are those of the author, and should not be attributed in any manner to any authority, organization or individual.

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LIST OF ABBREVIATIONS

Acronym	Nomenclature
CBME	Competency based Medical Education
IMG	Indian Medical Graduate
UG	Undergraduate
NMC	National Medical Commission
MCI	Medical Council of India
AETCOM	Attitude, Ethics and Communication
UHC	Universal Health Coverage
PMJAY	Pradhan Mantri Jan Arogya Yojana
MBBS	Bachelor of Medicine & Bachelor of Surgery
NRHM	National Rural Health Mission
NEET	National Eligibility cum Entrance Test
NEXT	National Exit Test
PMSSY	Pradhan Mantri Swasthya Suraksha Yojana
AIIMS	All India Institute of Medical Sciences
OSCE	Objective Structured Clinical Evaluation

EPA	Entrustable Professional Activities
ACGME	Accreditation Council for Graduate Medical Education
JRCPTB	Joint Royal College of Physicians Training Board
WHO	World Health Organization

Abstract

Background: Competency based Medical Education was introduced in undergraduate curriculum in all medical colleges in India in Aug 2019 by National Medical Commission. Implementation of this new curriculum in place of traditional teaching methods has thrown up many challenges.

Aim: The purpose of this study is to find out the perception of medical students in Delhi medical colleges to the new competency based undergraduate curriculum for MBBS.

Method: A set of questionnaires containing structured multiple-choice questions based on 5-point Likert Scale along with questions regarding demography of respondents was circulated through a link for Google forms. 158 responses were received from the medical students from medical colleges in Delhi. Descriptive analysis of the medical students' responses was carried out.

Results: The students feel that the introduction of the new curriculum will help them in their overall development as a doctor and Competency based Medical Education is better than traditional method in the medical colleges.

Conclusions: Implementation of Competency Based undergraduate curriculum has brought a positive change in the medical education. It will result in a competent Indian Medical Graduate.

Recommendations: Competency based undergraduate curriculum should be supported by all stakeholders at all levels of medical education.

Executive Summary

Key words: *Competency Based Medical Education, perceptions, Indian Medical Graduate, competencies,*

Reforms in medical education were considered necessary to make the medical graduate in India more relevant to the needs of the people in the society. Competency based undergraduate curriculum was introduced by National Medical Commission in Aug 2019 after a gap of 21 years to make medical education more contemporary and at par with the global standards. It was done to ensure development of competencies by the medical student, which are required to fulfil the needs of the people. The Indian Medical Graduate (IMG) is expected to be competent enough to function effectively as a physician in the community.

Competency based undergraduate curriculum has been made to allow students from diverse background to transition smoothly through a foundation course in the medical college. It emphasizes the development of core competencies in medical students such as clinical skills, professionalism and certain attributes like attitude, ethics and communication (AETCOM) which are considered essential for a successful career as a doctor. It shifts from the time bound, content-based curriculum to learner centric, outcome-based approach.

The implementation of this new curriculum has brought about mixed reactions from medical students' fraternity. While some students have embraced the new approach, others have expressed concerns over the increased workload and the need for significant adjustments in their study habits. The assessment system has also been changed from summative assessment to formative, performance-based assessment.

Additionally, there are concerns about the availability of resources, infrastructure and trained faculty to support the implementation of the new curriculum.

As the system of teaching is new not only for the students but also for the faculty and the administrators, it is expected to face some teething problems. Understanding the challenges and benefits of this new approach can help educators and policymakers to make informed decisions and ensure that medical students receive the best possible education. However, the benefits of introducing a new system of teaching have not been studied from students' point of view. In this context, it is important to explore the perceptions of medical students towards the new competency-based undergraduate curriculum. The rationale for this study is to bring out the perceptions of the medical students regarding these changes and suggest remedial measures if necessary to make it more relevant in the Indian context.

The study was conducted in medical colleges of Delhi. It is a descriptive analysis of the responses submitted by the students to the questionnaire sent through a link as Google form. The questionnaire contained three portions – demographic information regarding the respondents, information regarding their medical institutions and multiple choices questions based on 5-point Likert scale regarding their perceptions on the various aspects of the curriculum, infrastructure and resources. 158 students from various medical colleges submitted their responses. Analysis showed that the students felt that the introduction of the new curriculum will help them in their overall development as a doctor and Competency based Medical Education is better than traditional method for teaching in the medical colleges.

Implementation of Competency Based undergraduate curriculum has brought a positive change in the medical education. The foundation course of one month duration was found to be extremely useful by the medical students. It helped them to orient to

all aspects of the medical college environment and equipped them with certain basic, but important, skills required for patient care and enhanced their communication, language, computer and learning skills. Medical students felt that CBME will result them to become a competent Indian Medical Graduate. They felt capable of effectively working as a professional doctor in the community and meet the goal of "Health for All" as declared at the WHO sponsored Alma-Ata Declaration of 1978 and Ayushman Bharat (PMJAY) programme for Universal Health Coverage (UHC) in India.

One of the concerns brought out in the study is the inadequacy of resources in the medical institution at present for effective training for skill/competencies. However, the students agreed that CBME promotes learning of ethics, attitude and communication and was considered better that the traditional method of didactic teaching in medical colleges. The limitation of the study was that it was carried out in medical colleges in Delhi only and not across the country.

Hence, Competency based undergraduate curriculum should be supported by the government at all levels of medical education.

Chapter- 1

Introduction

1.0 Introduction

Ancient Indian system of Medicine was well established and known around the world. Charaka and Susruta were well known ancient Indian physician. Their work was brought together in separate treatise called Charaka Samhita and Susruta Samhita which formed an important foundation for Ayurvedic system of medicine. Medical education in India, at that time, was imparted to the students in the Gurukul System of education.

Since then, India has undergone many changes over the centuries with different rulers and powers controlling the social, economic and educational system and bringing about changes which are still seen to a certain extent in the present-day India.

Independence of the country was an event which gave a new meaning to the country and a desire to choose its own path including in healthcare and medical education. Major reforms were brought in. One of the most important was when Rajkumari Amrit Kaur, the First Health Minister of India, brought a bill in the Parliament in 1956 for setting up of AIIMS. She said *"It has been one of my cherished dreams that for post graduate study and for the maintenance of high standards of medical education in our country, we should have an institute of this nature which would enable our young men and women to have their postgraduate education in their own country".*

Government of India is a signatory to Alma-Ata Declaration of "Health for All". It has been trying to achieve the goal of health for all by launching various policies, programmes and schemes. But it has faced two important hurdles – proper infrastructure and trained manpower. The two important landmark changes to correct this are firstly, the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) based on the

premise of 3E's – Expand, Equity and Excellence with the primary objective of correcting the imbalances in availability of affordable/reliable tertiary level healthcare in the country in general and to augment facilities for quality medical education in the under-served States and secondly, the constitution of the National Medical Commission (NMC).

1.1 Reforms in Medical Education

The field of medicine is an ever-changing field, constantly evolving, and so are the methods of medical education. Since India's independence in 1947, there have been several significant reforms in medical education to address the country's healthcare challenges. Some of the major reforms undertaken were -

(i) Formation of Medical Council of India (MCI): In 1956, the Medical Council of India was established to regulate medical education in the country.

(ii) Increase in the number of medical colleges: The government has opened several new medical colleges over the years to increase the number of doctors in the country. In 1950, there were only 23 medical colleges in India, but today there are about 600 medical colleges.

(iii) Establishment of All India Institute of Medical Sciences (AIIMS): The first AIIMS was established in Delhi in 1956, and today there are 22 AIIMS institutions in different parts of the country, which are known for providing quality medical education and research.

(iv) Introduction of Postgraduate Medical Education Regulations: In 2000, the MCI introduced the Postgraduate Medical Education Regulations, which set standards for postgraduate medical education and training.

(v) Emphasis on primary healthcare: The National Rural Health Mission (NRHM) was launched in 2005 to strengthen primary healthcare in rural areas and address the shortage of doctors in these areas.

(vi) Introduction of the National Eligibility cum Entrance Test (NEET): NEET was introduced in 2016 as a common entrance test for admission to all medical colleges in the country, replacing multiple entrance exams conducted by different states and institutions.

(vii) Regulations on Graduate Medical Education, 1997: Medical Council of India brought out changes in the medical education in India on 17 May 1997. The salient features of the regulations regarding general considerations and teaching approach were emphasis on health community orientation instead of only on disease and hospital concentrated on curative aspects. Every effort should be made to encourage the use of active methods related to demonstration and on first-hand experience instead of relying only on lectures. Faculty member should avail of modern educational technology while teaching the students and to attain this objective, Medical Education Units/ Departments be established in all medical colleges for faculty development and providing learning resource material to teachers.

(viii) Competency based Medical Education: A new competency-based undergraduate curriculum for the MBBS program was introduced in Aug 2019 after a gap of 21 years.

These reforms have significantly improved the quality and accessibility of medical education and healthcare services in India. However, challenges such as shortage of

doctors, inadequate infrastructure, and lack of funds continue to persist, and there is a need to continuously bring in new reforms to address these issues.

1.2 National Medical Commission

National Medical commission was formed by an act of Parliament known as National Medical Commission Act, 2019 which came into force on 25 Sep 2020 by gazette notification dated 24.9.2020 and replaced the erstwhile Medical Council of India and replaced the Medical Council of India.

The National Medical Commission Act, 2019 no. 30 of 2019 states *"An Act to provide for a medical education system that improves access to quality and affordable medical education, ensures availability of adequate and high quality medical professionals in all parts of the country; that promotes equitable and universal healthcare that encourages community health perspective and makes services of medical professionals accessible to all the citizens; that promotes national health goals; that encourages medical professionals to adopt latest medical research in their work and to contribute to research; that has an objective periodic and transparent assessment of medical institutions and facilitates maintenance of a medical register for India and enforces high ethical standards in all aspects of medical services; that is flexible to adapt to changing needs and has an effective grievance redressal mechanism and for matters connected therewith or incidental thereto."*

It is a regulatory body of 33 members which regulates medical education and medical professionals. The Aim of the National Medical Commission are to -

(i) improve access to quality and affordable medical education,

(ii) ensure availability of adequate and high quality medical professionals in all parts of the country;

(iii) promote equitable and universal healthcare that encourages community health perspective and makes services of medical professionals accessible to all the citizens;

(iv) encourages medical professionals to adopt latest medical research in their work and to contribute to research;

(v) objectively assess medical institutions periodically in a transparent manner;

(vi) maintain a medical register for India;

(vii) enforce high ethical standards in all aspects of medical services;

(viii) have an effective grievance redressal mechanism.

One of the main functions of the National Medical Commission is to lay down policies for maintaining a ***high quality and high standards in medical education*** and make necessary regulations in this behalf.

1.3 Competency based medical education

Erstwhile Medical Council of India had issued Competency Based Medical Curriculum for Indian Medical Graduate in 2018. It states that *"More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified, necessitating a relook at all aspects of the various components in the existing regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholders. Emerging health care issues particularly in the context of emerging diseases, impact of advances in science and*

technology and shorter distances on diseases and their management also need consideration."

The new regulations have placed significant importance to continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome-oriented and environment appropriate. This has resulted in an outcome driven curriculum which conforms to global trends.

The new curriculum has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a Foundation Course. Dedicated time has been allotted for self-directed learning and co-curricular activities. Formative and internal assessments have been streamlined to achieve the objectives of the curriculum."

The new curriculum aims to bring a more practical and outcome-based approach than the traditional classroom lectures and rote learning. The new curriculum emphasizes the development of core competencies in medical students, such as clinical skills, communication skills, professionalism, and certain attributes like attitude, ethics and communication (AETCOM) which are essential for a successful professional career as a doctor.

This approach has been introduced to ensure development of competencies required to fulfil the needs of the patients/people in the society. This method of education discourages time-based training and promises greater accountability and flexibility to the learner (learner centric). It ensures that the training can continue till the desired competency is achieved by the student. In this system, assessment is frequent and formative in nature and feedback is inbuilt in the process of training. The newly introduced formative assessment goal is to monitor students learning to provide

ongoing feedback that can be used both by the instructors to modify or change their teaching and by the students to improve their learning. The medical graduate passing out through this curriculum has been called as Indian Medical Graduate (IMG). The objectives of CBME are to have a confident, competent, concerned and compassionate IMG who performs the role of a good clinician, communicator, leader, lifelong learner and a thorough professional. The other main objective of CBME is to bring the standards of medical education in India at par with other countries of the world.

CBME syllabus aims to shift the content-based curriculum to one that adapts a practical approach and aligns with the changing health needs of the country. CBME promotes holistic development of students through new curriculum changes aimed at addressing the lack of language, communication and computer skills. This change has been a landmark reform for orienting medical education to competence-based learning. For the first time, 'Attitudinal and Communication' competencies have been added in the MBBS Curriculum. The importance of ethics, responsiveness to needs of patients and families has been acknowledged. A month-long foundation course for students from diverse backgrounds to help them cope with the stress, and to adapt to English language has been added.

Another new element is the introduction of elective subjects. Now students can pick up subjects of their choice. Time has been allotted for self-directed learning and co-curricular activities. Regular assessments and integration of globally recognised techniques such as Objective Structured Clinical Evaluation (OSCE) and mini-clinical evaluations are part of CBME. Evaluation includes little content areas. The evaluation is a process unlike in summative assessment where it was an end product. Overall, CBME promotes development of competencies that are essential for a physician.

1.4 Medical Education in other countries

All the countries in the world have realised that the medical education system including curriculum needs to be changed to meet the requirements of the progress in the healthcare system. One of these changes seen across the globe is the development and implementation of competency-based medical education (CBME). The origins of competency-based medical education (CBME) began soon after family medicine became a recognized medical specialty. In 1978 the World Health Organization (WHO) published a white paper entitled *Competency-based Curriculum Development in Medical Education (*McGaghie et all. Competency-based curriculum development in medical education. Public Health Paper No. 68. Geneva, Switzerland: World Health Organization; 1978. This report was heavily influenced by the need for medical education to better meet public health needs in both developed and developing nations.

Competency based medical education was adopted by the Royal College of Physicians and Surgeons of Canada in 1996 after developing innovative "CanMEDS Physician Competency Framework". This framework described the knowledge, skills and abilities of specialists in seven domains — as medical experts, communicators, collaborators, managers, health advocates, scholars and professionals. This was modified later in 2005 and 2015.

The Association of American Medical Colleges (AAMC) in 1998 convened expert consultants and panels to address special topics in medicine and offer their findings on learning objectives and educational strategies for all medical students. This initiative was designed to reach a consensus within the medical education community on the skills, attitudes, and knowledge that graduating medical students should possess.

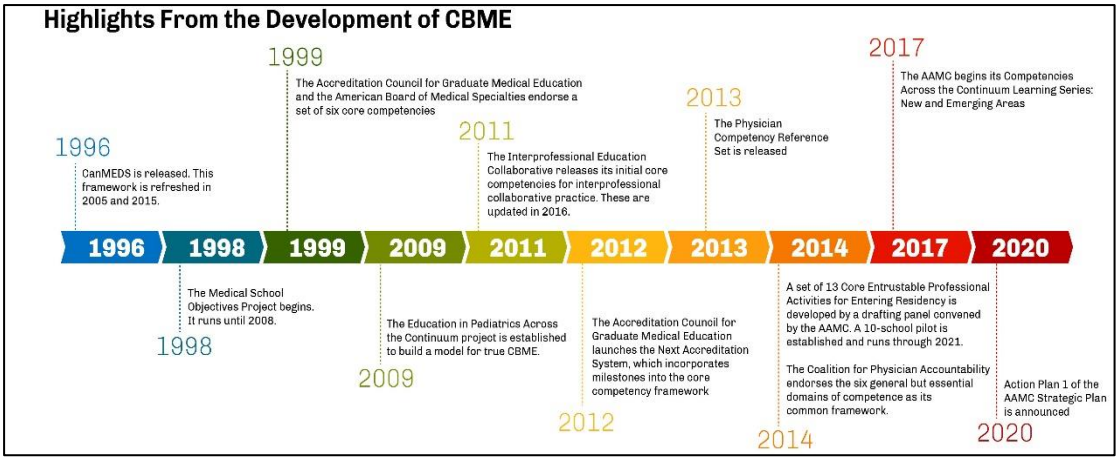


Figure 1.1: Highlights from the development of CBME (Adapted from https://www.aamc.org/about-us/mission-areas/medical-education/cbme)

In 1999, the Accreditation Council for Graduate Medical Education (ACGME, USA) and the American Board of Medical Specialties endorse a set of six core competencies that define the foundational skills every practicing physician should possess which includes medical knowledge, patient care, practice based learning, communication skills, professionalism and system based practice. Subsequently, in 2009 a project was established in USA to build a model for true CBME, with progression through training based on the achievement of competencies rather than the passage of time.

In United Kingdom, competency based postgraduate medical education was launched in 2004 for training of doctors under the new foundation programme curriculum. By 2008, the 31 curricula owned by the Joint Royal Colleges of Physicians Training Board (JRCPTB) met the new standards set by the Postgraduate Medical Education and Training Board for CBME. Three broad outcomes have been specified for medical graduates in the UK, namely, doctor as a scholar and a scientist, doctor as a practitioner, and doctor as a researcher.

Australian Medical Council, based on the CanMEdS Framework 1996, brought out a consultation paper in August 2010 and subsequently adopted the competency based medical education in all accredited medical colleges in Australia.

1.5 Indian Medical Graduate

The undergraduate medical education program is designed with a goal to create an "Indian Medical Graduate" (IMG) who possesses requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

In order to fulfil the goal of the IMG training programme, the medical graduate must be –

a) Clinician who understands and provides preventive, promotive, curative, palliative, and holistic care with compassion.

b) Leader and member of the health care team and system with capabilities to collect analyse, synthesize and communicate health data appropriately.

c) Communicate with patients, families, colleagues and community.

d) Lifelong learner committed to continuous improvement of skills and knowledge.

e) Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

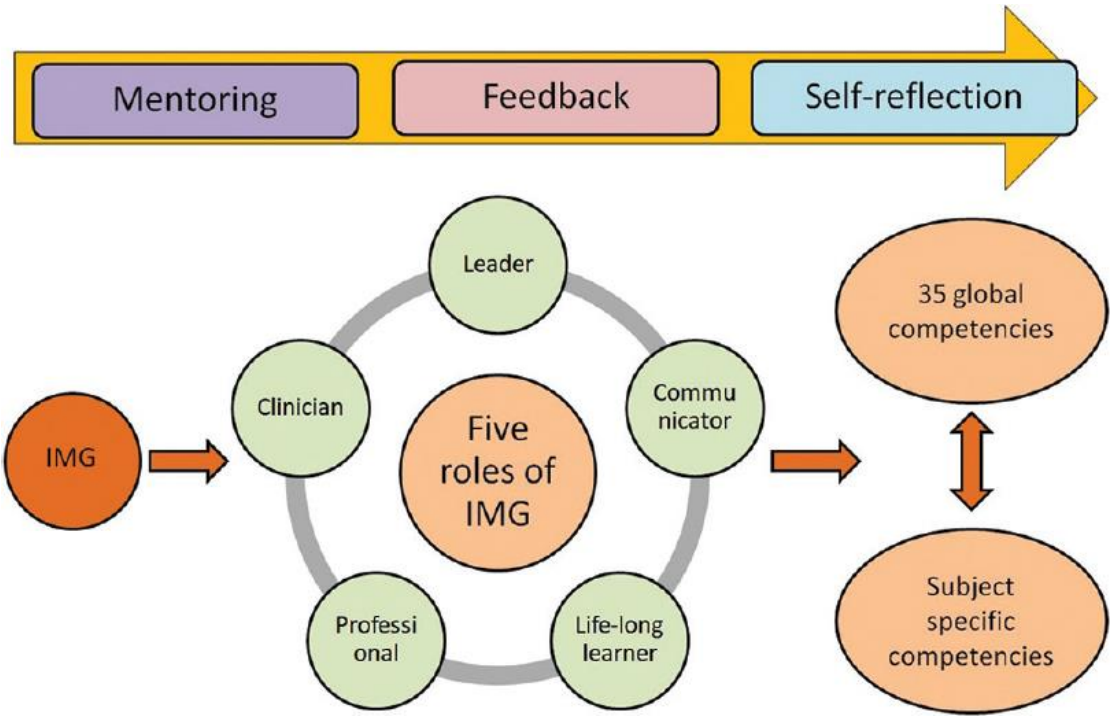


Figure 1.2: Professional development of an Indian Medical Graduate (From Singh T, Saiyad S, Virk A, Kalra J, Mahajan R. Assessment toolbox for Indian medical graduate competencies. J Postgrad Med 2021;67:80-90

1.6 Statement of Problem

Competency based medical education was introduced to replace the traditional method of teaching in medical colleges and make it more contemporary. However, despite the pros of introducing the new curriculum and its utility seen all over the world, initially a lot of resistance was exhibited by medical students and resident doctors to the introduction of this new Competency Based Medical Education (CBME).

