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World Health Organization
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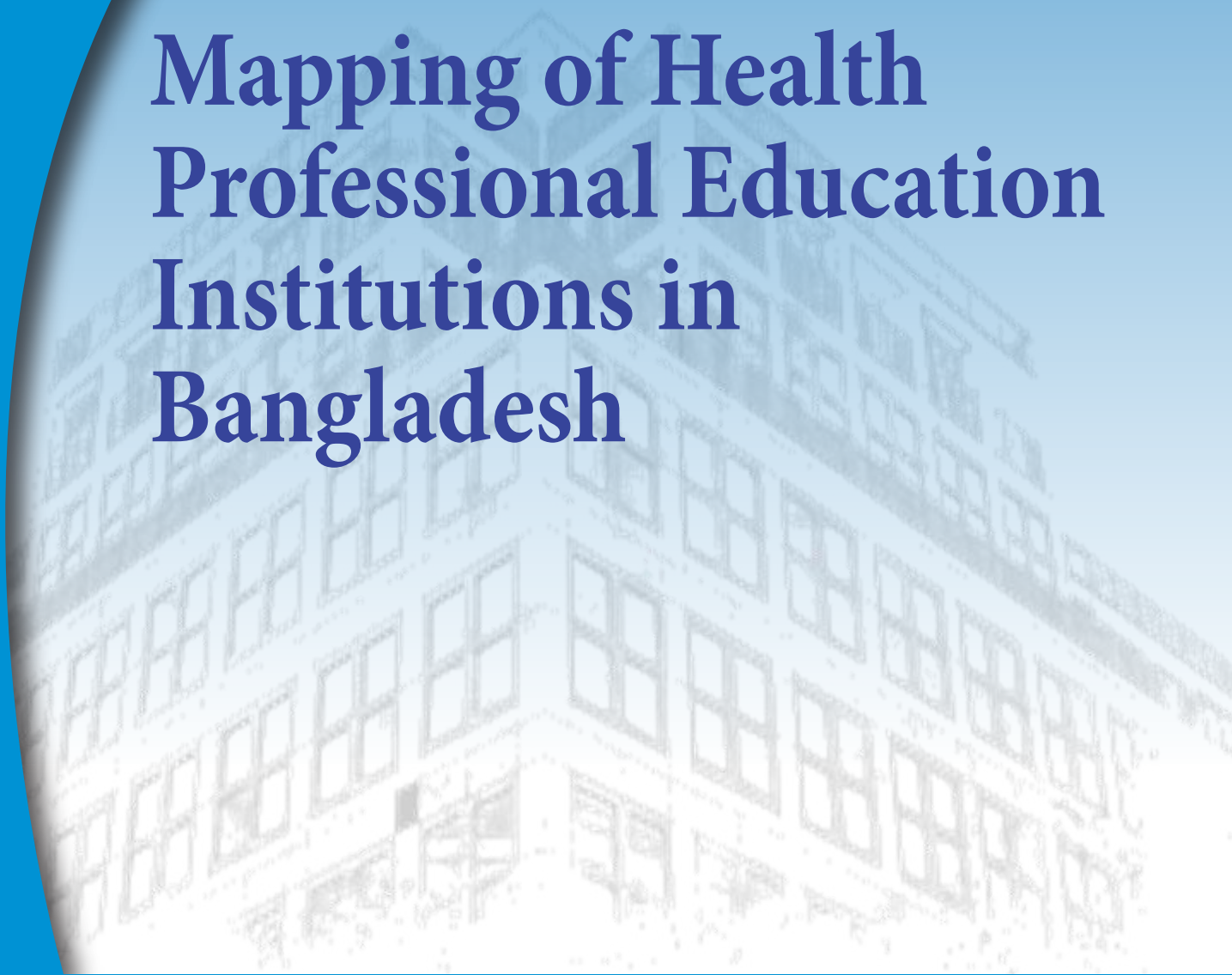
Mapping of Health Professional Education Institutions in Bangladesh



MAPPING OF HEALTH PROFESSIONAL EDUCATION INSTITUTIONS IN BANGLADESH

October 2018

Medical Education & Health Manpower Development (ME&HMD)
Directorate General of Health Services (DGHS)
Dhaka, Bangladesh

In collaboration with
World Health Organization Bangladesh

World Health Organization
Bangladesh

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Message

I am extremely delighted to know that the report on "Mapping of Health Professional Education Institutions in Bangladesh" is to be published. I would like to congratulate and thank the Director General, Directorate General of Health Services (DGHS), the Director, Medical Education and Health Manpower Development, DGHS and the World Health Organization (WHO) representative to Bangladesh. I really appreciate the initiative taken by them.

We always look for health professional education (HPE) data and information for decision making and research purposes and those data are not easily available. We need frequent survey, research and analytical reports to reduce the gap. I believe this report will be a tangible input to this.

This report provides a good analysis of the supply side health professionals covering annual admission and graduation and their trends, geographical and male-female distributions, public and private discussion with the policy makers. It is good to see that Bangladesh has made remarkable progress in establishing a good number of HPE institutions over a period of time and the number of professionals has been gradually increasing. Only increasing number would not fulfill our expectation. We need to pay attention on quality improvement, which has long term impact on our healthcare delivery system. Therefore, we need to strengthen our Education Management Information Systems (EMIS) for timely and reliable reporting.

This report has created provision to develop a computer based EMIS in place to regularly update the data as data changes every hour. We need to jointly work on this. Our concerned directorates along with the health professional education institutions should come forward and build an online system. I invite WHO Bangladesh and other development partners to extend their technical support on this.

G. M. Saleh Uddin
Secretary
Medical Education & Family Welfare Division
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

Message

I am pleased to know that the report on "Mapping of Health Professional Education Institutions in Bangladesh" is on the eve of its publication. I congratulate Professor Dr M A Rashid, Director, Medical Education and Health Manpower Development, DGHS and his team for taking the report to the end. I also extend my cordial thanks to Dr Bardan Jung Rana, WHO Representative to Bangladesh and his HRH team for providing technical assistance to this initiative.

The report contains very useful information about seven professionals covering the following degrees – MBBS, BDS, BSc Nursing, Diploma in Medical Faculty, Diploma in Nursing and Midwifery, Diploma in Midwifery and Diploma in Health Technology. A total of 674 institutions were communicated and approached for data. It is good to see that the country made tremendous progress in producing substantial number of health workforce through establishing a significant number of health professional education (HPE) institutions last 10 years. I believe this would be instrumental for paving the pathway towards achieving Universal Health Coverage in Bangladesh by reducing the shortage of formally trained health workforce.

I think, this might be the first report of this kind with full of information on health professional education (HPE) institutions in Bangladesh. Our existing literature mostly focuses on healthcare delivery system. However, I believe, this report might fulfill some gap on this as we have limited reports or evidence available. Knowing the fact that education system is an indispensable component of the health system, I believe, this report would promote further research or studies in this area for the growth and development of the field HPE in Bangladesh.

While taking into consideration of the importance of the report, I would like to strongly recommend that an online system should be established for collection of the education data on regular basis as data changes over time. Our Management Information System (MIS) and Medical Education Units should come forward and jointly work together for regular update of the data and timely production of the updated report. I invite WHO Bangladesh to extend their further support on this. Thank you.

Wish you all the best,

Professor Dr Abul Kalam Azad
Director General
Directorate General of Health Services
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

World Health Organization
Bangladesh

Message

It has been an honour for WHO to mobilize technical and financial support to the Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare (MOHFW) in developing and publishing the report on "Mapping of Health Professional Education Institutions in Bangladesh". Realizing the limited comparable Human Resources for Health (HRH) information available across countries, WHO Bangladesh took the initiative of this endeavor.

WHO Bangladesh's health systems team extended their full support to the Medical Education and Health Manpower Development (ME&HMD) Unit, DGHS to design this study, collect the relevant data and information, to analyze the data and write the report. The publication will be a useful source of information, instrumental for the further growth and development of the field health professional education not only in Bangladesh but also in other countries. This resource will certainly enable the MOHFW to minimize the gap in the availability of comprehensive and up-to-date HRH information and thus will contribute to the decision making process in medical education. I come to know that the information of the report has already been in use in several decision making matters in the ministry, which is very good. We not only need data and information to assess sector specific progresses but also to assess and take decisions on the overall country progress on the effort towards achievement of Universal Health Coverage by 2030.