The implementation of this new curriculum has brought about mixed reactions from medical students' fraternity. While some students have embraced the new approach, others have expressed concerns over the increased workload and the need for significant adjustments in their study habits. The assessment system has also been

changed from summative assessment to formative, performance-based assessment. Additionally, there are concerns about the availability of resources, infrastructure and trained faculty to support the implementation of the new curriculum.

In this context, it is important to explore the perceptions of medical students towards the new competency-based undergraduate curriculum. As the system of teaching is new not only for the students but also for the faculty and the administrators, it is expected to face some teething problems. Understanding the challenges and benefits of this new approach can help educators and policymakers to make informed decisions and ensure that medical students receive the best possible education. This will not only achieve the goal of having Indian Medical Graduate who possesses the requisite knowledge, skills, attitude and values to function appropriately and effectively as a physician in the community but also relevant and competent globally.

It will help sensitization of all the stakeholders including medical students, faculty, administrators and policy makers to ensure acceptance of these changes and uniform effective implementation across various colleges. This paper will examine the perceptions of medical students towards the new curriculum and provide insights into how it can be further improved to meet the needs of both students and the healthcare system.

1.7 Objectives of the study

The research objectives of the study are

a) To study undergraduate medical students' perception of new competency based medical education.

b) To understand the challenges that could impede the successful implementation of competency based medical education from the perspective of the students.
c) To describe some of the global best practices for implementing competency based medical curriculum in medical.

1.8 Rationale or Justification

India needs to have trained doctors who are not only globally acceptable but also locally relevant. The medical graduate coming out of any medical college in India should be capable of effectively functioning as a doctor of first contact in the community whether urban or rural.

Competency based medical curriculum has been introduced with the aim of being the panacea for all ills affecting the training of undergraduate medical student. Subjects like ethics, communication, attitude etc have been introduced formally as part of the curriculum for the first time. The gap between the current state of learning outcomes which will be bridged through the introduction of these major reforms in medical education that bring the highest quality, equity, and integrity into the system. However, the benefits of introducing a new system of teaching have not been studied from students' point of view. The rationale for this study is to bring out the perceptions of the medical students regarding these changes and suggest remedial measures if necessary to make it more relevant in the Indian context.

1.9 Research Strategy and Research Design

This study adopted mixed of quantitative and qualitative research strategy to conduct the research. In consonance with research strategy, descriptive and interpretive research design is used for analysis.

1.10 Research questions

Following research questions are formulated to attain the objectives of the study:

1. What is the perception of the medical students to the newly introduced competency based medical education?
2. Does the introduction of AETCOM (Attitude, Ethics and communication) in the curriculum help the medical students in becoming better professionals?
3. Are adequate resources available for the change from the traditional methods to the competency based medical education?
4. What do the medical students feel about the usefulness of foundation course in the curriculum?
5. What steps have been taken for smooth implementation of the competency based medical curriculum in medical colleges in India?
6. What is the way forward and recommendations, if any for effective implementation of competency based medical curriculum in medical colleges?

Chapter 2

REVIEW OF LITERATURE

2.1 Review of Literature

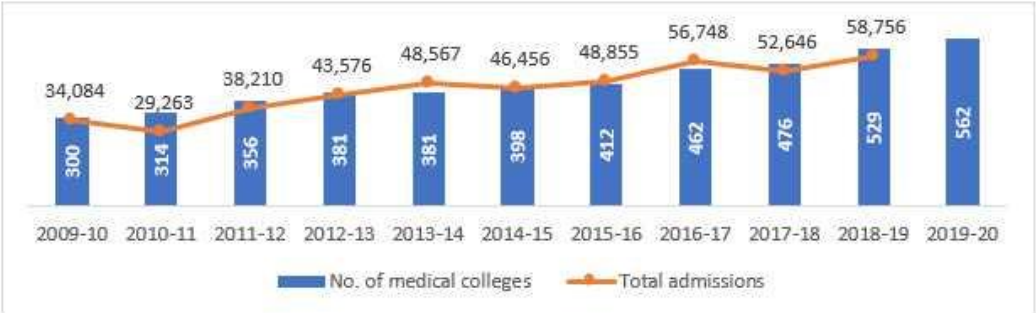
In the pre-independent India, the British colonial government established a healthcare system in India primarily to maintain the health of its army and civil servants. A few medical schools were established in major cities to train doctors to serve the colonial government. After independence, the government of India launched several initiatives to expand healthcare services, including the establishment of rural health centres and the training of auxiliary nurse-midwives to provide basic healthcare services in rural areas.

Healthcare and medical education set up in independent India had its roots to the Health Survey & Development Committee (popularly known as Bhore Committee), appointed in 1943 with Sir Joseph Bhore as its Chairman. It submitted its report in 1946. The Bhore Committee Report (1946) recommended the establishment of a comprehensive healthcare system in India that would provide accessible and affordable healthcare to all. The recommendations included firstly, integration of the preventive and curative services of all administrative levels. Secondly, development of Primary Health Centres in 2 stages (Short term and long-term measures) and thirdly, **major changes in medical education which would include 3** months training in preventive and social medicine to prepare "social physicians" (https://www.nhp.gov.in/bhore-committee-1946_pg).

In 1951, the government launched the National Health Program, which aimed to provide preventive and curative healthcare services to the population. The establishment of the Medical Council of India in 1956 brought about standardization

and regulation of medical education in the country. In 1950, there were only 23 medical colleges in India, which increased to over 596 in 2022 out of which 313 are Government Medical colleges and 283 are Private. A total of 209 new medical colleges have been added in the last decade. This has translated into a total of 89,875 undergraduate seats (MBBS) and 60,202 Post Graduate seats (PG seats). 22 new AIIMS have been established and 02 more have been proposed in the last decade. This increase in medical seats is a desire to make available the trained doctors for manning the healthcare facilities being set up to ensure health for all.

The Mudaliar Committee (The Health Survey and Planning Committee, 1962) suggested one medical college for 50 lakh people and a doctor-population ratio of 1:3000. A doctor-population ratio recommended by the World Health Organization (WHO) is 1:1000. Globally, it has been a constant endeavour to improve doctor population ratio so as to ensure better access to healthcare facilities. In 2021, India had 13.01 lakh registered allopathic doctors (estimated active around 10.41 lakh) and 5.65 lakh AYUSH doctors leading to a combined doctor population ratio of 11.7 per 10,000 population and 01 doctor per 834 people (1:834).



Source: National Medical Commission

Figure 2.1: Number of Medical Colleges and MBBS seats in India

India has systematically improved health conditions of its population. Life expectancy has doubled from 32 years in 1947 to 66.8 years at present; Infant Mortality

Rate (IMR) has fallen to 50 per thousand live births. However, still nearly one million Indians die every year due to inadequate healthcare facilities and 700 million people have no access to specialist care and 80% of specialists are working in urban areas. India faces a huge need gap in terms of availability of number of hospital beds per 1000 population. With a world average of 3.96 hospital beds per 1000 population India stands just a little over 0.7 hospital beds per 1000 population. The budgetary support for expansion of public health facility has been inadequate from various governments at the centre over the years. (https://pmssy-mohfw.nic.in/index1.php?lang=1&level=1&sublinkid=80&lid=27 dated 27 Feb 2023)

Another aspect is the increasing global demand for qualified doctors graduating from India, scarcity of medical doctors is now a major problem in our country, making it imperative to focus on medical education. Government has committed itself to ensure significant progress in healthcare sector in India with the objective to achieve 3As' – affordability, accessibility and availability. It is imperative for India to build healthcare infrastructure and improve its medical education system to ensure qualified doctors are available to overcome the shortages in various healthcare establishments.

The turning point for changes in the medical education in India was brought by the damning 92nd Report of Parliamentary Standing Committee on Health and Family Welfare on the Functioning of Medical Council of India 2016. It observed that the existing system of the graduate medical education in the country has failed us and unless total revamping of the undergraduate education system is undertaken, the present system will not be able to generate the medical manpower required to deliver the ambitious programme of Universal Health Coverage. The Committee, therefore, recommends complete restructuring of the undergraduate education. The emphasis should be shifted to learning outcomes based on a curriculum that will train a holistic

doctor with the requisite skills. The Committee also observed that the medical education in India is increasingly depersonalized and has failed to instill humane values of care, concern, courtesy and compassion. The Committee felt that young doctors should not only have practical skills but also a lot of soft skills. The Committee, therefore, recommended that soft skills (including ethics) should be made one of the cornerstones of the syllabus of medical education.

There have been several reforms in the MBBS curriculum in India over the years to keep pace with the changing healthcare needs and emerging trends in medical education. In August 2019, the Medical Council of India (MCI), rolled out the globally acknowledged CBME for MBBS students. The curriculum has been changed after 21 years; the last such change was brought in 1997. The introduction of competency-based curriculum for undergraduate in medical colleges is expected to ensure adequate number of qualified and competent medical graduates. Competency Based Undergraduate Curriculum for the Indian Medical Graduate, MCI 2018 document brought out that "To fulfill the mandate of the undergraduate medical curriculum, which is to produce a clinician, who understands and is able to provide preventive, promotive, curative, palliative and holistic care to his patients, the curriculum must enunciate clearly the competencies the student must be imparted and must have learnt, with clearly defined teaching-learning strategies and effective methods of assessment."

CBME syllabus aims to shift the content-based curriculum to one that adapts a practical approach and aligns with the changing health needs of the country. CBME promotes holistic development of students through new curriculum changes aimed at addressing the lack of language, communication and computer skills. This change has been a landmark reform for orienting medical education to competence-based learning. For the first time, 'Attitudinal and Communication' competencies have been added in

the MBBS Curriculum. The importance of ethics, responsiveness to needs of patients and families has been acknowledged. Medical education in India requires training in a wide spectrum of domains that involves exposure to human interactions and interpersonal relationships in various settings including hospital, community, clinics etc. The training is intense and demands great commitment, resilience and lifelong learning. Students enter a new environment in medical college at around 17 years of age directly from school which can be challenging. Therefore, it is desirable to create a period of acclimatisation and familiarization to the new environment. This would include an introduction to the course structure, learning methods, technology usage, and peer interactions which would facilitate their smooth transition from high school to medical college. A month-long foundation course for students from diverse backgrounds to help them cope with the stress, and to adapt to English language has been added.

Another new element is the introduction of elective subjects. Now students can pick up subjects of their choice. Time has been allotted for self-directed learning and co-curricular activities. Regular assessments and integration of globally recognized techniques such as Objective Structured Clinical Evaluation (OSCE) and mini-clinical evaluations are part of CBME. Overall, CBME promotes development of competencies that are essential for a physician.

Many other reforms were also introduced by the National Medical Commission (NMC) in Sep 2019 which included opening of an emergency medicine department by 2022-23, to provide effective trauma care in medical colleges. In November 2020, NMC relaxed the minimum standard requirement for land used in building medical colleges and made skill labs compulsory. NMC removed the mandate to have 20 acres of land for general areas and 10 acres for metropolitans. In August 2021, NMC

announced that by 2023 the National Exit Test (NEXT) will replace the National Eligibility cum Entrance Test (NEET) and will be mandatory for all MBBS graduates and foreign medical graduates. The NEXT is aimed at bringing transparency, accountability and uniformity in the medical education system. Physicians trained in India or abroad will have to compulsorily give the NEXT in order to qualify for the final MBBS exam, apply for a practising license in India as well as qualify for the merit-based allocation of seats in broad specialties. District Residency Scheme, implemented in 2021, aims to strengthen district level hospital services. Under this scheme, second/third year PG medical students will have to undergo a three-month training in district hospitals. This move is expected to expose students to varied cases in the district health system and address the medical personnel gap in district hospitals. Cost of medical education in India is a prime concern. Hence, in early 2020, NMC announced several fee regulations, as private colleges have a higher fee structure making it impossible for financially weak but meritorious students to study further. The proposed norms will cap tuition fees for 50% MBBS and postgraduate medical seats in private medical colleges and universities.

There is a growing emphasis on community-based learning in the MBBS curriculum. This involves providing healthcare services to the local community under the supervision of faculty members. With the increasing use of technology in healthcare, the MBBS curriculum now includes training in the use of electronic health records (EHRs), telemedicine, and other digital tools. NMC emphasized the importance of research in the MBBS curriculum. Some medical colleges now offer research opportunities for students, and research projects are sometimes included in the curriculum.

These reforms have significantly improved the quality and accessibility of medical education and healthcare services in India. However, challenges such as acceptance of the new curriculum, resource available for skill development and trained faculty with requisite knowledge to carry out assessment and evaluation of medical students in a standardised method across the country still exists.

Medical Council of India in its Competency Based Undergraduate Curriculum for the Indian Medical Graduate 2018 states that the new recommendations have come in the form of a curriculum called “Competency-based curriculum for Undergraduate Medical Education” which is an attempt to plan an outcome driven curriculum to provide orientation and necessary skills for lifelong learning. These outcomes or the broad competencies or topics which students must know. These will also be the basis of assessment. These competencies are further divided into sub-competencies which are nothing but the courses’ wise outcomes which must be achieved at the end of the course. For each competency, the learning domains (Knowledge, Skill, Attitude, and Communication) are identified. The expected level of achievement in that subject is identified as: [knows (K), knows how (KH), shows how (SH), performs (P)]. As a rule, ‘perform’ indicates independent performance without supervision and is required rarely in the pre-internship period. The outcome is a core (Y - must achieve) or a Non-core (N - desirable) outcome.

Competency based education was integrated for the first time in USA in the 1960s and 1970s (Nodine TR 2016). However, not until 1996, when CanMEDS framework was released with the aim to improve patient care by enhancing physician training through defining the necessary competencies for all areas of medical practice and providing a comprehensive foundation for medical education and practice in Canada was it first adopted by the Royal College of Physicians and Surgeons of Canada and gradually in

the rest of the world. In 1999, the Accreditation Council for Graduate Medical Education (ACGME), USA and the American Board of Medical Specialties endorsed a set of six core competencies that defined the foundational skills every practicing physician should possess.

As per the Association of American Medical Colleges (AAMC), Medical education is ever changing to meet the demands of the evolving health care system. One of these changes has been the development and implementation of competency-based medical education (CBME) which is an outcomes-based approach to the design, implementation, and evaluation of education programs and to the assessment of learners across the continuum that uses competencies or observable abilities. The goal of CBME is to ensure that all learners achieve the desired patient-centered outcomes during their training. (The Association of American Medical Colleges - https://www.aamc.org/about-us/mission-areas/medical-education/cbme)

Frank et al 2010 has defined competency-based medical education "an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It deemphasizes time-based training and promises greater accountability, flexibility, and learner-centeredness." He further added that CBME is an "outcomes-based approach to the design, implementation, assessment, and evaluation of medical education programs, using an organizing framework of competencies. The goals of CBME are to prepare physicians for practice by focusing on outcomes, emphasizing abilities, deemphasizing time-based training, and promoting learner centeredness."

Competency is the ability of a health professional which can be observed. It encompasses various components such as knowledge, skills, values, and attitudes.

Competency is the application of competencies in an actual setting, and an individual who is able to do so is considered competent. The core competencies required of a medical graduate are predetermined in the curriculum and are contextual to the environment in which the medical graduate would eventually practice his profession (Shah N et al 2017).

Establishing a lifelong learning mindset is one of the expected outcomes of competency-based medical education (CBME) (Miser and Haynes 2019). Shah N et al 2017 brought out in their article that the aim of imparting medical education is to train graduates to efficiently take care of the health needs of the society. The current medical education system is based on a curriculum that is subject-centered and time-based. Most evaluations are summative, with little opportunity for feedback. The teaching–learning activities and the assessment methods focus more on knowledge than on attitude and skills. Thus, graduates may have extraordinary knowledge, but may lack the basic clinical skills required in practice. In addition, they may also lack the soft skills related to communication, doctor–patient relationship, ethics, and professionalism. Hence, competency based medical education has a greater role in medical education.

A competency is achieved gradually, step–by-step which are designated as milestones. Dreyfus model as applied to education would have five such steps or milestones. These are a novice, advanced beginner, competent, proficient, and expert (Batalden P et al 2002). Entrustable professional activity (EPA) helps bridge the gap between the theory and practice of CBME. While competencies are the abilities of a physician, EPAs are descriptors of work that define a profession. The process and outcomes of EPAs are observable and measurable. They require multiple competencies in an integrative, holistic nature (Ten Cate O et al 2013).

The National Medical Commission made a roll out plan of competency based undergraduate curriculum. In addition, it brought a number of publications (which are available on its website) to help bring consistency in the implementation of the new curriculum. These included Competency Based Assessment Module for Undergraduate Medical Education 2019, Alignment and Integration Module, Foundation Course for Undergraduate Medical Education, Skill Training Module etc.

The implementation of CBME in medical colleges has thrown up its own challenges. The challenges being faced in the implementation has been commented and studied by various scholars and researchers. Basheer A, 2019 in his article has mentioned that "As with any other revolutionary overhaul, the CBME curriculum has not been free from criticism. A major lacuna concerns disconnect between the curricular objectives, proposed teaching–learning methods, and assessment". Ramanathan R, 2022 conducted a study to understand the challenges the faculty is facing in the implementation of new CBME. The author has brought out that an incremental change in the curriculum would have been better rather than a major overhaul and the training of the faculty is not at an adequate pace. A similar cross-sectional study has been carried out by Gopalakrishnan S, 2022 et al for the perception of faculty engaged in CBME. The authors state that though there are quite a few impediments enroute to full operationalization of CBME, the stakeholders are conducive and the transformation has long begun. However, they recommend that politically committed administrative support and feedback evaluation from faculty and students be given due weightage to ease out the wrinkles of the system. The authors also strongly recommend the need to take feedback evaluation from student population.

One of the major concerns regarding the success of the new curriculum is also the perception of undergraduate medical students. Shrivastava SR, 2020 in their article

brought out that as CBME will be a student-driven curriculum, any kind of lack of commitment or motivation will not help in the attainment of learning outcomes and might even make them pretty anxious. From the students' perspective, it is an opportunity to become accountable for their own learning, and this will not only aid them to expand their horizon globally, but also be totally involved in all the aspects of learning.

Muraleedharan A, 2022 has brought out the perceptions of first year medical students regarding changes brought in the curriculum by implementation of CBME in Anatomy. Ramanathan R, 2021 has done a cross sectional study of first year students across various colleges in India on their perspective on CBME. The author concluded that CBME when meticulously adopted will inspire student enthusiasm for learning and a few suggestions have been given such as curtailing the duration of FC, diffuse sessions on stress and time management, better synchronized vertical integration, and an exemplary implementation of adult learning techniques can be undertaken. Setlur R, 2021 has brought out that the new CBME curriculum given by the Medical Council of India has the potential to improve practical training of undergraduate medical students in the subject of Anesthesiology.

However, one important aspect of implementation of CBME missing in India is the students’ perception of various components of the newly introduced undergraduate curriculum for medical colleges. This gap has been tried to be covered in this study.

Chapter 3

Research Methods and Collection of data

3.1 Research Methods

The study was carried out in medical colleges in Delhi. A questionnaire was sent to the students through a link for Google form and their responses received till 28 Feb 2023 were tabulated. The questionnaire circulated to the students comprised of three portions – demographic information of the respondents, information regarding medical colleges including the semester and year of joining and multiple-choice questions based on 5-point Likert Scale regarding perceptions of medical students regarding various aspects of the competency-based curriculum.

158 medical students responded to the questionnaire. Descriptive analysis of the student's responses was done. Demographic and college data is tabulated in Table 2.

Analysis of the demographic profile of respondents revealed that 67% (106) were males and 33% (52) were females.

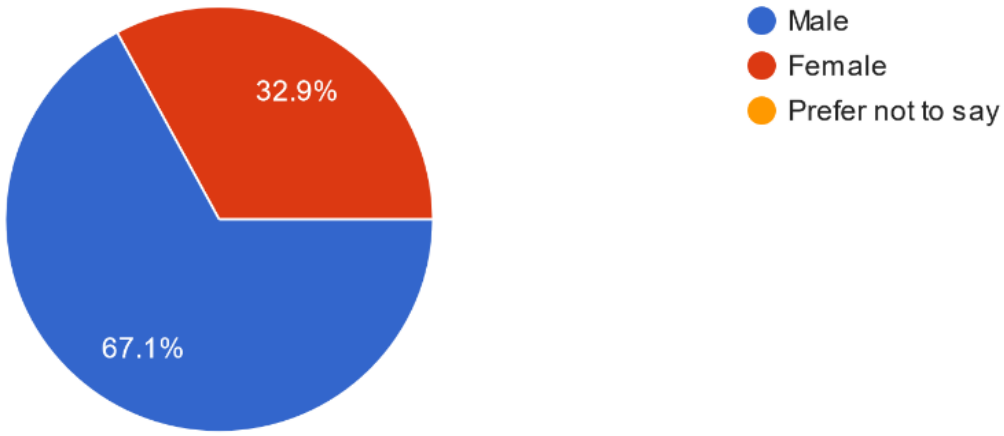


Figure 3.1: Gender profile in the survey

75% (118) of the student respondents in the survey were from urban areas whereas 25% from rural area. It shows that respondents were preponderantly from urban area in the study. Majority of the students were from region around North India with very few scattered around the other parts of the country. 01 medical student who had joined one of the medical colleges had come from abroad.

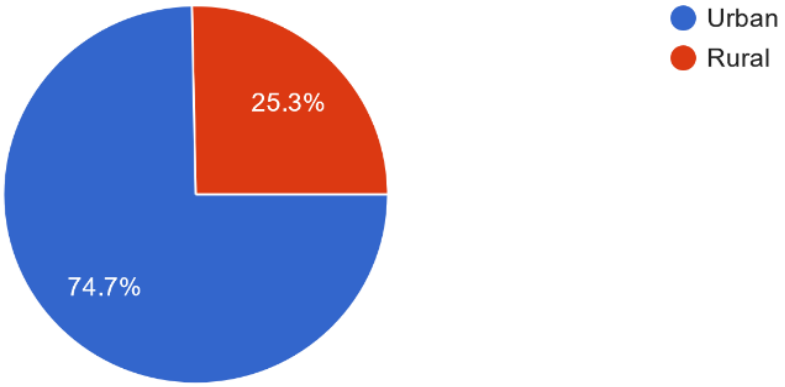


Figure 3.2: Region wise distribution of respondents

Statistics showed that about 50% of the student respondents were in 1st or 2nd semester whereas 26% were in 3rd, 4th or 5th semester of the college and rest were in 6th, 7th or 8th semester.

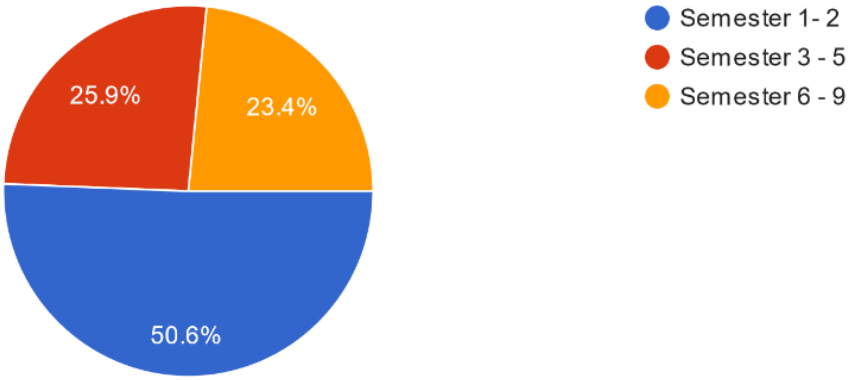


Figure 3.3: Semester wise distribution of respondents

The medical students had joined various medical colleges between 2017 and 2022 with the majority joining the colleges in 2020-2021. This basically meant that majority of the students who took part in the survey had joined after the implementation of the competency based undergraduate curriculum in the medical colleges.

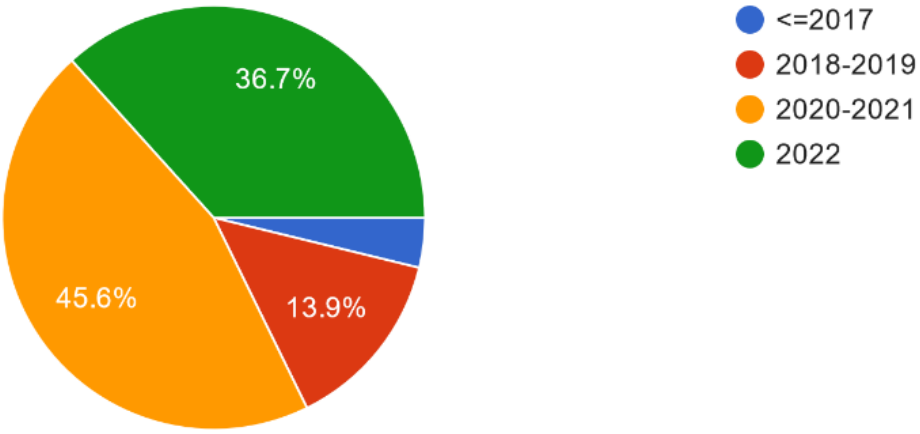


Figure 3.4: Year of joining the college of the respondents

Analysis of responses

For analyzing the responses, graphs from Google form and Microsoft excel were used. Below mentioned are the graphs and analysis thereon with respect to the competency based medical education by the students. 5-point Likert scale has been used for the responses of the students. Descriptive analysis and cross sectional analysis of the different year students was also carried out to get a better view of their responses.

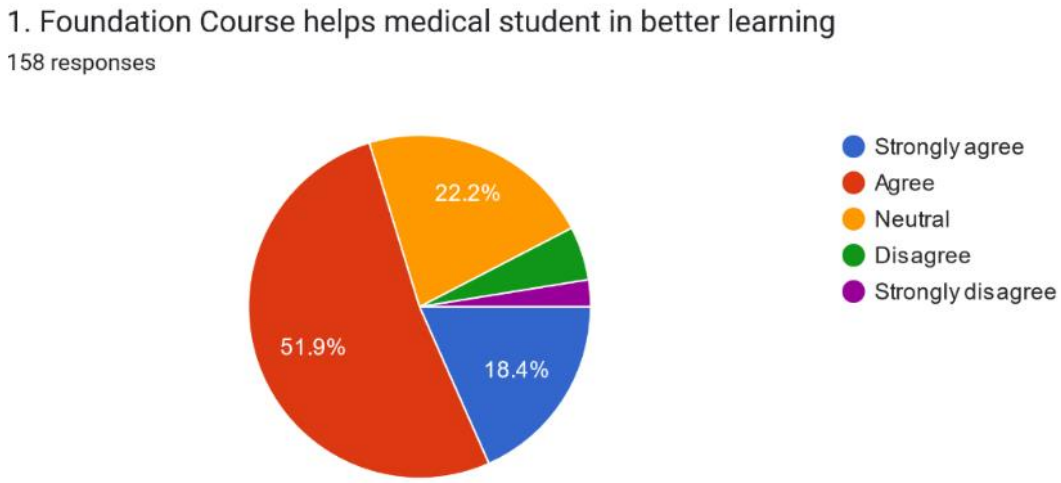


Figure 3.5: Response to Foundation Course in percentage

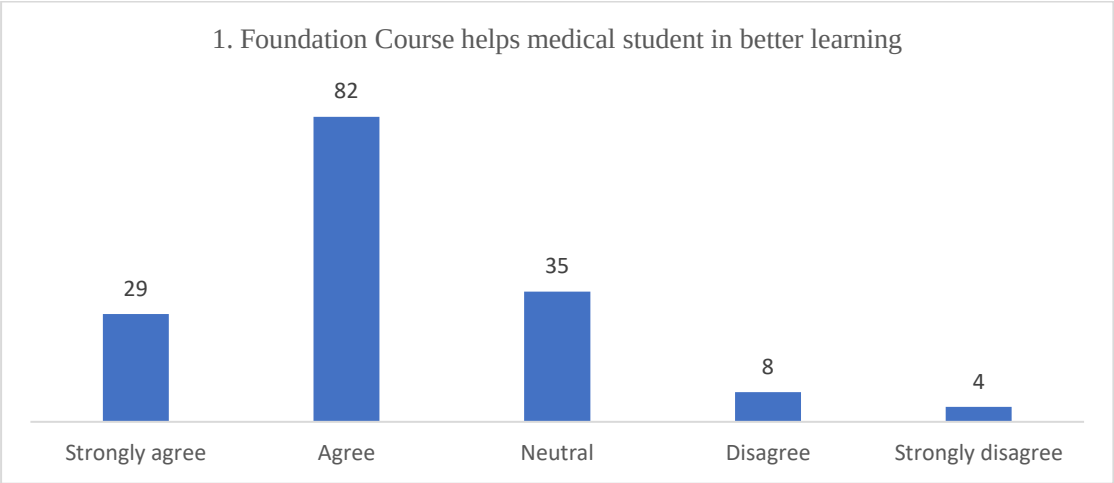
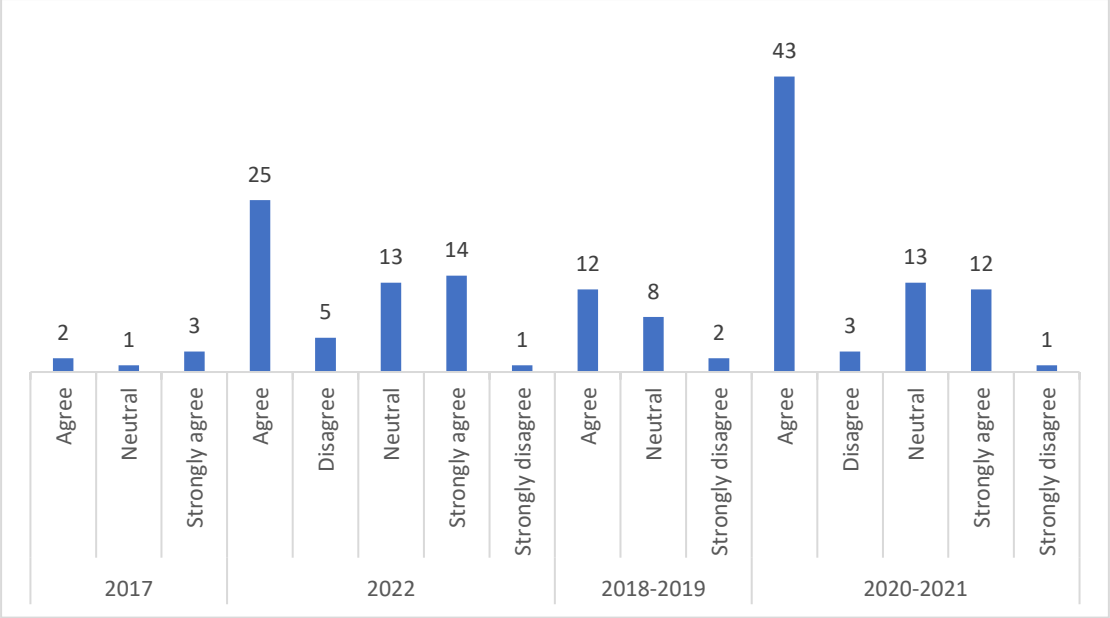


Figure 3.6: Response to Foundation Course in numbers



The majority of the students (52%) agreed that the foundation course was helpful to them in the curriculum and 18% felt strongly about the usefulness of the course.

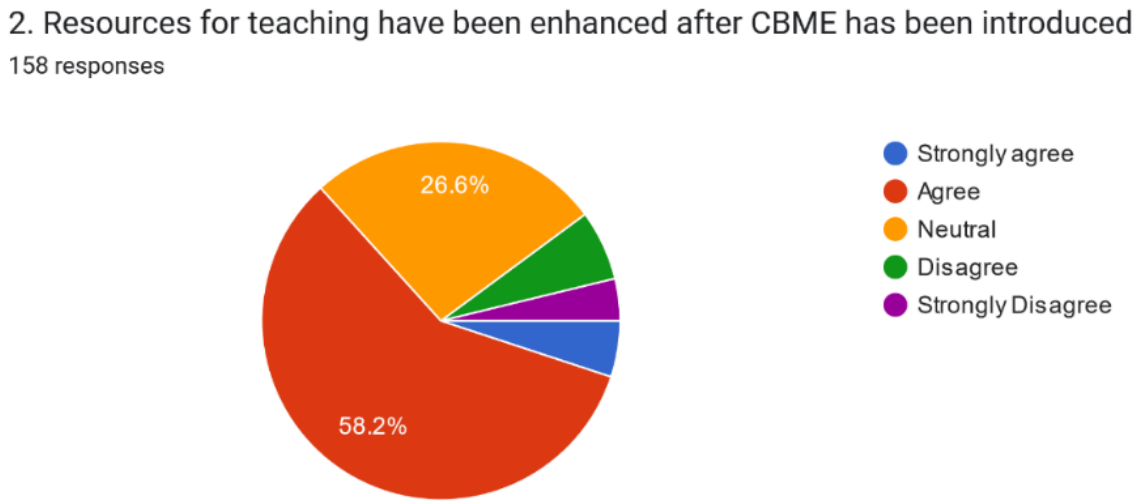


Figure 3.7: Response to resources enhanced in percentage

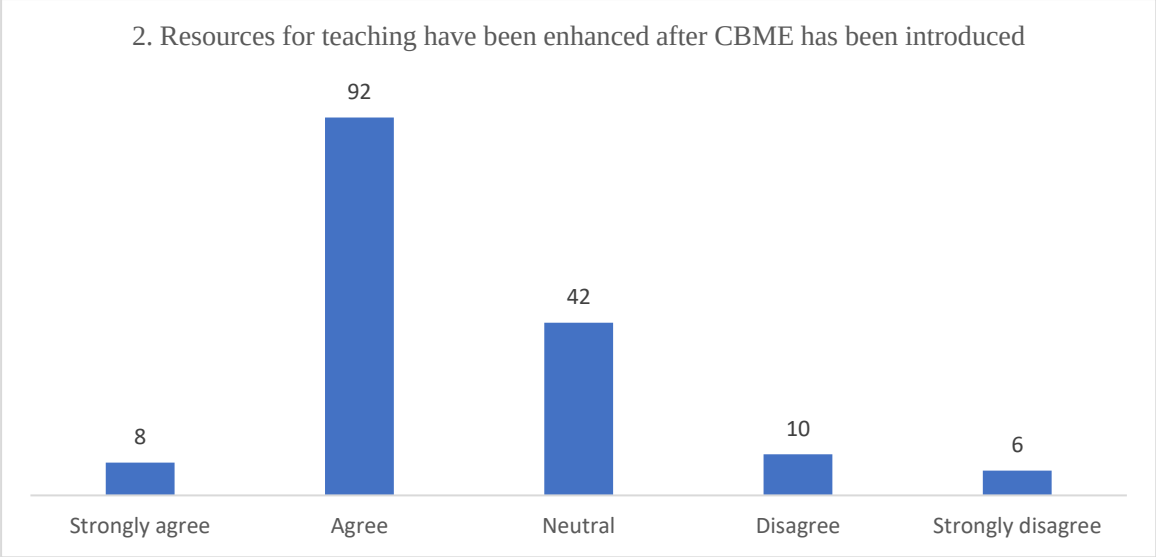
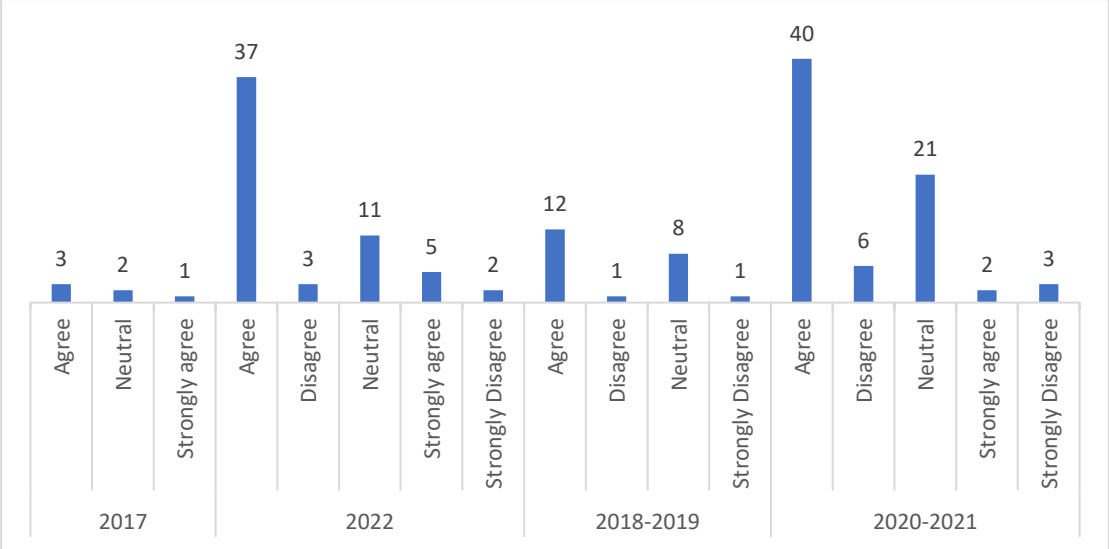


Figure 3.8: Response to resources enhanced in numbers



92 students (58%) felt that the resources for teaching in their medical colleges had been enhanced after CBME was introduced whereas 27% were neutral in their response.