The DGHS's effort to strengthen the HRH knowledge base is highly appreciated in this regard. We hope that this mapping report will be regularly updated and an initiative will be taken to establish a computer-based online mechanism with the ME&HMD Unit, DGHS connecting with all HPE institutions. This will be helpful for making evidence-based management decisions, facilitating need-based HRH production, sharing and use of qualitative and quantitative HRH related information according to necessity. Thus, it could act as a platform for policy makers, researchers, academicians and other stakeholders to debate HRH issues and propose cost effective interventions for improving availability, quality and responsiveness of the health workforce in Bangladesh.

Finally, I would like to extend my sincere thanks and gratitude to all of those who have contributed to the production of this report, including DGHS and WHO health systems team members and congratulate the team of the ME&HMD, DGHS for their hard work to bring out this publication. I also wish all of them success in taking further steps for addressing the key HRH issues and challenges and reaffirm WHO's commitment in this matter.

Dr Bardan Jung Rana
WHO Representative to Bangladesh

Acknowledgements

I am delighted to write an acknowledgement for this much-needed crucial study on “Mapping of health professional education institutions” in Bangladesh. I believe this is the first study of this kind in the area of health professional education in the country. Therefore, I am expressing my sincere gratitude to Professor Dr Abul Kalam Azad, Director General, Directorate General of Health Services (DGHS) for his overall guidance and inspiration during the study.

I would like to extend my earnest thanks to the World Health Organization Bangladesh for the overall planning, technical guidance and close collaboration from inception to completion. I would like to thank Mr Md Nuruzzaman, National Professional Officer–Human Resources for Health (HRH) from the country office; Dr Valeria De Oliveira Cruz, Team Leader–Health Systems; and Dr Tomas Zapata, Regional Advisor–HRH, South-East Asia Regional Office (SEARO), WHO for their continuous cooperation and guidance throughout the study.

It is also my pleasure to thank my colleagues Dr Md Yunus, Deputy Director–Medical Education, DGHS; Dr Tahsin Begum, Ex-Deputy Director–Medical Education, DGHS; and Dr Md Masudur Rahman, Assistant Director, Medical Education, DGHS for their active engagement in this study.

I am also thankful to Ms Shuriya Begum, Registrar, Bangladesh Nursing and Midwifery Council and her team for their valuable contributions to the nursing and midwifery component of the study.

It would not be justified if I forget to acknowledge the contribution of the Technical Advisory Committee members, and the Technical Working Group members, which were established at the beginning of the study (both lists are attached in the annex).

Finally, I would like to thank all the principals, other institutional heads and relevant faculty members who directly or indirectly took part in this study and hence contributed to making it a reality. I believe the knowledge base that we have created will work as a robust platform and will be utilized for decision-making and further improvement in the area of health professional education. I also believe that this is just the beginning of studies required for strengthening health professional education in Bangladesh.

Prof. Dr. A K M Ahsan Habib
Director
Medical Education & Health Manpower Development (ME&HMD)
Directorate General of Health Services (DGHS)

Abbreviations

AFMC	Armed Forces Medical College
BDS	Bachelor of Dental Surgery
BMA	Bangladesh Medical Association
BMDC	Bangladesh Medical & Dental Council
BNMC	Bangladesh Nursing & Midwifery Council
BNMCDB	Bangladesh Nurses, Midwives & Allied Professional Database
BScN	Bachelor of Science in Nursing
BSMMU	Bangabandhu Sheikh Mujib Medical University
BTEB	Bangladesh Technical Education Board
DGHS	Directorate General of Health Services
DGNM	Directorate General of Nursing & Midwifery
DM	Diploma in Midwifery
DMF	Diploma in Medical Faculty
DMT	Diploma in Medical Technology
DNSM	Diploma in Nursing Science and Midwifery
EMIS	Education Management Information System
GoB	Government of Bangladesh
Govt.	Government
HPNSP	Health, Population and Nutrition Sector Programme
HRH	Human Resources for Health
HRIS	Human Resource Information System
ICT	Information and Communication Technology
IHT	Institute of Health Technology
MATS	Medical Assistance Training Schools
MBBS	Bachelor of Medicine and Bachelor of Surgery
MDGs	Millennium Development Goals
ME&FWD	Medical Education and Family Welfare Division
ME&HMD	Medical Education & Health Manpower Development
MIS	Management Information System
MoD	Ministry of Defense
MoE	Ministry of Education
MoHFW	Ministry of Health and Family Welfare
Nongovt.	Nongovernment
PCB	Pharmacy Council of Bangladesh
QR	Quick Response
SAARC	South Asian Association for Regional Cooperation
SDGs	Sustainable Development Goals
SEARO	WHO South-East Asia Regional Office
SMFB	State Medical Faculty of Bangladesh
TAC	Technical Advisory Committee
TOR	Terms of Reference
TWG	Technical Working Group
UHC	Universal Health Coverage
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHA	World Health Assembly
WHO	World Health Organization