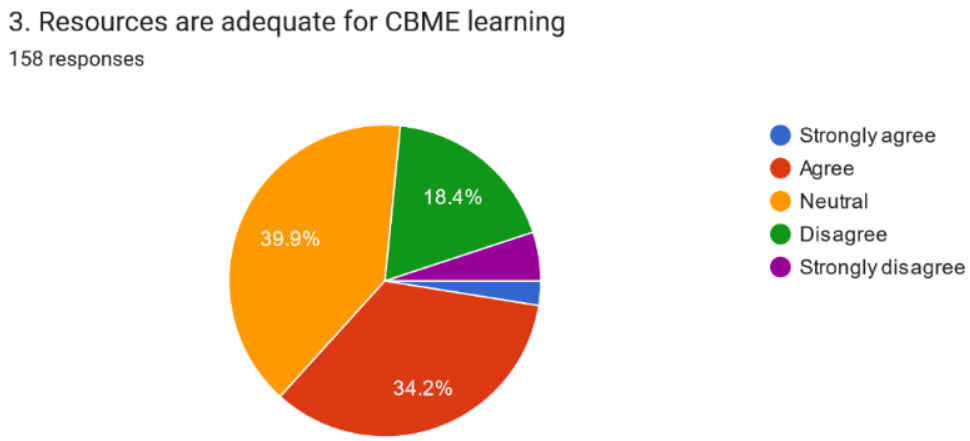


Figure 3.9: Response to resources adequate in percentage

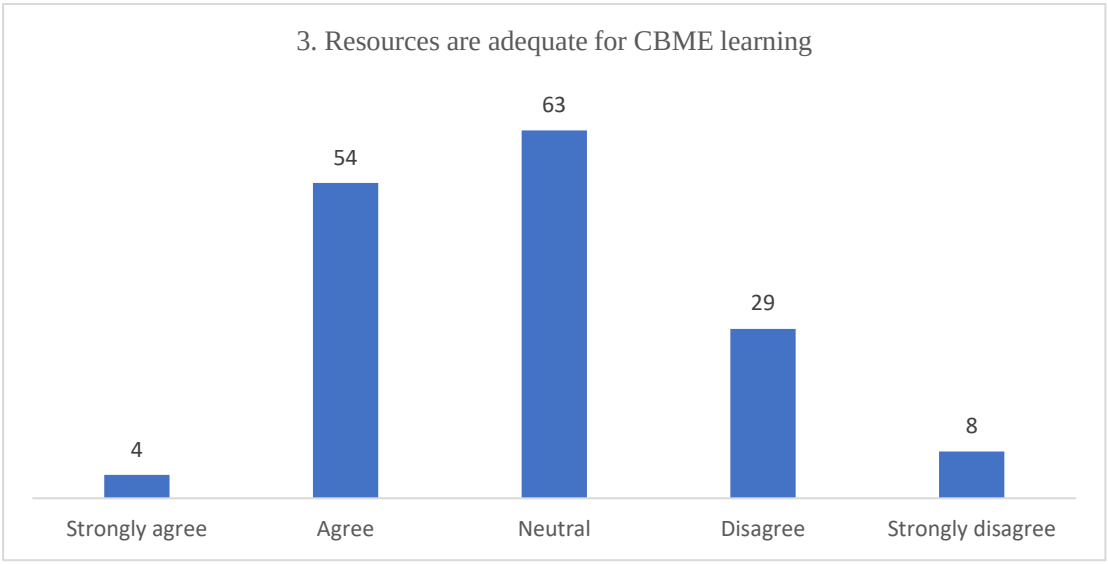
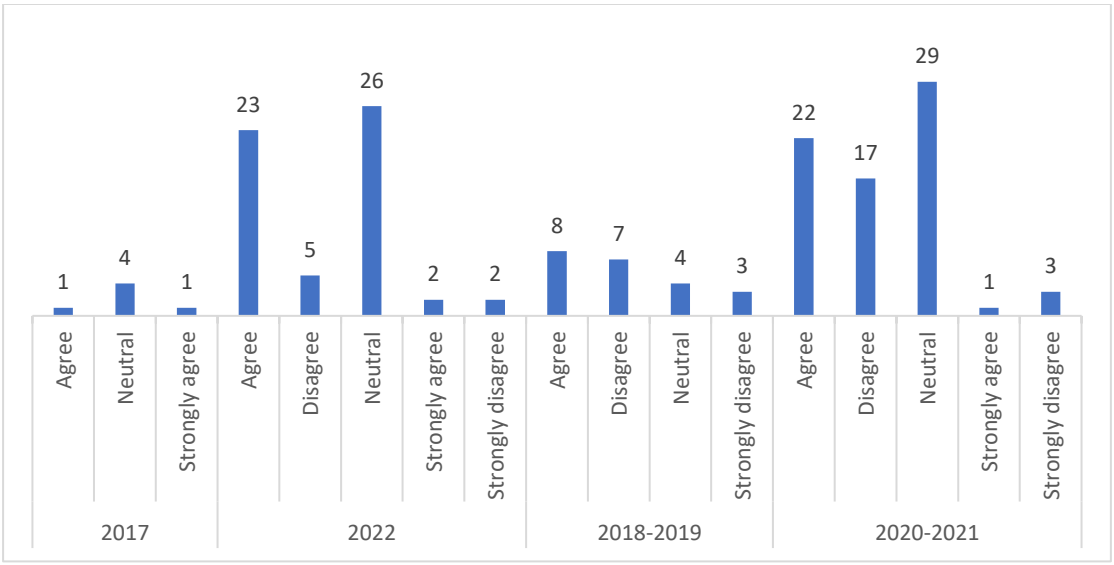


Figure 3.10: Response to resources adequate in numbers



40% of the students were non-committal about the adequacy of resources for CBME learning in their colleges. 34% felt that the resources were adequate for CBME learning in their colleges and 4% felt strongly about it. 29 respondents (18%) disagreed with the statement.

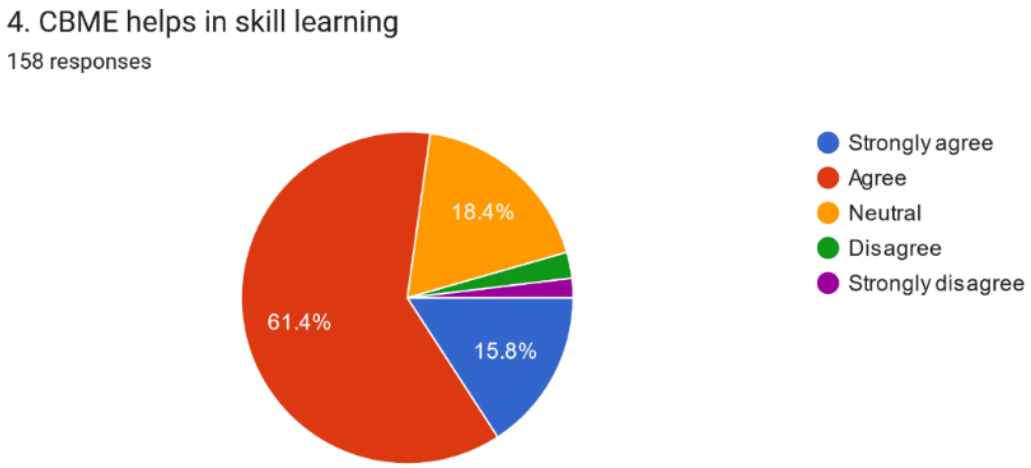


Figure 3.11: Response to skill learning in percentage

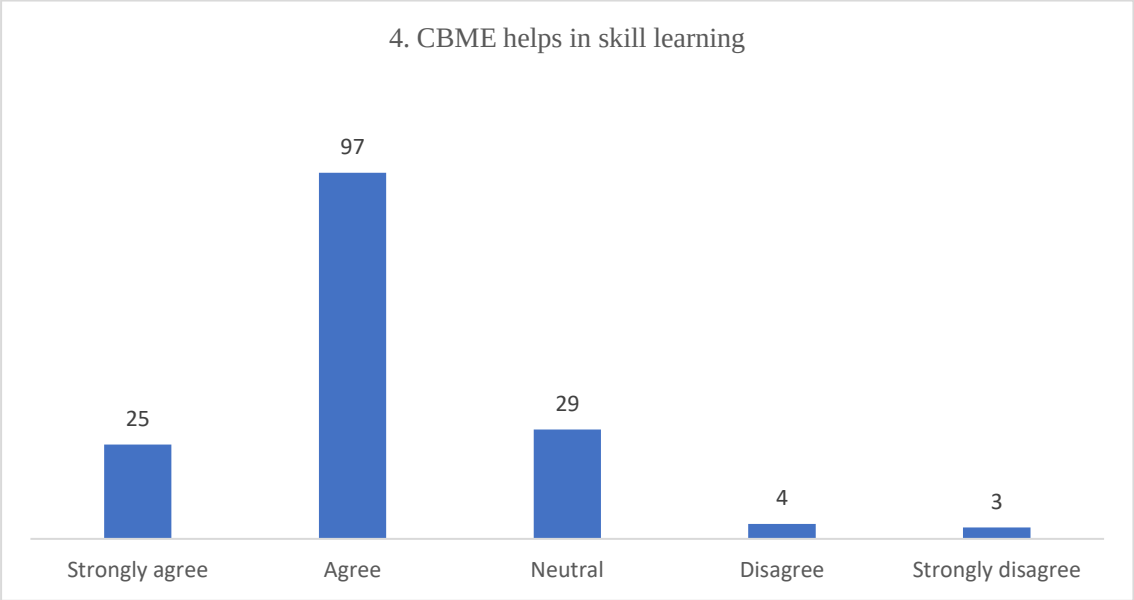
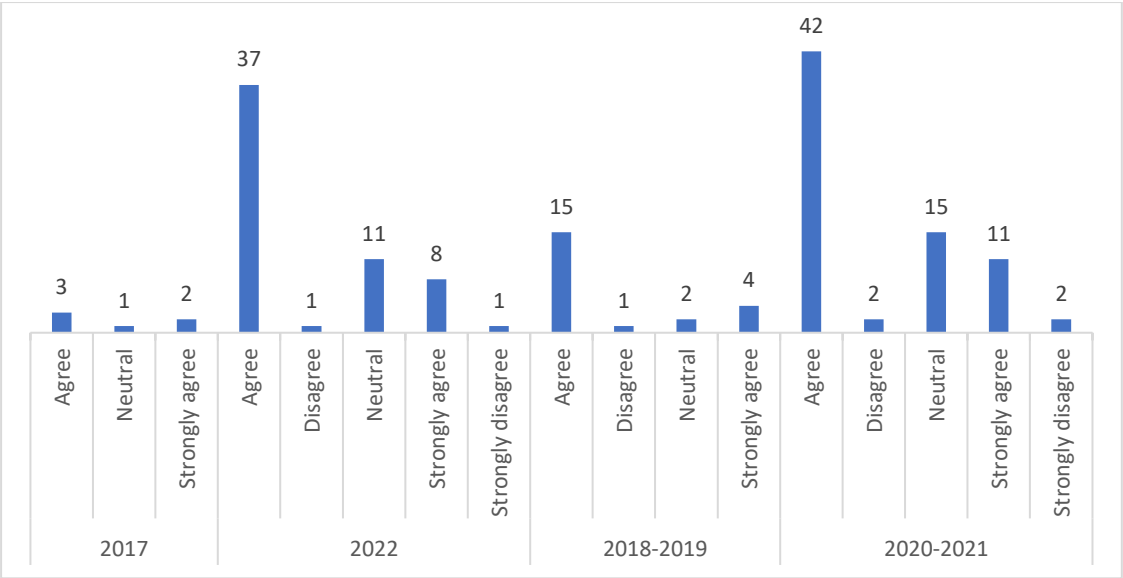


Figure 3.12: Response to skill learning in numbers



The majority of the students (61.4%) felt that the newly introduced competency based medical education helps in skill learning and 16% strongly agreed to this. 29 (16%) were neutral in their response and only 7 did not agree to it.

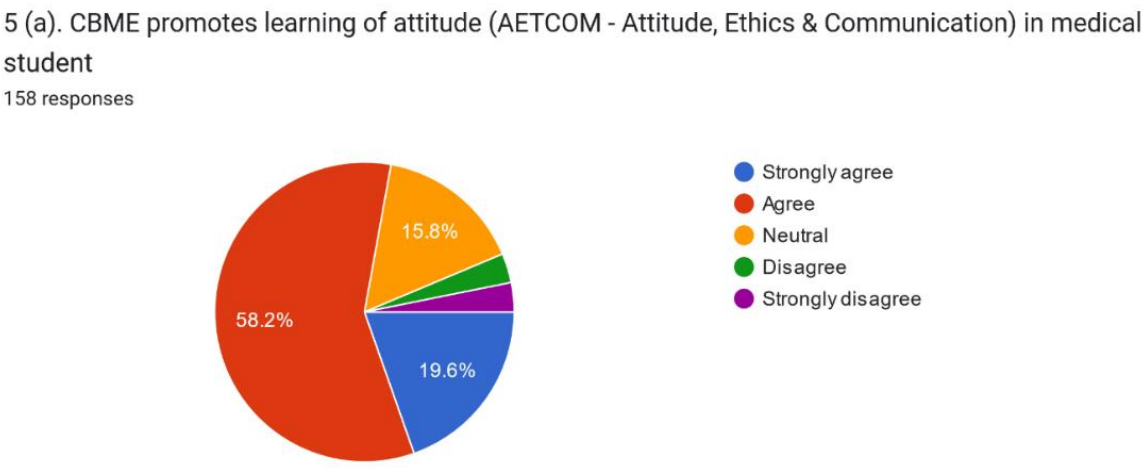


Figure 3.13: Response to learning of attitude in percentage

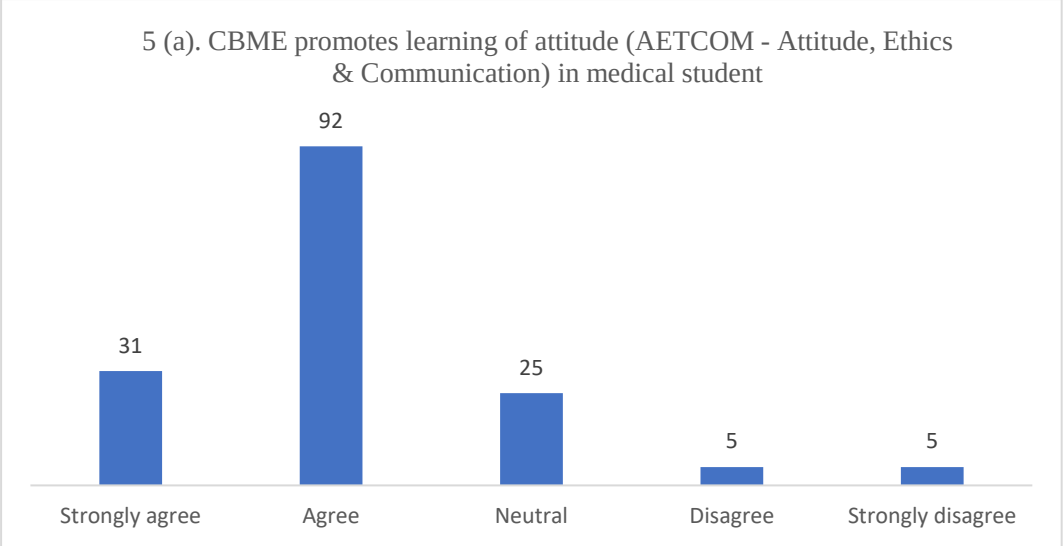
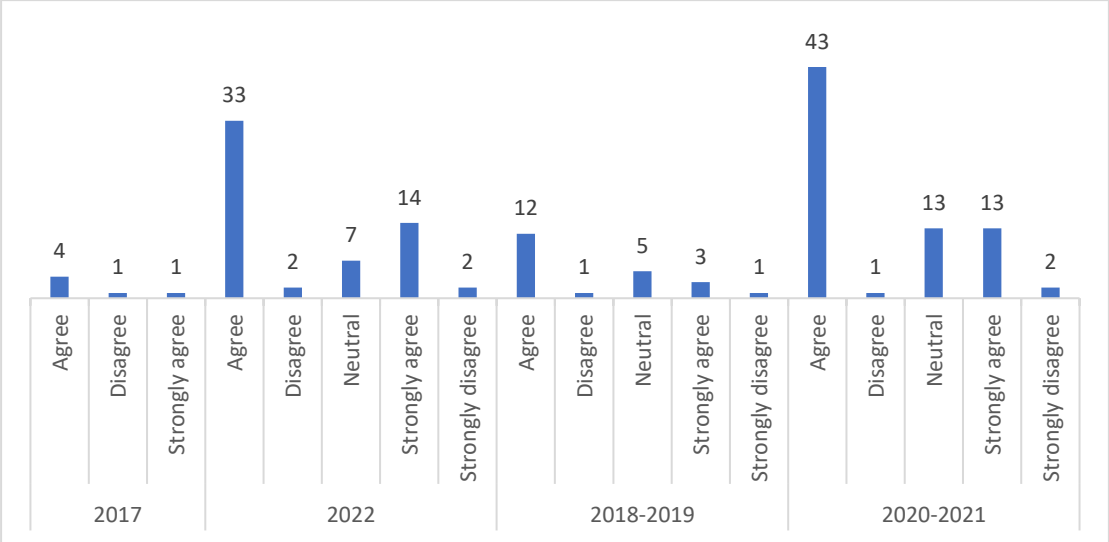


Figure 3.14: Response to learning of attitude in numbers



58% (92) students agreed and almost 20% (31) students strongly agreed to the fact that CBME promotes learning of attitude in medical student. Around 16% (25) were neutral in their response and 3% (5) students each did not agree or strongly disagreed to the fact that CBME does not promote learning of attitude in medical student.

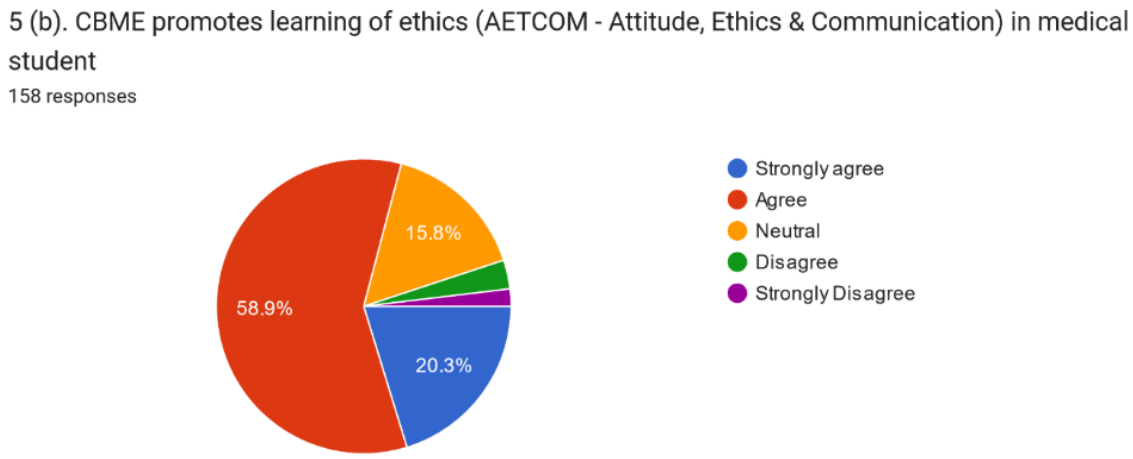


Figure 3.15: Response to learning of ethics in percentage

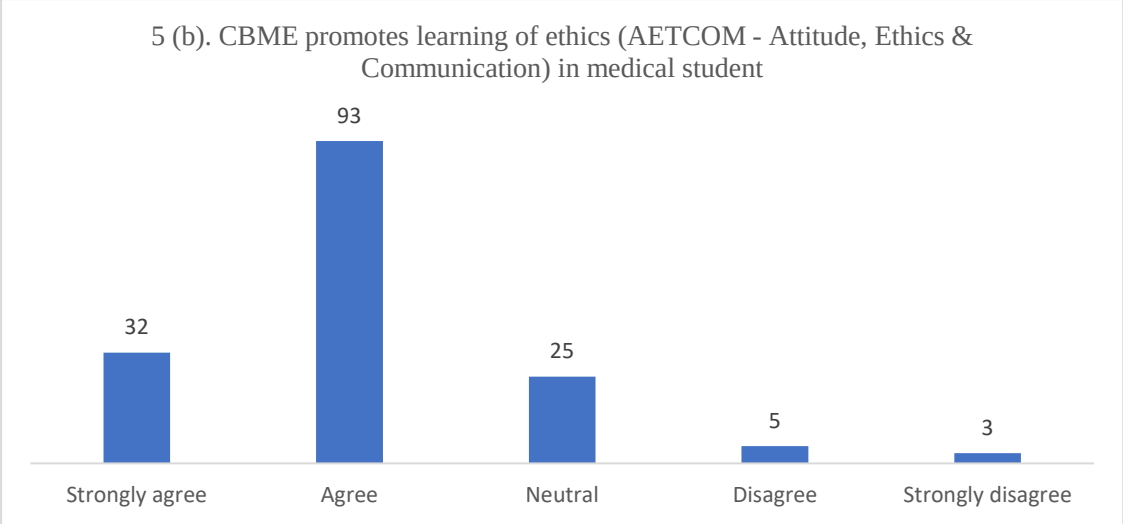
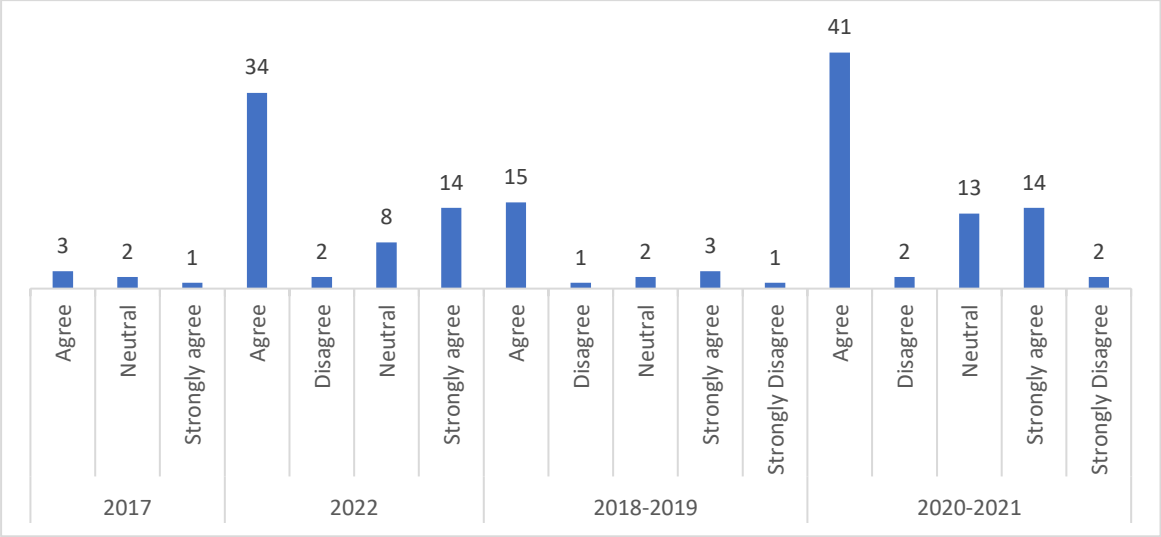


Figure 3.16: Response to learning of ethics in percentage



59% (93) respondents agreed to the fact that competency based medical education promotes the learning of ethics in medical students. 20% (32) strongly agreed to this statement. 15% (25) students were neutral and only 3% (5) students disagreed and <2% (3) strongly disagreed with this fact.

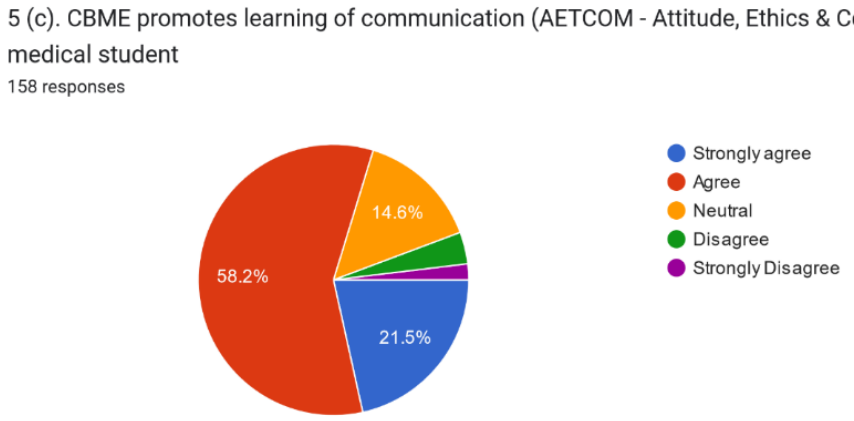


Figure 3.17: Response to learning of communication in percentage

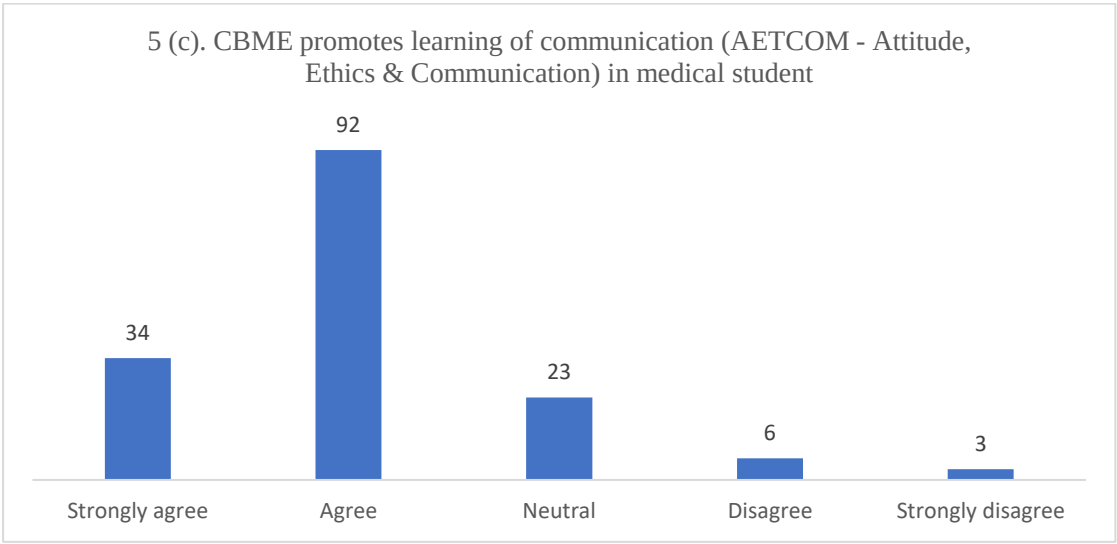
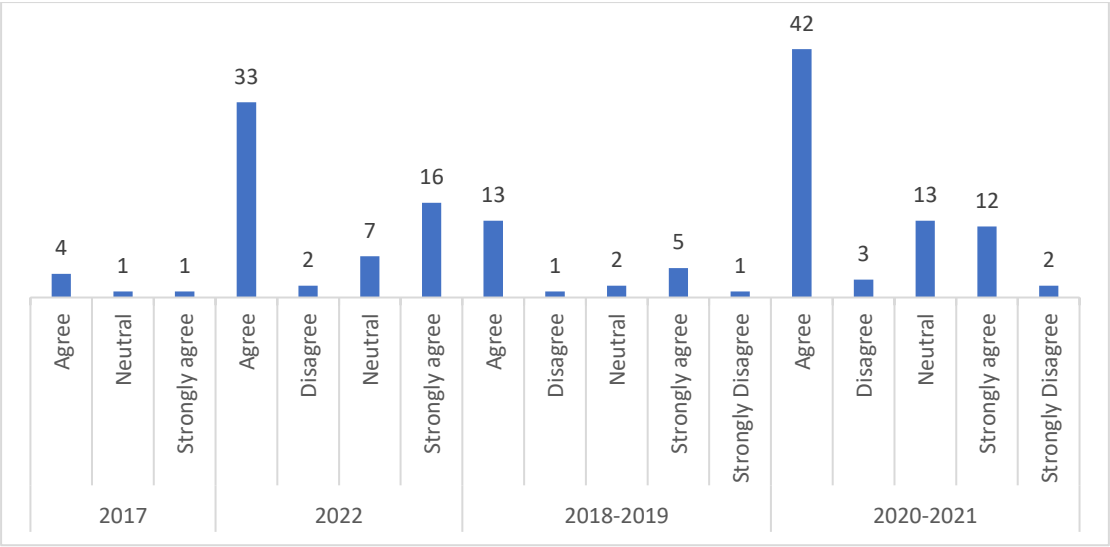


Figure 3.18: Response to learning of communication in numbers



The third component of AETCOM in competency based medical education was communication. 58% (92) respondents have agreed to the fact that CBME promotes learning of communication. 21% (34) strongly agreed to this. 14% (23) students were neutral in their response. Only 4% (6) respondents did not agree to this and 1.9% (3) strongly disagreed with it. The results for all 3 components of AETCOM were found to be similar.

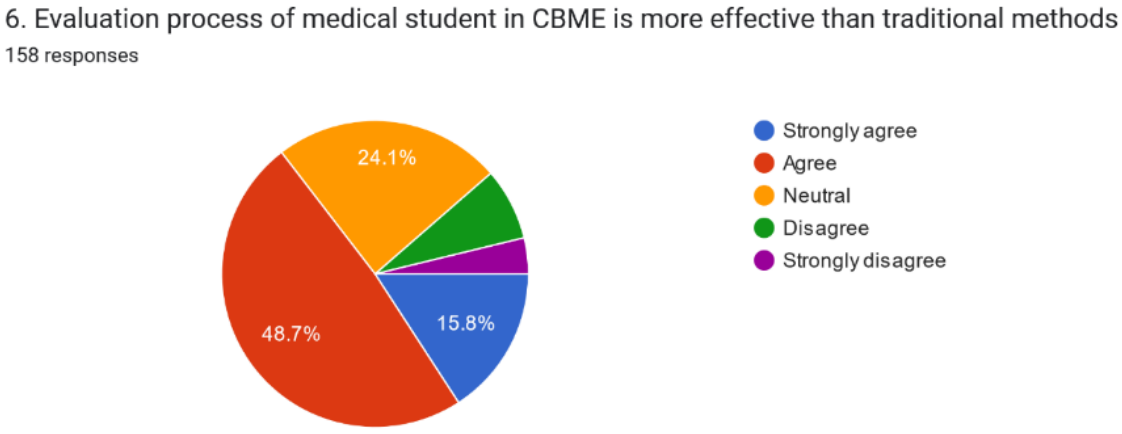


Figure 3.19: Response to CBME more effective than traditional in percentage

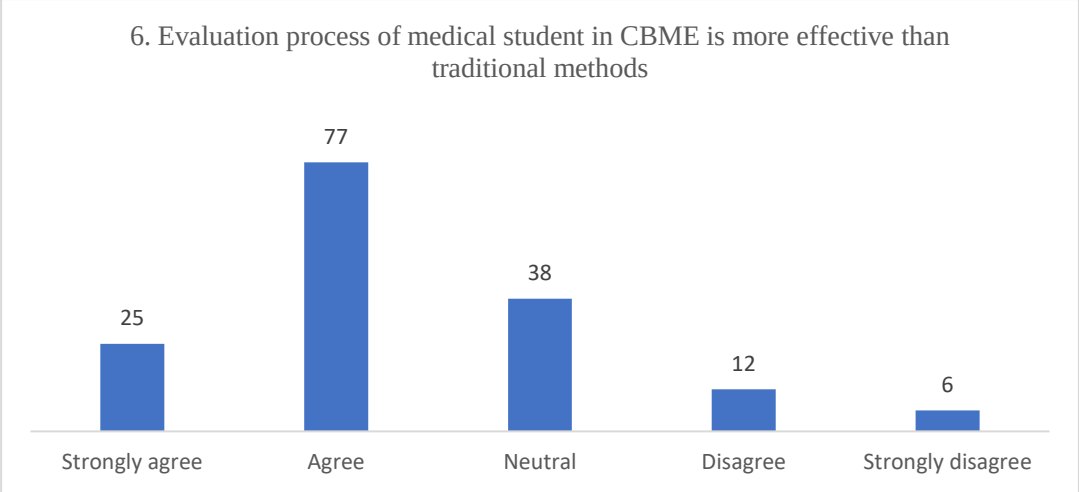
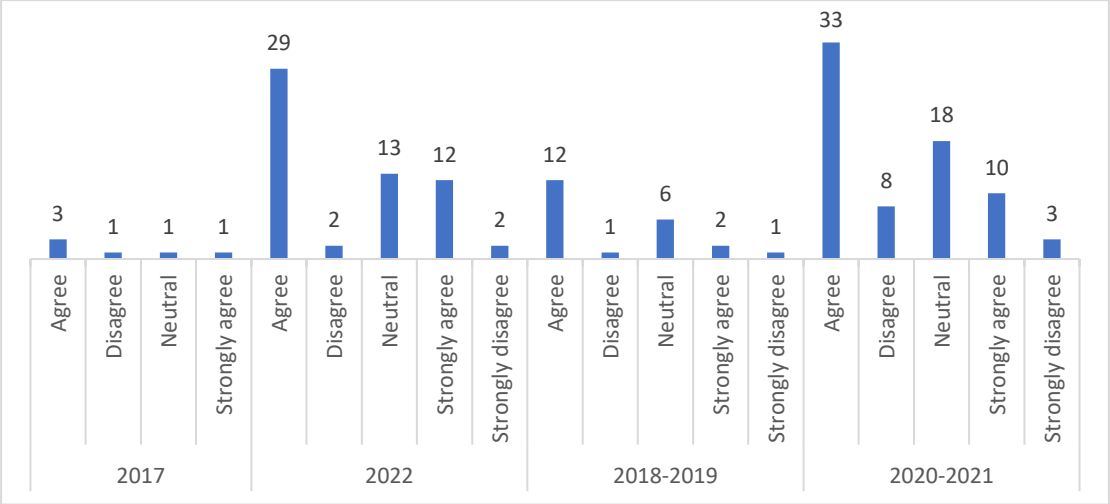


Figure 3.20: Response to CBME more effective than traditional in numbers



The evaluation process in the newly introduced competency based undergraduate curriculum has been changed from summative assessment to formative assessment. The main difference is that in the new formative assessment the goal is to monitor student's learning to provide ongoing feedback that can be used both by the instructors and the students to improve learning. 49% (77) students agreed that the evaluation process is more effective in CBME than traditional method. 16% (25) students strongly agreed to this. 24% (38) student were neutral to the statement. Only 7.6% (12) respondents disagreed and 4% (6) strongly disagreed to the evaluation process in CBME being more effective than traditional summative assessment.

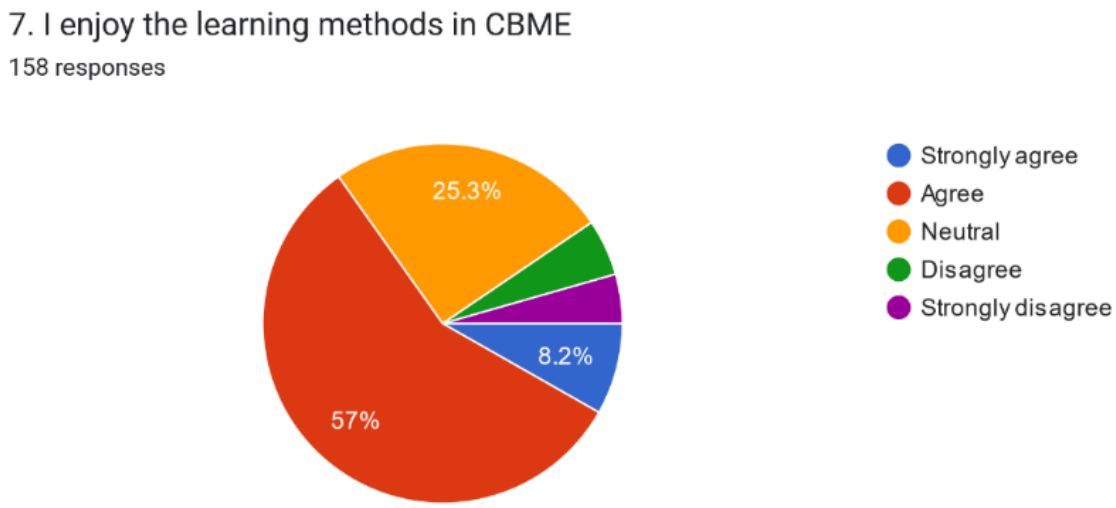


Figure 3.21: Response to question in percentage

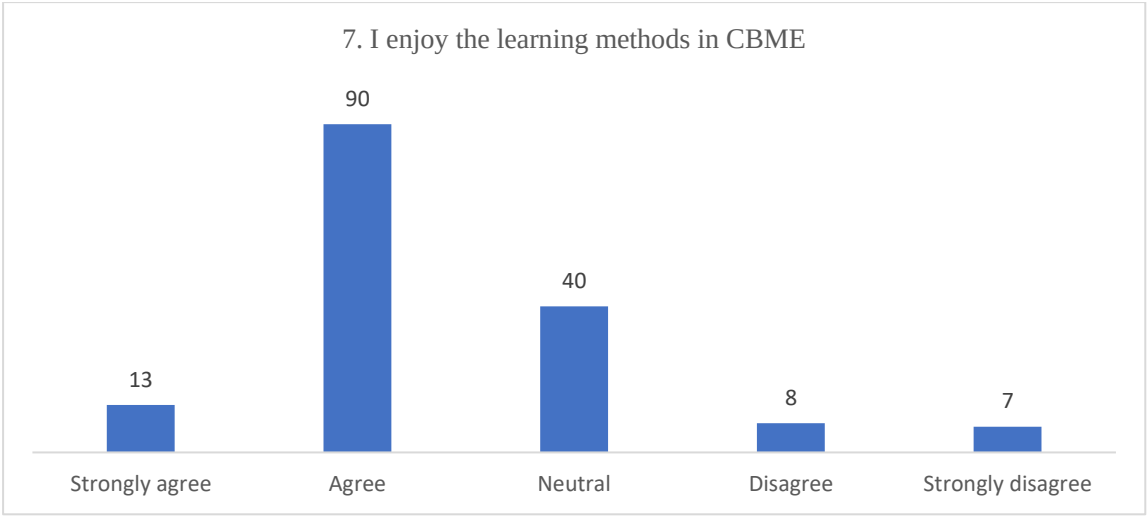
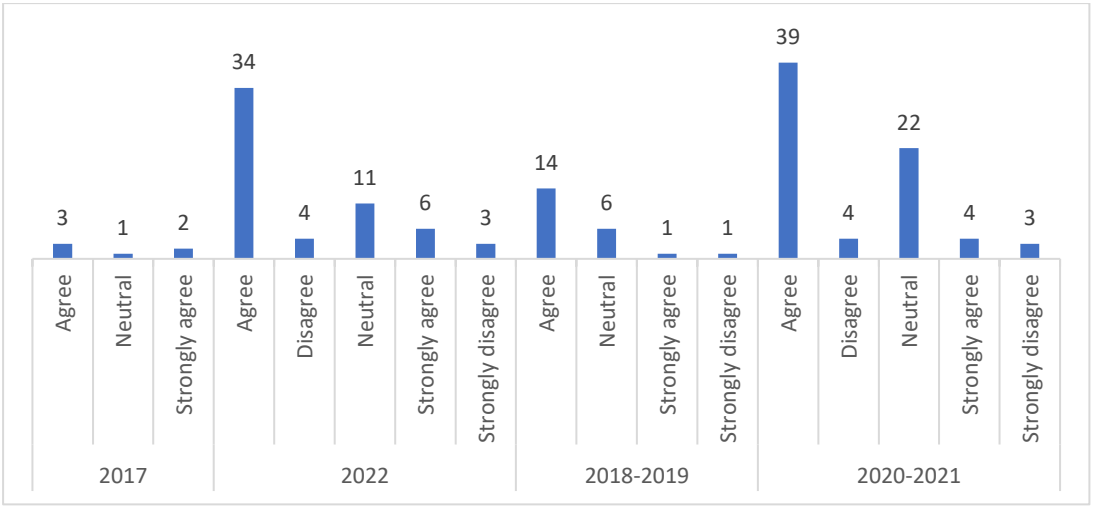


Figure 3.22: Response to question in numbers



One of the important parameters of the study was to understand the attitude of the students to the newly introduced competency based undergraduate curriculum. 57% (90) students responded that they enjoy the learning methods in CBME. A further 8% (13) students strongly agreed to it. Around 25% (40) students felt neutral about this. Only 5% (8) disagreed with it and 4.4% (7) students strongly disagreed.