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Executive summary

Introduction

The Lancet's Global Independent Commission report (2010) titled "Health professionals for a new century: transforming education to strengthen health systems in an independent world"recognizes the interdependence between health and education sectors for efficiency, effectiveness and equity in healthcare delivery. The education system is an indispensable component of the health system and the provision of educational services ensures the constant supply of an educated and motivated workforce. Countries (including Bangladesh) that are aiming for universal health coverage (UHC) for all at an affordable cost need to ensure adequate supply of the right categories of workforce in the right places at the right time. Therefore, alignment of health workforce production with health system needs and future requirements in the context of UHC is recommended in the Bangladesh Health Workforce Strategy 2015. In response, this mapping initiative covers different education institutions of seven broader level of health professional categories i.e. physicians, dentists, nurses, midwives, pharmacists, medical assistants, and technologists.

Rationale

In Bangladesh, while health workforce production data are available at agency/institution levels (such as at colleges, schools, training centres), they are not readily available at one central location or one place at the national level, which makes health workforce planning efforts complex and lengthy. Appropriate attention to the relevant categories of workforce (such as who they are (type), how many they are, how many are joining the health labour market, public and private contribution) is critical for need-based planning and quality assurance of education in the health system.

This mapping exercise was undertaken to build an updated health workforce supply side platform or database to support the formulation of a comprehensive human resources for health plan. This exercise would be useful for planning purposes and also for assessing the current situation of the country's educational governance and data management systems for evidence based decision making for health professionals.

Objective and scope

This study broadly aims to map out the health professional education institutions and their production categories for 10 years (2007–2016), including education management information systems. The assessment briefly represents the educational governance structure in public and private sectors, geographical location of the institutions, a summary analysis of the admitted/graduated and registered/licensed professionals during 2007–2016. It finally represents an overall description of the educational data management systems of the various entities under the Ministry of Health and Family Welfare (MoHFW), Bangladesh.

This mapping initiative primarily focuses on seven broad categories of health professionals (i.e. Bachelor of Medicine and Bachelor of Surgery (MBBS) physicians, dental surgeons, Bachelor in Science (BSc) and diploma nurses, diploma midwifes, medical assistants and medical technologists) who receive formal academic training from government-recognized institutions under the MoHFW and institutions associated with the Ministry of Defense (MoD).

Methodology

Overall, a census approach was adopted for this mapping assessment. Both primary and secondary data were amassed through an assortment of data collection methods, such as document review including policy documents, group discussions and stakeholder consultations, development and distribution of tools for collection, consolidation of necessary data and information. Stakeholder consultations were organized based on the preliminary findings of the assessment involving representatives from both public and private sector organizations.

The whole activity was carried out under the leadership of the Director, Medical Education & Health Manpower Development (ME&HMD), Directorate General of Health Services (DGHS), assisted by a Technical Advisory Committee (TAC) formed with specific terms of reference (ToR) and membership of key stakeholders. Study protocols/tools and checklists were developed in consultation with TAC and finalized after testing in the field.

Key findings

Educational governance

- MoHFW led and shared the major responsibility of production and development of health professionals through their respective health professional education institutions (658 institutions with 50,808 seats) in Bangladesh, whereas MoD played a partial role (16 institutions with 1775 seats).
- A total of 33 policy instruments were identified through which MoHFW guided health professional education institutions.
- The State Medical Faculty of Bangladesh (SMFB) operated as an autonomous body functioning through the Bengal Medical Act of 1914 from the British period. Though the Act was amended in 1949 in the Pakistan period, it has not been revised since.
- Of the seven profession categories, only the Bachelor of Dental Surgery (BDS) curriculum was updated in 2016 after the declaration of the Sustainable Development Goals (SDGs) in 2015. The curricula for the other six professions were developed or updated during the period of the Millennium Development Goals (MDGs).
- District quota system was in practice for admission of students into public sector health professional institutes only. Such quota provision was not available for private sector/nongovernment institutions.
- Of the total 674 health professional education institutions, 541 (82%) belonged to the private/nongovernment sector and the remaining 18% belonged to the public/government sector.
- A total of 50,808 seats belonged to 658 health professional education institutions under the MoHFW, of which 78% (39,460) seats were in the private sector and the remaining 22% (11,348) in the public sector.
- Of the total 50,808 seats, about 19% belonged to the physician or medical doctor category; the same percentage (i.e. 19%) to the diploma nurse category; 6% belonged to BSc nurse professional category, about 28% seats belonged to the medical assistant category, 21% seats belonged to the diploma medical technologist category, and 4% belonged to the midwife. Seat ratios for three professions, i.e. physician, nurse (including BSc in Nursing), midwife was 1: 1.26: 0.16.
- Overall, 31 times increment in the total number of health professional education institutions under MoHFW was observed from 1971 (22) to 2016 (674). For medical colleges, the increment was about 17 times (from 6 to 105 institutes); for dental/BDS institutions, the increment was about 35 times (from 1 to 35 institutes); for diploma nursing institutes, the increment was about 20 times (from 8 to 157 institutes).

Geographical mapping

- Of the total 674 health professional education institutions, about 41% (276) were concentrated in the Dhaka Division, followed by 19% in the Rajshahi Division.
- About 51% of the total medical colleges, 63% of the total dental colleges/units, 49% of the BSc in Nursing colleges, 34% of the total Diploma in Nursing Science and Midwifery (DNSM) institutes, 24% of the Diploma in Midwifery (DM) institutes, 37% of the total medical assistant schools and 54% of the total medical technology institutes were concentrated in the Dhaka Division.
- Khulna Division did not have any dental college or unit until 2016.
- No public sector Institute of Health Technology (IHT) was found in Mymensingh Division until 2016.

- No public sector or government-owned Medical Assistance Training Schools (MATS) was found in four divisions – Barishal, Mymensigh, Rangpur and Sylhet – until 2016.

Health professionals

- During 2007–2016, of the 73,481 MBBS students admitted into all medical colleges, 55% were female and 45% were male. Of the 59% total students admitted into private sector medical colleges, 57% were female. Of the 38% students admitted into public sector medical colleges, 52% were female.
- An increasing trend in the number of female students was observed during the study period. In 2007, the difference between the number of male and female students was only 2% but it went up to 23% in 2016.
- During 2007–2016, 7476 foreign students were admitted into the MBBS course in Bangladesh, which is 10% of the total (73,481). However, an increasing trend in the number of foreign students was observed from 514 in 2007 to 1412 in 2016.
- Of the 42,597 MBBS students who graduated during 2007–2016, 48% students were from public sector medical colleges and 50% were from the private/nongovernment sector medical colleges. The remaining 2% were from armed forces medical colleges.
- Overall, 7% of the total number of available MBBS seats remained unutilized or vacant in 2016.
- In 2016, 5454 students graduated, of which 45% (2461) were from government medical colleges and 53% (2895) were from the nongovernment medical colleges.
- During 2007–2016, 7639 BSc in Nursing students were admitted, 3280 students graduated, and 2436 graduates received licenses.
- During 2007–2016, 18,944 students acquired or graduated the DNSM course, of which 61% graduated from public/government sector institutes.
- In 2016, approximately 34% of the total number of DNSM seats remained unutilized or vacant; the majority of these belonged to private sector institutions.
- During 2007–2016, 34,125 medical assistant (Diploma in Medical Faculty (DMF)) students were admitted, of whom 40% were female and 60% were male. Of the 15,752 students who graduated the DMF course, about 69% were from private sector institutions and the remaining 31% were from public sector institutions.
- A total of 11 disciplines/specialties were offered and taught in various IHTs during the study period; all IHTs did not offer all 11 disciplines.