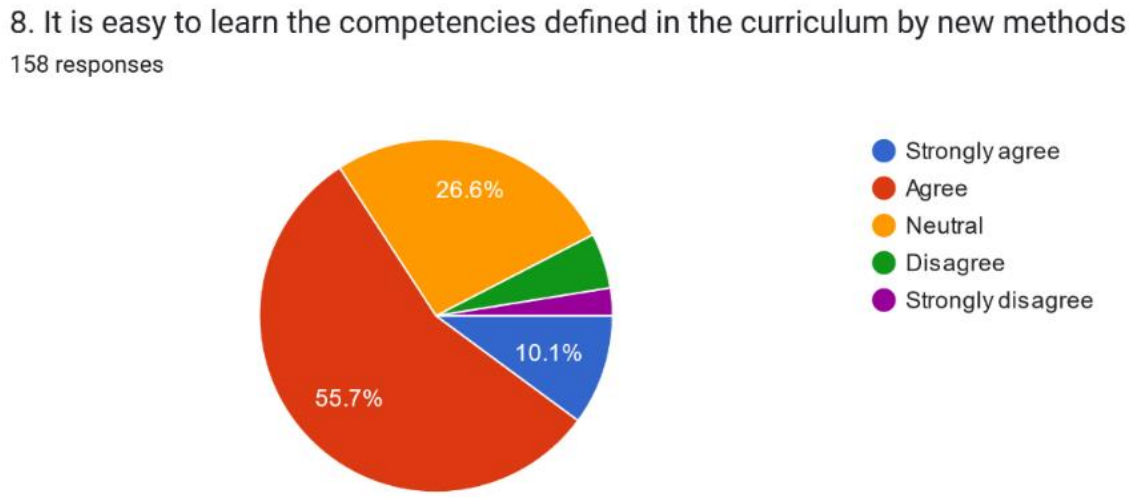


Figure 3.23: Response to question in percentage

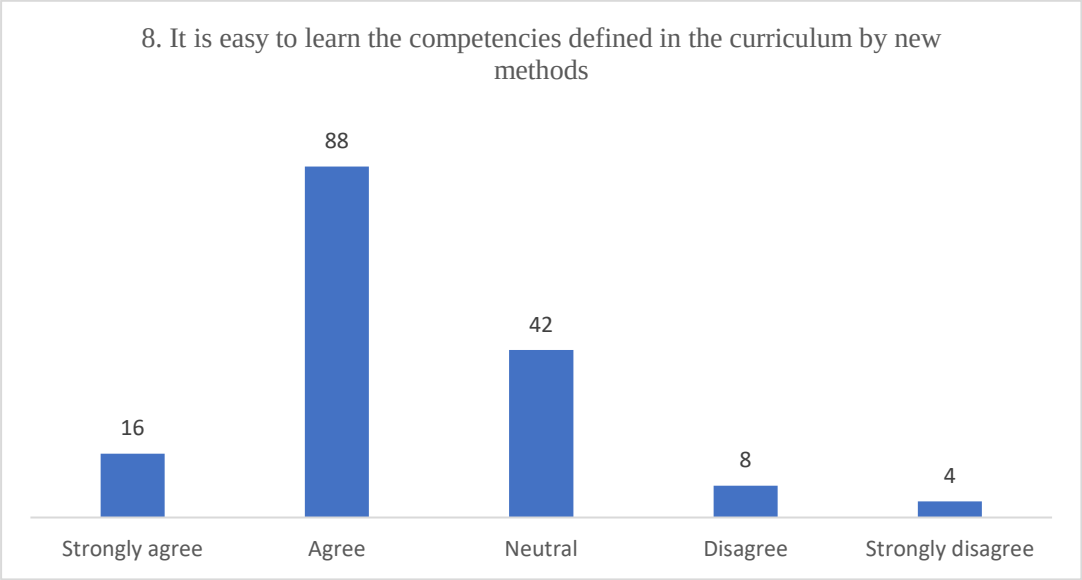
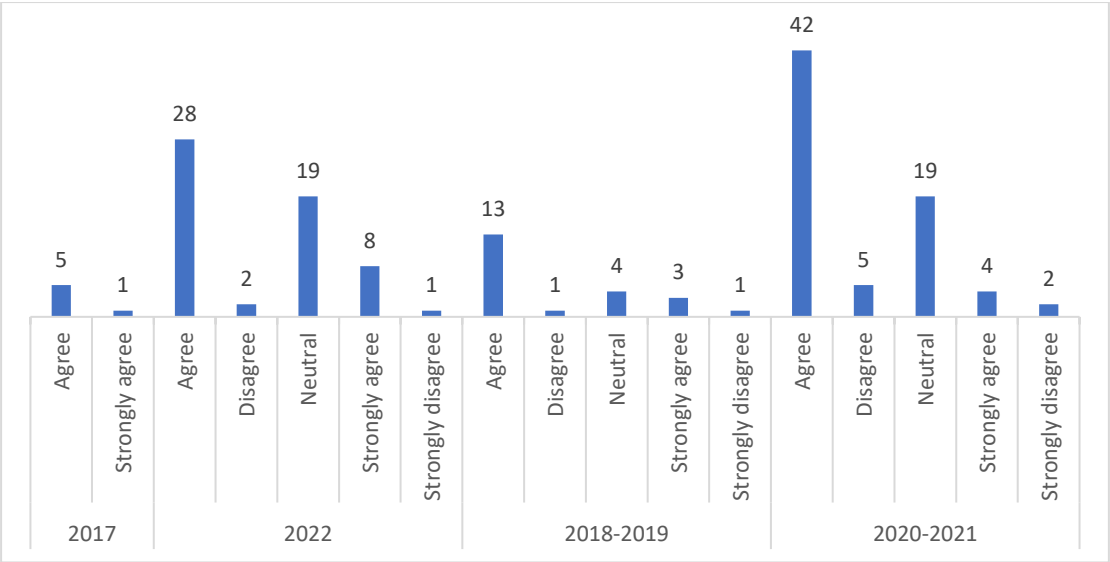


Figure 3.24: Response to question in numbers



As the new competency based undergraduate curriculum introduces learning of competencies and skills instead of only didactic lectures, it was important to find out how the students felt about this change. 56% (88) students felt that it was easy to learn competencies defined in the new curriculum by the new methods. 10% (16) strongly agreed to it. 26.6% (42) students were neutral to the question. 5% (8) disagreed with it and 2.4% (4) strongly disagreed to this statement.

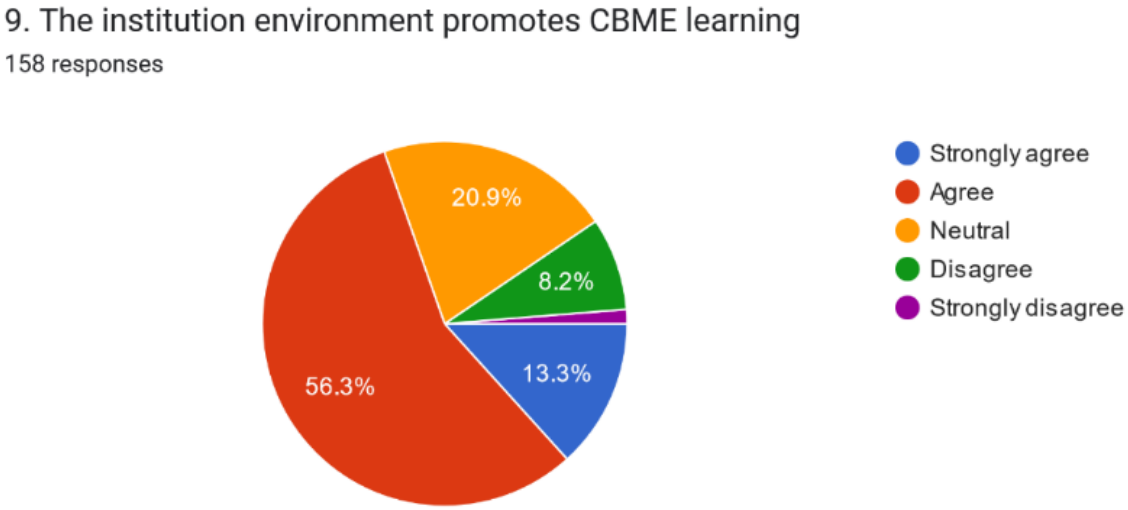


Figure 3.25: Response to institution environment in percentage

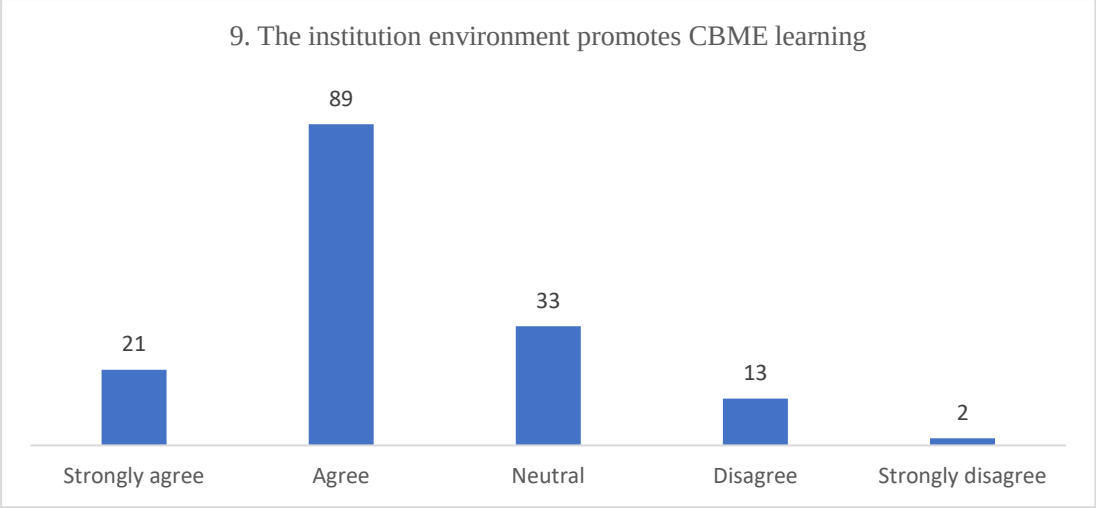
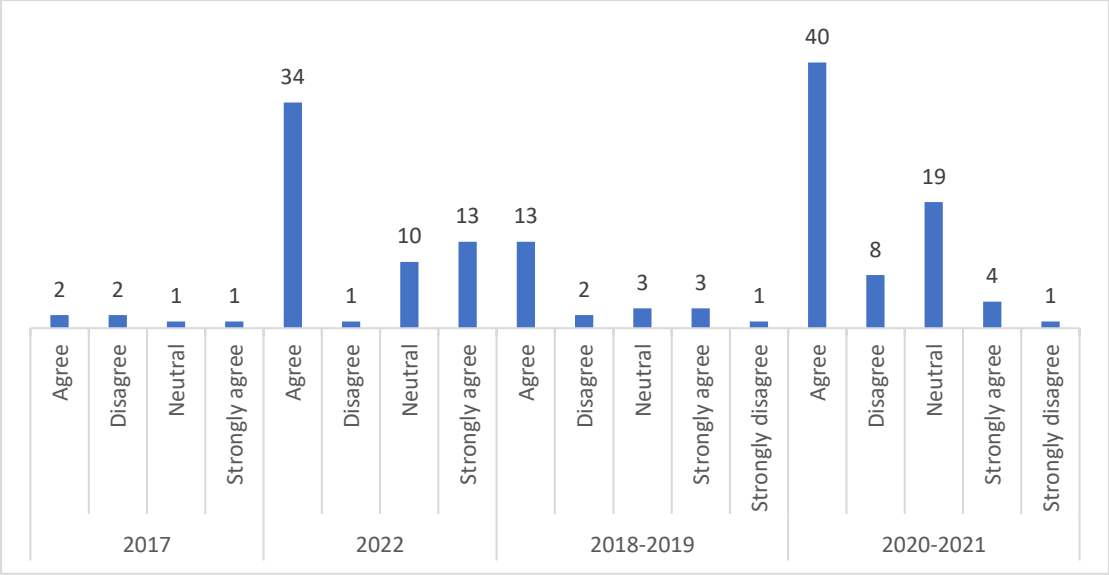


Figure 3.26: Response to institution environment in numbers



One of the requirements of the newly introduced competency based medical education is to provide conducive environment for students. The environment has to be learner centered which offers flexibility in time and focuses on cognitive, psychomotor and affective learning domains.

56% (89) respondents felt that the environment in the institution promotes CBME learning. 13% (21) were strongly supporting the statement. 21% (33) were neutral in their response and 8% (13) disagreed and 1.3% (2) strongly disagreed to it.

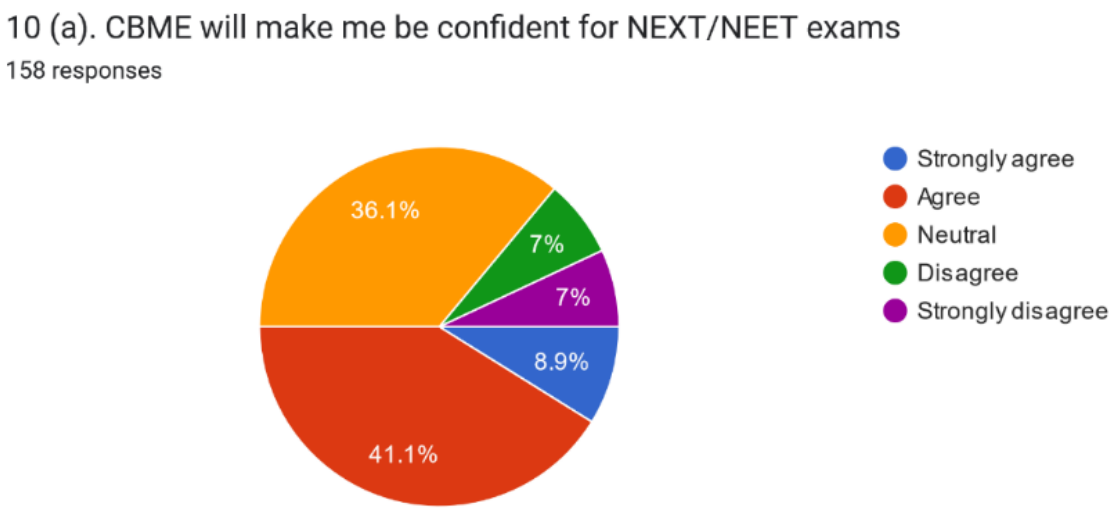


Figure 3.27: Response to question in percentage

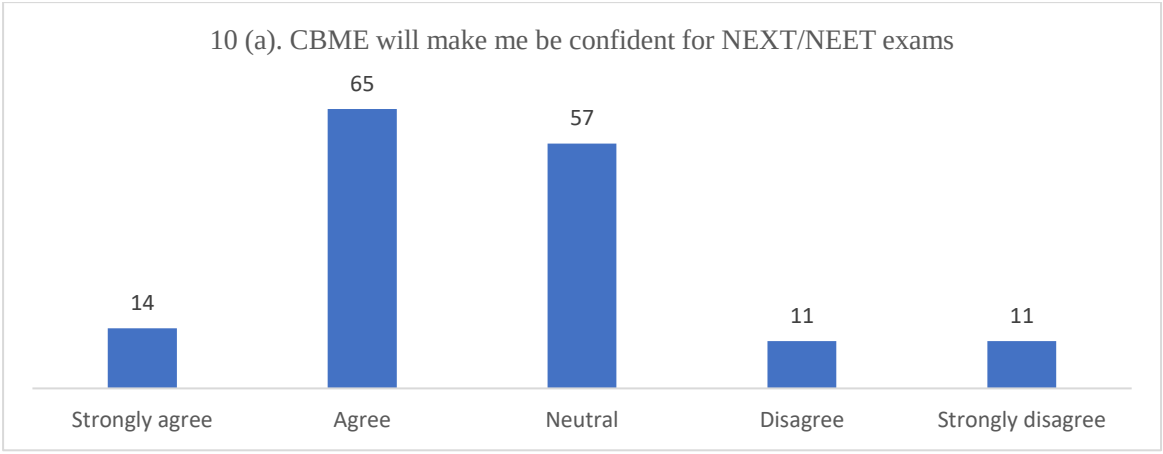
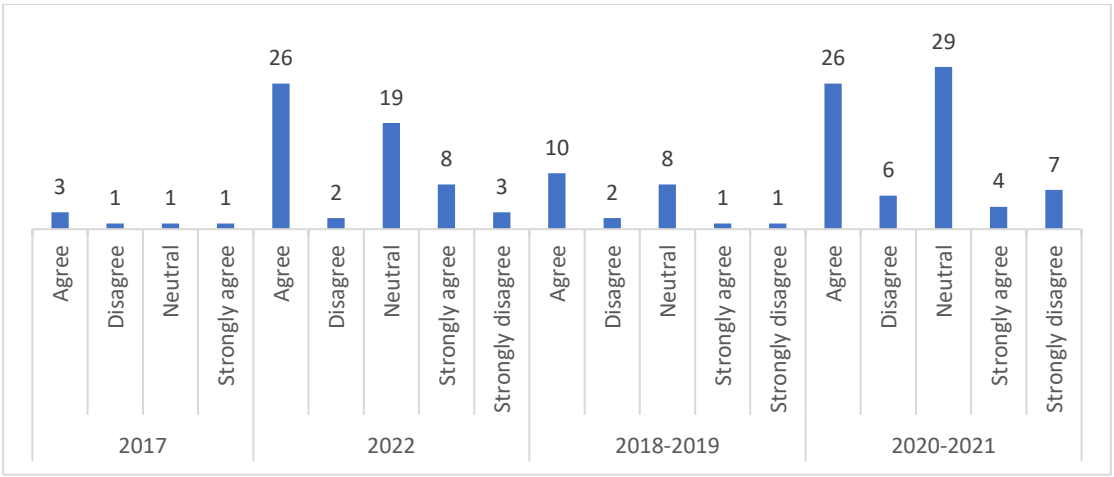


Figure 3.28: Response to question in numbers



41% (65) respondents felt confident that the new competency based curriculum will help them in NEET/NEXT exams. 9% (14) felt strongly about it. 36%

(57) students were not sure and 7% (11) students each disagreed and strongly disagreed to this

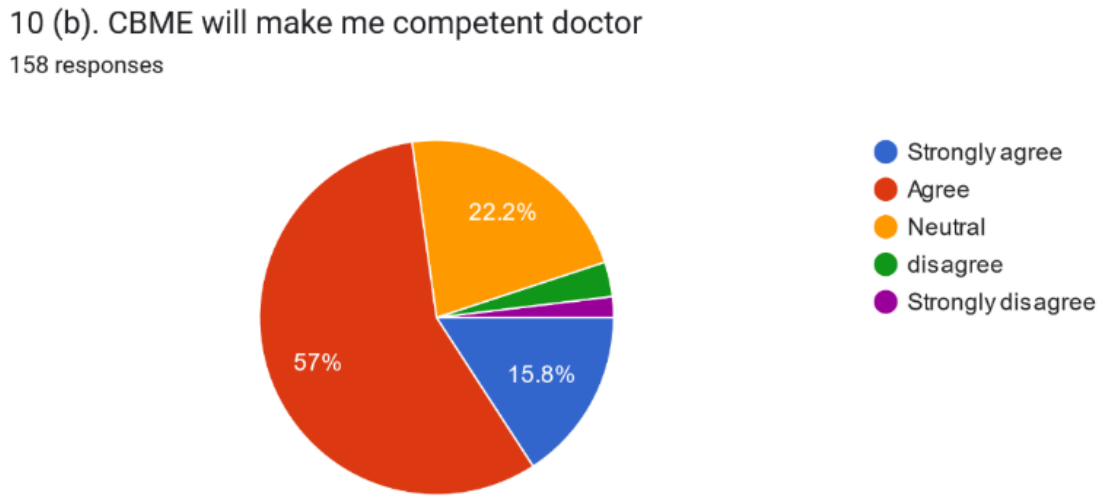


Figure 3.29: Response to competent doctor in percentage

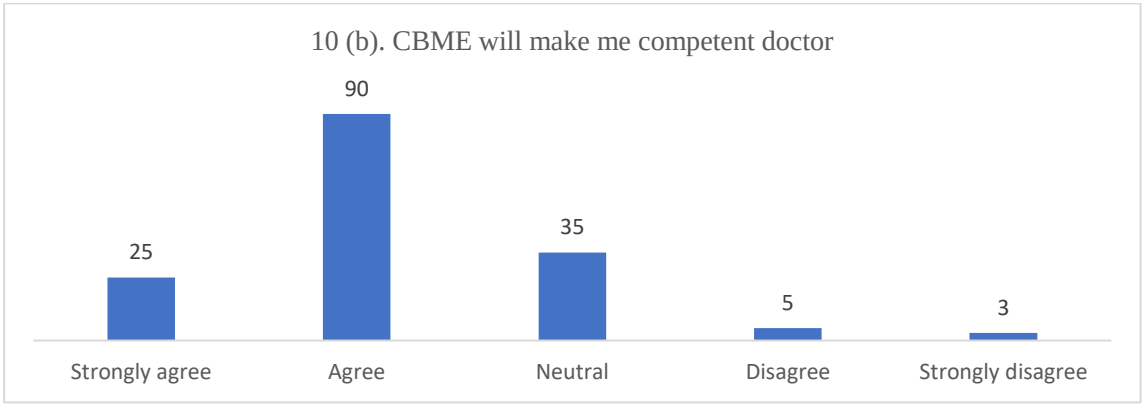
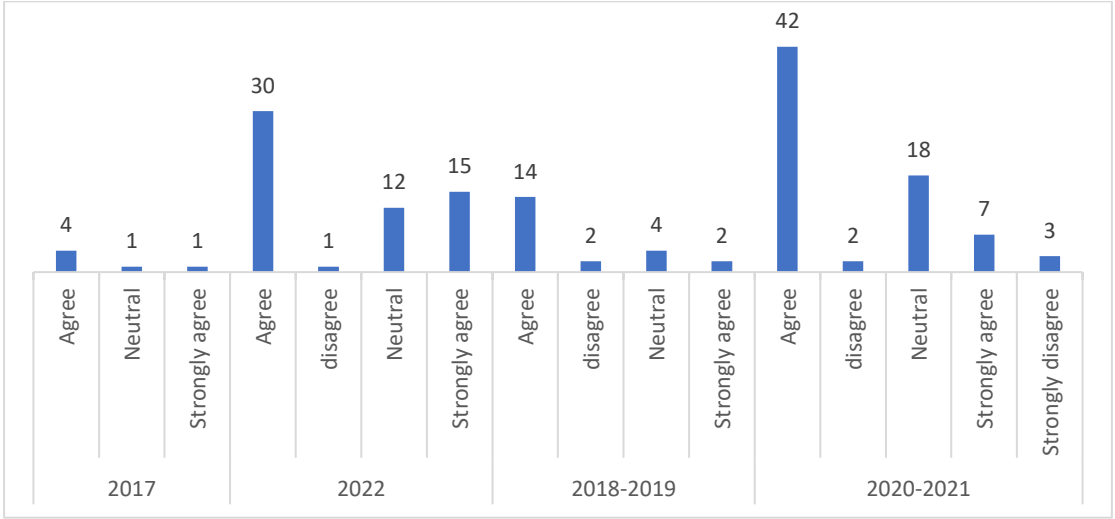


Figure 3.30: Response to competent doctor in numbers



One of the main aims to implement the new competency based undergraduate curriculum was to have a competent doctor who can effectively look after the health needs of the people in the society. The survey findings reveal that 16% (25) strongly agree and 57% (90) respondents agree to this. 22% (35) were neutral in their response. Only 3% (5) and 2% (3) disagreed and strongly disagreed to it respectively.