Education data management systems

- No dedicated policy or strategy for digitalization of medical and allied health professional education was found during the study period.
- Regulatory bodies, such as Bangladesh Medical & Dental Council (BMDC), State Medical Faculty Bangladesh (SMFB) and Pharmacy Council of Bangladesh (PCB), were maintaining registration and licensing data on paper.
- Bangladesh Nursing & Midwifery Council (BNMC) was on track to develop an online database to include registration information of current students and graduated students, and was able to establish a fair interoperability with relevant institutions.
- There was no definite location where all medical education data and information for MBBS, BDS, DMF and Diploma in Medical Technology (DMT) professionals, could be easily available.

Recommendations

Recommendations related to health professional educational governance and Management Information System (MIS)

Recommendation 1: Formulate a health professional education digitalization strategy in response to the "Digital Bangladesh by 2021" commitment and the National Information and Communication Technology Policy 2015.

Recommendation 2: Strengthen the regulatory/legal status of the SMFB by adopting a proper Act/Law, as there is none in favour of institutions developed since the independence of Bangladesh.

Recommendation 3: Undertake steps to regularly update (ideally on a yearly basis) mapping data (as it changes every year) through establishment of an observatory cell at the respective implementing agencies (such as DGHS and Directorate General of Nursing & Midwifery (DGNM)).

Recommendation 4: Strengthen existing MIS of DGHS and DGNM by incorporating the key indicators of this mapping report, such as public and private distribution, nationality distribution of students and graduates, male and female distribution, and others.

Recommendation 5: Develop a computer-based database (preferable online with interoperability in place) linked to mapping databases at BMDC, BNMC, SMFB and PCB so that key health professional education data and information could be available with minimum effort.

Recommendation 6: Undertake steps to align curricula developed or updated during the MDG period (such as that of MBBS, basic BSc in Nursing, Diploma in Nursing, Diploma in Medical Faculty, Diploma in Medical Technology) with changing health needs in Bangladesh by incorporating key concepts of SDGs and covering all six major disciplines (i.e. laboratory medicine, radiology and imaging, radiotherapy, physiotherapy, dentistry and pharmacy).

Recommendation 7: Conduct health labour market analysis to assess and determine category-wise health workforce supply against the demand in the job market so that balanced production is ensured.

Recommendation 8: Formulate a national health workforce production plan in line with the national health workforce plan to ensure balance between supply and demand of the health workforce, as well as to avoid over-/underproduction of a certain category of workforce.

Recommendation 9: Undertake special measures to report on the number of functional and nonfunctional education institutions (especially among MATS and IHTs) to avoid over-/underreporting on health professional education institutions in the country.

Recommendation 10: Regularly publish the progress of key indicators of this report such as the number of yearly admissions, graduated and registered/licensed major health professionals (i.e. physician, dental surgeon, nurse, midwife, medical assistant and technologist) with their male–female distribution, public–private distribution, nationality and geographical distribution in the annual health bulletin of the DGHS and the Human Resources for Health (HRH) country profile/HRH data sheet.

Recommendations related to geographical mapping of health professional education institutions

Recommendation 11: Discourage the establishment of any new health professional education institution in the Dhaka Division (because 41% of the total health professional education institutions (674) are

concentrated in the Dhaka Division) and encourage their establishment in other divisions to ensure regional balance and equity in accessibility.

Recommendation 12: Explore why the Khulna Division did not have any dental college or unit.

Recommendations related to health professional production and supply

Recommendation 13: Strengthen the monitoring, supervision and quality assurance mechanisms of government sector institutions at all levels to ensure quality education and protect public interest, since a significant number of students are getting admitted into (on an average 59% MBBS students and 48% DNSM students) and graduating from private sector institutions (50% MBBS graduates and 39% DNSM graduates) every year.

Recommendation 14: Undertake an assessment or survey of foreign students (since approximately 10% of total admitted MBBS students were foreign nationals and their numbers showed an increasing trend) regarding their choices and preferences in Bangladesh, in order to attract more students in future.

Recommendation 15: Take steps to investigate why there were significant differences among the total number of admitted students, graduated students and registered/licensed professionals for MBBS, BDS, DMF, DNSM and BSc in Nursing with the respective professional councils.

Recommendation 16: Undertake similar assessments for institutions related to alternative medical care professionals and also for the institutions under the Ministry of Education.