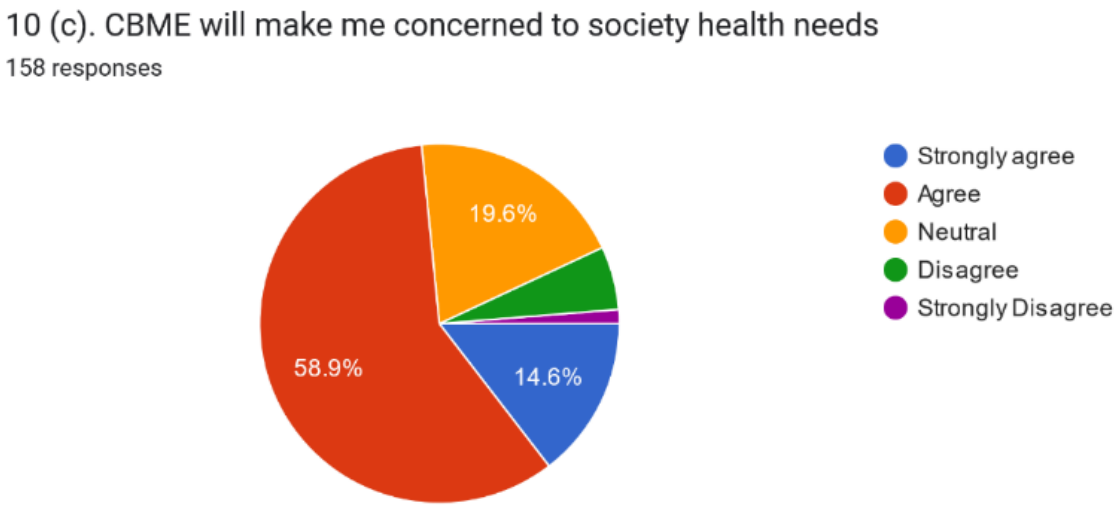


Figure 3.31: Response to concern for society needs in percentage

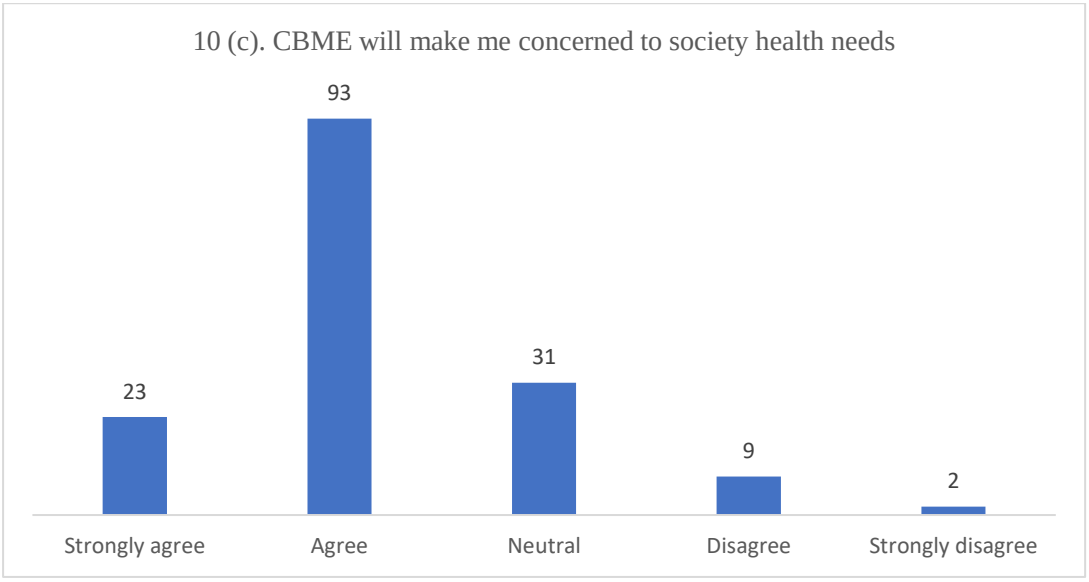
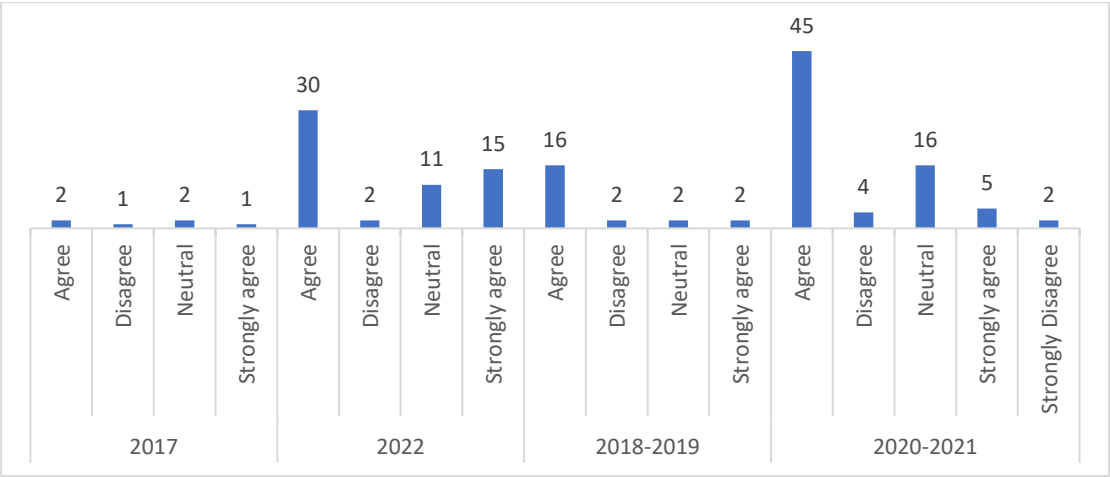


Figure 3.32: Response to concern for society needs in numbers



Majority 59% (93) agreed that CBME will make them more concerned about the health needs of the society. 14.6% (23) strongly agreed to it and 20% (31) were neutral. 6% (9) did not agree and 1% (2) strongly disagreed to this.

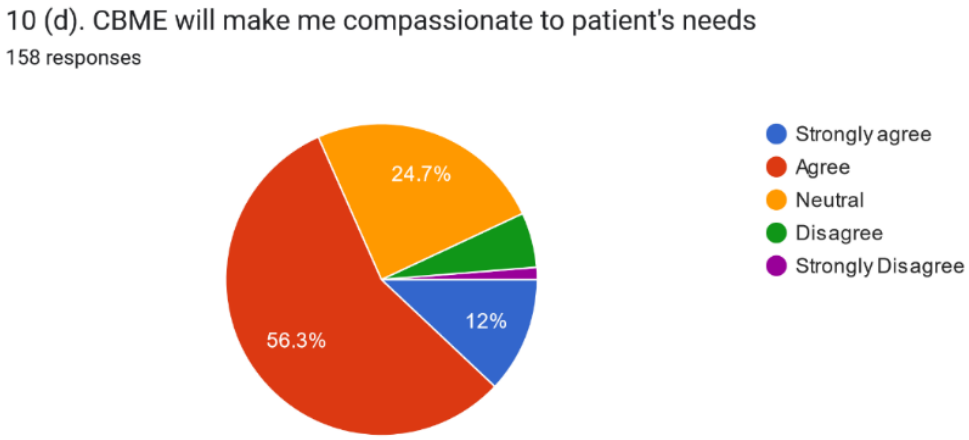


Figure 3.33: Response to compassion to patient's needs in percentage

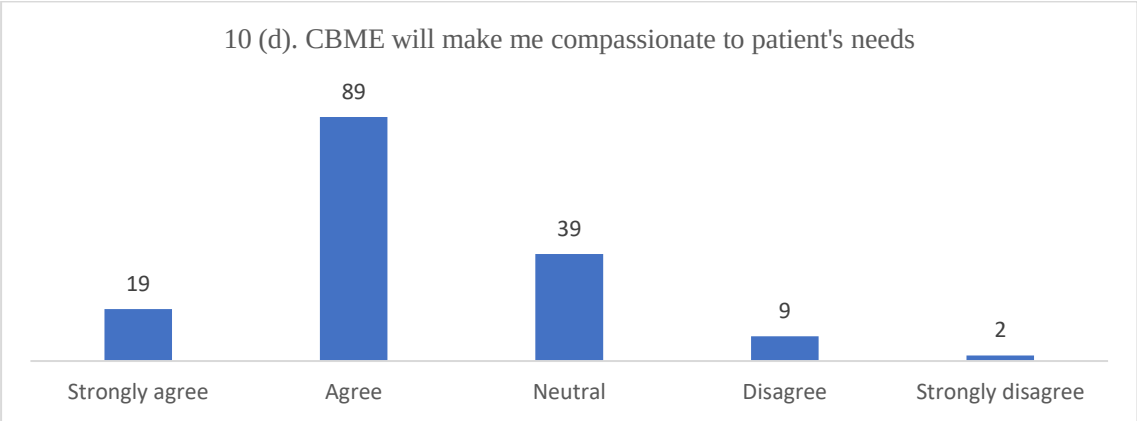
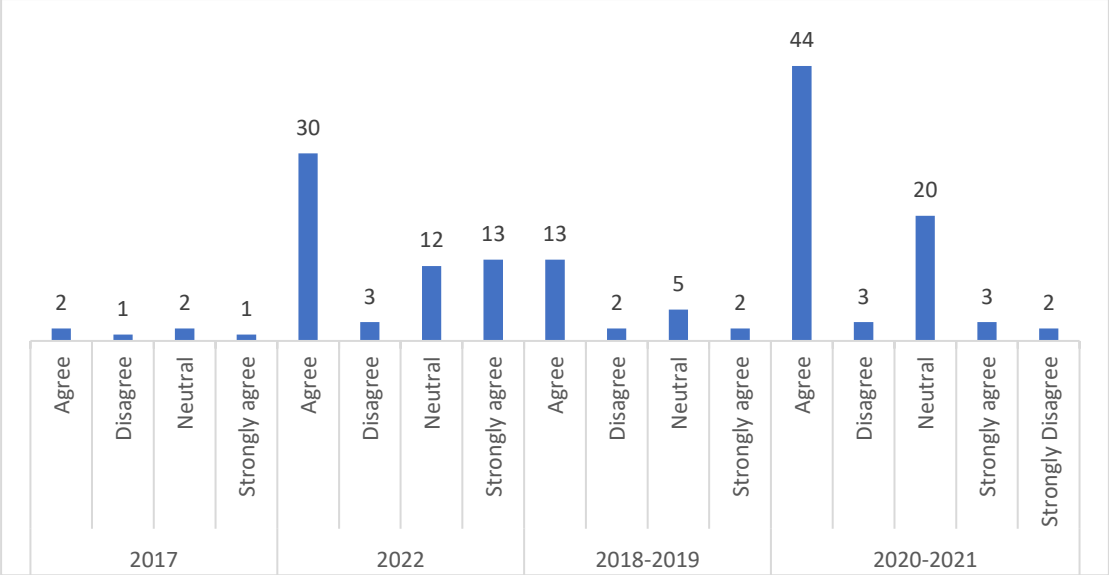


Figure 3.34: Response to compassion to patient's needs in numbers



The perception of students regarding introduction of the competency based undergraduate curriculum towards patient needs was studied in the responses to this question. 12% (19) strongly agreed and 56% (89) agreed to fact that CBME will make them more compassionate to patient's needs. 25% students were neutral in their response and only 6% (9) disagreed and 1.3% (2) strongly disagreed to it.

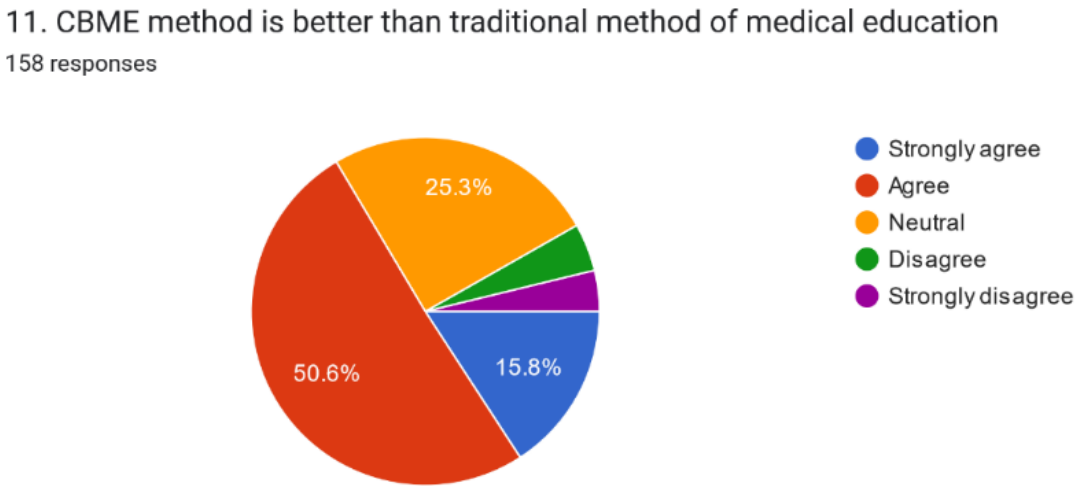


Figure 3.35: Response to CBME better than traditional in percentage

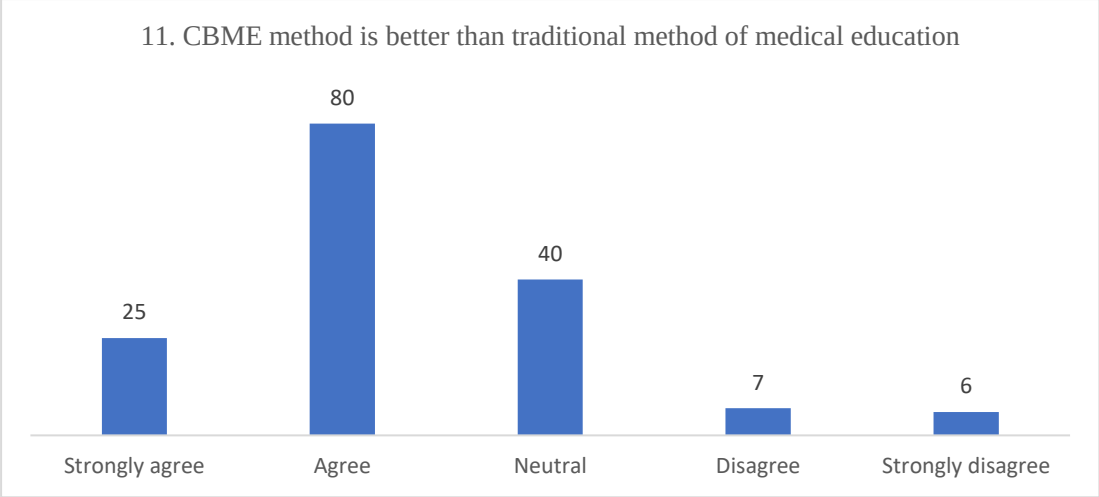
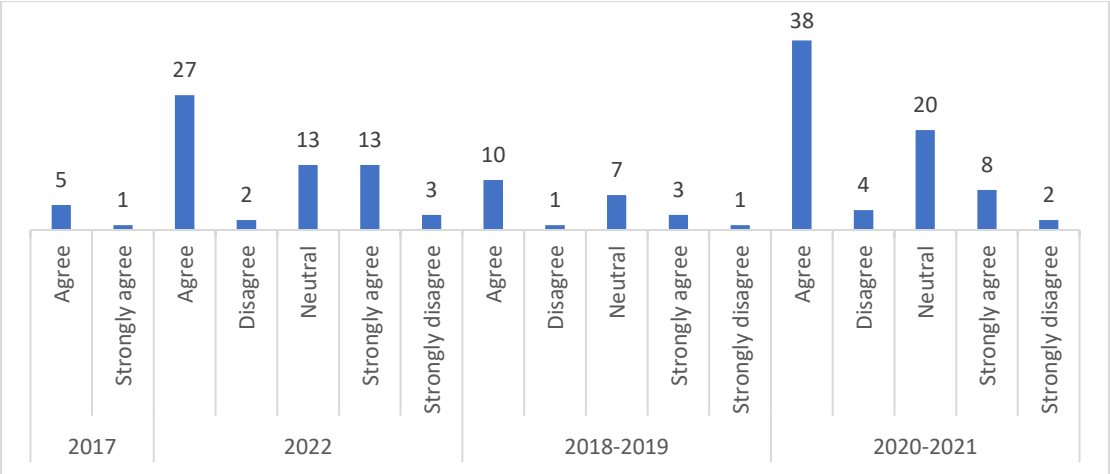


Figure 3.36: Response to CBME better than traditional in numbers



50.6% (80) agreed to the fact that competency based medical education is better than the traditional method of medical education. 16% (25) strongly agreed to it. 25% (40) were neutral and 4.4% (7) and 3.8% (6) disagreed and strongly disagreed to this respectively.

Chapter 4

Findings and Discussion

Competency based undergraduate curriculum for medical education was introduced in India in Aug 2019 by the National Medical Commission. This change in medical education curriculum was brought after a gap of 21 years. The aim was to have a competent Indian Medical graduate passing out of the colleges capable of effectively and efficiently functioning as a doctor in the community.

During the initial period of implementation, a lot of reservations were projected including lack of resources, deficiency of infrastructure and training of faculty. These were duly addressed by the National Medical Commission. However, no concern was mentioned regarding the medical students who would be receiving education and training as per the new competency based undergraduate curriculum instead of the traditional system. It was presumed that the system has worked well in other countries like Canada, USA, UK, Australia etc., and hence would also be effective for Indian medical students. This study has been done to find out the students' perceptions to the new competency based undergraduate curriculum. The study was conducted using a 5-point Likert scale questionnaire in the form of Google form. The questionnaire comprised of three components – demographic information, institution and academic information and the questions regarding the perception of medical students to the various aspects of the competency based medical education. The study was carried out in the 09 medical colleges in Delhi in Jan and Feb 2023 and a total of 158 responses were received online. The responses received from the students were analyzed using descriptive analysis. A cross sectional analysis of different year students was also done to assess the respons.

Table 1: Descriptive Analysis of the responses (N= 158)

Question	Mean	Standard Deviation
1. Foundation Course helps medical student in better learning	3.78	0.89
2. Resources for teaching have been enhanced after CBME has been introduced	3.54	0.84
3. Resources are adequate for CBME learning	3.11	0.91
4. CBME helps in skill learning	3.87	0.77
5 (a). CBME promotes learning of attitude (AETCOM - Attitude, Ethics & Communication) in medical student	3.88	0.87
5 (b). CBME promotes learning of ethics (AETCOM - Attitude, Ethics & Communication) in medical student	3.92	0.81
5 (c). CBME promotes learning of communication (AETCOM - Attitude, Ethics & Communication) in medical student	3.94	0.83
6. Evaluation process of medical student in CBME is more effective than traditional methods	3.65	0.96
7. I enjoy the learning methods in CBME	3.59	0.88
8. It is easy to learn the competencies defined in the curriculum by new methods	3.66	0.83
9. The institution environment promotes CBME learning	3.72	0.84
10 (a). CBME will make me be confident for NEXT/NEET exams	3.38	0.99
10 (b). CBME will make me competent doctor	3.82	0.80
10 (c). CBME will make me concerned to society health needs	3.80	0.80
10 (d). CBME will make me compassionate to patient's needs	3.72	0.80
11. CBME method is better than traditional method of medical education	3.70	0.92

A total of 6 students (3.8%) joined in 2017, 22 students (13.9%) in 2018-19, 72 students (45.6%) in 2020-21 and 58 students (36.7%) in the year 2022. A cross sectional analysis of different year students was carried out for their responses to the questions. The result has been tabulated in the following tables.

Table 2: Cross sectional analysis of different year students (N=158) regarding foundation course.

Row Labels	Count of 1. Foundation Course helps medical student in better learning
2017	**6**
Agree	2
Neutral	1
Strongly agree	3
2022	**58**
Agree	25
Disagree	5
Neutral	13
Strongly agree	14
Strongly disagree	1
2018-2019	**22**
Agree	12
Neutral	8
Strongly disagree	2
2020-2021	**72**
Agree	43
Disagree	3
Neutral	13
Strongly agree	12
Strongly disagree	1
Grand Total	**158**

None of the students who joined in 2017 disagreed to the question regarding foundation course and 5 out of 6 agreed to its usefulness compared to other year students.

Table 3: Responses of students of different year to the resources being enhanced

Row Labels	Count of 2. Resources for teaching have been enhanced after CBME has been introduced
2017	**6**
Agree	3
Neutral	2
Strongly agree	1
2022	**58**
Agree	37
Disagree	3
Neutral	11
Strongly agree	5
Strongly Disagree	2
2018-2019	**22**
Agree	12
Disagree	1
Neutral	8
Strongly Disagree	1
2020-2021	**72**
Agree	40
Disagree	6
Neutral	21
Strongly agree	2
Strongly Disagree	3
Grand Total	**158**

The majority of students irrespective of the year they joined the college agreed to the resources being enhanced after the implementation of competency based undergraduate curriculum in their colleges. None of the students of 2017 disagreed to this question.

Table 4: Responses of students of different year to the resources being adequate for CBME learning

Row Labels	Count of 3. Resources are adequate for CBME learning
2017	**6**
Agree	1
Neutral	4
Strongly agree	1
2022	**58**
Agree	23
Disagree	5
Neutral	26
Strongly agree	2
Strongly disagree	2
2018-2019	**22**
Agree	8
Disagree	7
Neutral	4
Strongly disagree	3
2020-2021	**72**
Agree	22
Disagree	17
Neutral	29
Strongly agree	1
Strongly disagree	3
Grand Total	**158**

22 students (14%) in 2020-2021 disagreed and 3 students (1.9%) strongly disagreed compared to none students of 2017 regarding adequate resources being available for CBME learning.

Table 5: Responses of students of different year to the skill learning

Row Labels	Count of 4. CBME helps in skill learning
2017	**6**
Agree	3
Neutral	1
Strongly agree	2
2022	**58**
Agree	37
Disagree	1
Neutral	11
Strongly agree	8
Strongly disagree	1
2018-2019	**22**
Agree	15
Disagree	1
Neutral	2
Strongly agree	4
2020-2021	**72**
Agree	42
Disagree	2
Neutral	15
Strongly agree	11
Strongly disagree	2
Grand Total	**158**

The majority of students who joined before 2020 agreed that CBME helped in skill learning whereas many students who joined in or after 2020 were neutral in their response.

Table 6: Responses of students of different year to the learning of attitude

Row Labels	Count of 5 (a). CBME promotes learning of attitude (AETCOM - Attitude, Ethics & Communication) in medical student
2017	**6**
Agree	4
Disagree	1
Strongly agree	1
2022	**58**
Agree	33
Disagree	2
Neutral	7
Strongly agree	14
Strongly disagree	2
2018-2019	**22**
Agree	12
Disagree	1
Neutral	5
Strongly agree	3
Strongly disagree	1
2020-2021	**72**
Agree	43
Disagree	1
Neutral	13
Strongly agree	13
Strongly disagree	2
Grand Total	**158**

A large majority of students irrespective of the year agreed or strongly agreed to the fact that competency based medical education promotes learning of attitude in medical students.

Table 7: Responses of students of different year to the learning of ethics

Row Labels	Count of 5 (b). CBME promotes learning of ethics (AETCOM - Attitude, Ethics & Communication) in medical student
2017	**6**
Agree	3
Neutral	2
Strongly agree	1
2022	**58**
Agree	34
Disagree	2
Neutral	8
Strongly agree	14
2018-2019	**22**
Agree	15
Disagree	1
Neutral	2
Strongly agree	3
Strongly Disagree	1
2020-2021	**72**
Agree	41
Disagree	2
Neutral	13
Strongly agree	14
Strongly Disagree	2
Grand Total	**158**

The response to whether CBME promotes learning of ethics in medical students was similar to the previous one where the majority agreed with the statement. Comparatively, a large percentage of students strongly agreed with it.

Table 8: Responses of students of different year to the learning of communication

Row Labels	Count of 5 (c). CBME promotes learning of communication (AETCOM - Attitude, Ethics & Communication) in medical student
2017	**6**
Agree	4
Neutral	1
Strongly agree	1
2022	**58**
Agree	33
Disagree	2
Neutral	7
Strongly agree	16
2018-2019	**22**
Agree	13
Disagree	1
Neutral	2
Strongly agree	5
Strongly Disagree	1
2020-2021	**72**
Agree	42
Disagree	3
Neutral	13
Strongly agree	12
Strongly Disagree	2
Grand Total	**158**

The majority of students responded positively to the question regarding CBME promotes learning of communication. There was no difference seen in the response of students of different years in the survey.

Table 9: Responses of students of different years to the evaluation process in CBME compared to traditional methods

Row Labels	Count of 6. Evaluation process of medical student in CBME is more effective than traditional methods
2017	**6**
Agree	3
Disagree	1
Neutral	1
Strongly agree	1
2022	**58**
Agree	29
Disagree	2
Neutral	13
Strongly agree	12
Strongly disagree	2
2018-2019	**22**
Agree	12
Disagree	1
Neutral	6
Strongly agree	2
Strongly disagree	1
2020-2021	**72**
Agree	33
Disagree	8
Neutral	18
Strongly agree	10
Strongly disagree	3
Grand Total	**158**

8 students disagreed and 3 students strongly disagreed out of 72 students who joined in 2020-21 which was high when compared to students who had joined in other years.

Table 10: Responses of students of different year to the question of enjoying the learning methods in CBME

Row Labels	Count of 7. I enjoy the learning methods in CBME
2017	**6**
Agree	3
Neutral	1
Strongly agree	2
2022	**58**
Agree	34
Disagree	4
Neutral	11
Strongly agree	6
Strongly disagree	3
2018-2019	**22**
Agree	14
Neutral	6
Strongly agree	1
Strongly disagree	1
2020-2021	**72**
Agree	39
Disagree	4
Neutral	22
Strongly agree	4
Strongly disagree	3
Grand Total	**158**

None of the students who joined in 2017 disagreed and only 1 student of 2018-19 strongly disagreed as compared to other years.

Table 11: Responses of students of different years to the question whether it is easy to learn the competencies defined in the curriculum by the new methods

Row Labels	Count of 8. It is easy to learn the competencies defined in the curriculum by new methods
2017	**6**
Agree	5
Strongly agree	1
2022	**58**
Agree	28
Disagree	2
Neutral	19
Strongly agree	8
Strongly disagree	1
2018-2019	**22**
Agree	13
Disagree	1
Neutral	4
Strongly agree	3
Strongly disagree	1
2020-2021	**72**
Agree	42
Disagree	5
Neutral	19
Strongly agree	4
Strongly disagree	2
Grand Total	**158**

The response of students across different years was similar to each other on the question of whether it is easy to learn the competencies defined in the curriculum by the new methods in CBME.

Table 12: Responses of students of different year to whether the institution environment promotes CBME learning

Row Labels	Count of 9. The institution environment promotes CBME learning
2017	**6**
Agree	2
Disagree	2
Neutral	1
Strongly agree	1
2022	**58**
Agree	34
Disagree	1
Neutral	10
Strongly agree	13
2018-2019	**22**
Agree	13
Disagree	2
Neutral	3
Strongly agree	3
Strongly disagree	1
2020-2021	**72**
Agree	40
Disagree	8
Neutral	19
Strongly agree	4
Strongly disagree	1
Grand Total	**158**

Only 1 student out of the students who joined later in 2022, disagreed whereas the rest all agreed which probably shows that as the year passed after the implementation of CBME in 2019 the institution's environment has improved to promote CBME learning.

Table 13: Responses of students of different year to whether CBME will make the students confident for NEET/NEXT exams.

Row Labels	Count of 10 (a). CBME will make me be confident for NEXT/NEET exams
2017	**6**
Agree	3
Disagree	1
Neutral	1
Strongly agree	1
2022	**58**
Agree	26
Disagree	2
Neutral	19
Strongly agree	8
Strongly disagree	3
2018-2019	**22**
Agree	10
Disagree	2
Neutral	8
Strongly agree	1
Strongly disagree	1
2020-2021	**72**
Agree	26
Disagree	6
Neutral	29
Strongly agree	4
Strongly disagree	7
Grand Total	**158**

The students across the year of joining the college had similar response with majority agreeing to it and a small percentage not agreeing to the statement that CBME will make them confident to appear for NEXT/NEET exams.

Table 14: Responses of students of different year to whether CBME will make them a competent doctor.

Row Labels	Count of 10 (b). CBME will make me competent doctor
2017	**6**
Agree	4
Neutral	1
Strongly agree	1
2022	**58**
Agree	30
disagree	1
Neutral	12
Strongly agree	15
2018-2019	**22**
Agree	14
disagree	2
Neutral	4
Strongly agree	2
2020-2021	**72**
Agree	42
disagree	2
Neutral	18
Strongly agree	7
Strongly disagree	3
Grand Total	**158**

Except for 2020-21 where 3 students strongly disagreed, none of the students from other year. 15 students of 2022 strongly agreed to the statement that CBME will make them competent doctor. Hence, as the years have passed the response to this question has been more positive which indirectly points to the success of CBME in inspiring confidence in the medical students.

Table 15: Responses of students of different year to whether CBME will make the students concerned to society health needs.

Row Labels	Count of 10 (c). CBME will make me concerned to society health needs
2017	**6**
Agree	2
Disagree	1
Neutral	2
Strongly agree	1
2022	**58**
Agree	30
Disagree	2
Neutral	11
Strongly agree	15
2018-2019	**22**
Agree	16
Disagree	2
Neutral	2
Strongly agree	2
2020-2021	**72**
Agree	45
Disagree	4
Neutral	16
Strongly agree	5
Strongly Disagree	2
Grand Total	**158**

The same trend in the response of the students to this question was seen as the previous question.

Table 16: Responses of students of different year to whether CBME will make the students concerned to society health needs.

Row Labels	Count of 10 (d). CBME will make me compassionate to patient's needs
2017	**6**
Agree	2
Disagree	1
Neutral	2
Strongly agree	1
2022	**58**
Agree	30
Disagree	3
Neutral	12
Strongly agree	13
2018-2019	**22**
Agree	13
Disagree	2
Neutral	5
Strongly agree	2
2020-2021	**72**
Agree	44
Disagree	3
Neutral	20
Strongly agree	3
Strongly Disagree	2
Grand Total	**158**

13 students out of 58 strongly agreed and 30 students out of 58 in 2022 agreed to the statement that CBME will make them compassionate to patient's needs. This shows an increasing positive change in the students response over the years.

Table 17: Responses of students of different year to whether CBME is better than traditional method of medical education.

Row Labels	Count of 11. CBME method is better than traditional method of medical education
2017	**6**
Agree	5
Strongly agree	1
2022	**58**
Agree	27
Disagree	2
Neutral	13
Strongly agree	13
Strongly disagree	3
2018-2019	**22**
Agree	10
Disagree	1
Neutral	7
Strongly agree	3
Strongly disagree	1
2020-2021	**72**
Agree	38
Disagree	4
Neutral	20
Strongly agree	8
Strongly disagree	2
Grand Total	**158**

The students irrespective of the year of admission were of the opinion that competency based medical education is better than the traditional method of medical education.

The study found that the foundation course of one month duration at the beginning of MBBS course is helpful to medical students in better learning by sensitizing them with the required knowledge and skills to the new environment in medical colleges. Majority of the medical students agreed that the new competency

based medical education promotes learning of attitude, ethics and communication (AETCOM). Though the students were of the opinion that the resources have been enhanced after the introduction of the competency based medical education but the large majority was non-committal regarding the adequacy of these resources for CBME learning. One of the students also mentioned, “CBME, as of now, has just been laid out in theory. Institutions still lack all the required resources.”

One student was critical of the faculty in his remarks and said, “There is nothing to learn from our teachers becoz they themselves are not competent enough.” A faculty from one of the colleges almost echoed the same when he admitted that, “The training of faculty is not adequate.”

A few students were critical about the implementation of CBME, “Implementation is where we lack”; and another student added “I think it's execution where the curriculum lacks, onus is on college to properly execute it.” The unstructured open ended interview of the faculty revealed interesting facts. One of the senior professor stated that, “It was a long awaited reform in medical education in our country. However, the colleges, the faculty and the students were unprepared for its implementation.” Another one quipped that, “The implementation of CBME was done in a haste creating confusion in everyone’s mind. It would have been better if it was implemented in a phase manner.”

One student remarked “The exposure provided is not enough when compared to what is expected out of students. Also, the examination being conducted is very tough when facing such things for the first time.”;

The large majority of the students responded that competency based medical education helps in skill training and it was easy to learn the competencies defined in

the curriculum by new methods. The remarks by some of the students were complementary, “CBME is a step towards a better educational methods”; “It’s a good initiative but yes can be enhanced to a better level.” One of the student wrote,” It is a good step in updating the learning methods in a fast-changing environment of medicine.”

More than 2/3rd enjoyed the learning methods in CBME. The majority felt that the evaluation process of a medical student in CBME is more effective than traditional methods and that the CBME would make them a compassionate and competent doctor who is concerned with society’s health needs. More than 67% felt that the competency based medical education is better than the traditional method of medical education. The positive responses in the study point to the fact that the medical students are eager and receptive to the new competency based medical education. Similar opinion was heard from a large number of faculty who were interviewed. One faculty mentioned that, “India needs it more than anything else (in medical education). If we have to be contemporary and make great stride as a country in the field of medicine than CBME is the answer. We all need to sincerely work for its success.”

Chapter 5

Conclusion

Competency based medical education has been introduced in India as the new system of learning to achieve the goal of a competent Indian Medical Graduate at par with the global medical graduate. The study clearly brings out the positive perception of the medical students to the new system of education that has been introduced. However, for the programme to achieve its desired results, the National Medical Commission, policy makers and the government will need to ensure proper guidance, regulation and training of all stakeholders including the faculty. The medical colleges across the board need to ramp up the infrastructure, the resources for skill development and continuous training of the faculty for competency based medical education to achieve its desired goal. The country can't afford to miss this opportunity to progress in the field of medicine and ensure that the students passing out of these colleges are relevant with the recent advances in the field of medicine.

The study clearly brings out the positive attitude and perception of the students to the introduction of new competency based undergraduate curriculum in medical education. They are ready to imbibe the new medical education curriculum to become a competent doctor who possesses all the desired qualities as defined by the National Medical Commission. The implementation of CBME will ultimately ensure that the government's goal of "Health for All" in our country is met in the near future.

Limitations of the study: The study was carried out in medical colleges of Delhi which may not be the true reflection of the students from across the country due to different social and economic background.

Conflict of interest: None. This study has been carried out as part of APPPA programme for the award of M Phil (PA).

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Annexure

Questionnaire on Google form

Competency Based Medical Education (CBME) was implemented in all the medical colleges in India from Aug 2019. It is an approach considered to ensure that the graduates attain the competencies required to discharge their professional duties as health-care personnel. It de-emphasizes time-based training and promises greater accountability, flexibility, and learner-centeredness. This changed curriculum has introduced many new curricular elements to the undergraduate (UG) medical training. The expectation is that the Indian Medical Graduate (IMG) passing out would perform the roles of clinician, communicator, leader, lifelong learner, and a professional. The students' perception of these changes brought to the UG medical curriculum is an important aspect which needs to be studied.

I, Air Cmde (Dr) Gurpreet Singh Bhatia am presently pursuing M.Phil (PA) from Punjab University. I am doing research on the topic "Medical students' perspective of the new competency based undergraduate curriculum for MBBS" under guidance of Dr Pawan K Taneja at Indian Institute of Public Administration (IIPA), New Delhi.
I request you to kindly give your valuable responses to the questionnaire. The information collected is for purely academic purposes. It will be kept confidential and not shared with any institution or authorities.

Clarifications may kindly be addressed to email - gsbsurg.48apppa@gmail.com or mobile - 8860420024

Questionnaire – Google form

I. Personal Information

Information in this section will be kept confidential and it will not be shared with any institution or authorities

1. Your name (Optional)

2. Gender
*
- Male
- Female
- Prefer not to

3. Which state/UT do you belong to
*

4. The region you belong to is
*
- Urban
- Rural

4. Email (Optional)

5. Contact number (Optional)

II. College/Institution Information
Description (optional)

1. Name of the College (alphabetical order)
*
- AIIMS Delhi
- Army Colleg
- Dr Baba Sal
- Lady Hardin
- Maulana Aza
- NDMC Medi
- PGIMER De
- University C
- VMMC & Sa

2. Year of admission to College
*

- <=2017
- 2018-2019
- 2020-2021
- 2022

3. Your present semester in college
*

- Semester 1-
- Semester 3
- Semester 6

III. Competency Based Medical Education

Description (optional)

1. Foundation Course helps medical student in better learning
*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly dis

2. Resources for teaching have been enhanced after CBME has been introduced
*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly Dis

3. Resources are adequate for CBME learning
*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly dis

4. CBME helps in skill learning
*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly dis

5 (a). CBME promotes learning of attitude (AETCOM - Attitude, Ethics & Communication) in medical student

*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly disa

5 (b). CBME promotes learning of ethics (AETCOM - Attitude, Ethics & Communication) in medical student

*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly Dis

5 (c). CBME promotes learning of communication (AETCOM - Attitude, Ethics & Communication) in medical student

*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly Dis

6. Evaluation process of medical student in CBME is more effective than traditional methods

*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly disa

7. I enjoy the learning methods in CBME

*

- Strongly agr
- Agree
- Neutral
- Disagree
- Strongly disa

8. It is easy to learn the competencies defined in the curriculum by new methods

*

- Strongly agr
- Agree
- Neutral

Disagree

Strongly disa

9. The institution environment promotes CBME learning
*

Strongly agr

Agree

Neutral

Disagree

Strongly disa

10 (a). CBME will make me be confident for NEXT/NEET exams
*

Strongly agr

Agree

Neutral

Disagree

Strongly disa

10 (b). CBME will make me competent doctor
*

Strongly agr

Agree

Neutral

disagree

Strongly disa

10 (c). CBME will make me concerned to society health needs
*

Strongly agr

Agree

Neutral

Disagree

Strongly Dis

10 (d). CBME will make me compassionate to patient's needs
*

Strongly agr

Agree

Neutral

Disagree

Strongly Dis

11. CBME method is better than traditional method of medical education
*

Strongly agr

Agree

Neutral
Disagree
Strongly disa

12. Any comments, shortcomings or suggestions to improve CBME