1. Introduction

1.1. Background

The Government of Bangladesh (GoB) aspires to achieve Sustainable Development Goals (SDGs) by 2030. This means that the government is aiming to reach the targets set for SDG 3 (Ensure healthy lives and promote wellbeing for all at all ages) by 2030 that includes the attainment of universal health coverage (UHC). To pave the way, GoB has approved the 4th Health, Population and Nutrition Sector Support Programme (HPNSP) (2017–2022) to ensure access to quality and equitable health care in a healthy environment for all that necessitates a competent and committed health workforce, for which quality and standard health professional education and training is required. Since health professionals are critical supply side inputs to the health system, this study broadly aims to map out: (i) health professional education institutions in Bangladesh under the Ministry of Health and Family Welfare (MoHFW) with the purpose to assess the type and number of categories of health professionals produced in the country; and (ii) production capacity of the respective educational institutions to support informed health workforce policy and planning.

1.2. Health workforce and health systems

Health workforce is one of the six building blocks of the health system and one of the key health system inputs.[1] Health workers are the foundation of the UHC as they provide services to care seekers and keep health systems active.[2] UHC aims for greater population coverage and service coverage, healthcare benefits and financial protection, by extending the benefits package and improving the quality of care provided. This requires adequate attention to the governance and management of the healthcare workforce, including its stock, skill-mix, distribution, productivity and quality. Proper governance as well as management of the health workforce requires the study of the health system – how the system is constituted, who delivers the care and how?[3]

The health system in Bangladesh is pluralistic in nature due to the presence of multiple stakeholders or providers[4]. These providers represent both public and private sectors with formal and informal education and training. For healthcare delivery (demand side), there are three levels of facilities: (i) primary level, (ii) secondary level and (iii) tertiary level; and all the three are interconnected with the referral mechanism (Box 1). On the supply side, there are health professional education and training institutions. The Global Independent Commission's article in the Lancet on "Health professionals for a new century"[3] urges for an integrative framework due to the complex interface or interactions between: (i) education and (ii) health.

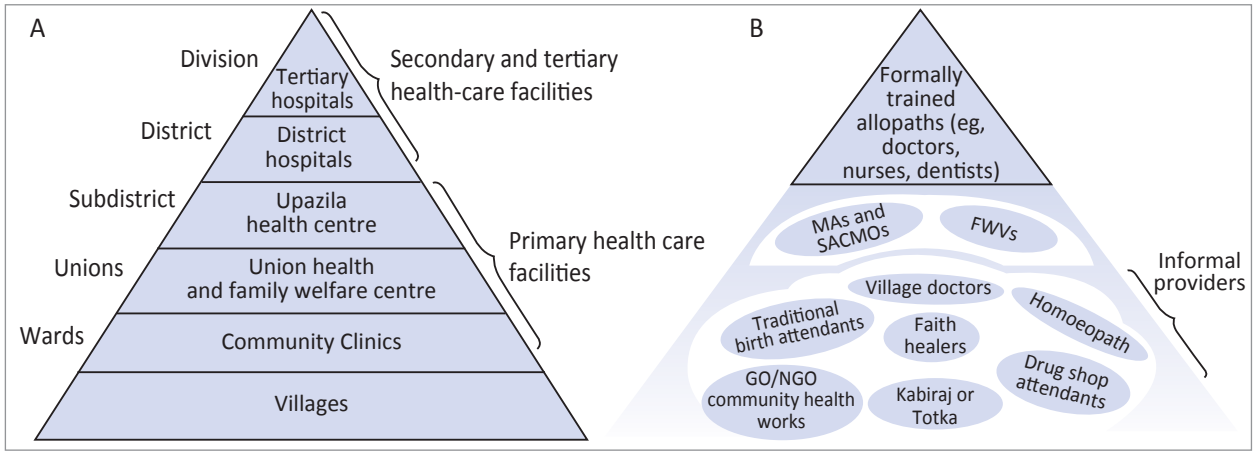
[1] Working together for health – The World Health Report 2006. Geneva: World Health Organization; 2006 (https://www.who.int/whr/2006/whr06_en.pdf, accessed 7 December 2018).

[2] Human Resources for Health: foundation for Universal Health Coverage and the post-2015 development agenda. Report of the Third Global Forum on Human Resources for Health. 10-13 November 2013. Recife, Brazil. Global Health Workforce Alliance and World Health Organization; 2014 (https://www.who.int/workforcealliance/knowledge/resources/report3rd_GF_HRH.pdf, accessed 10 December 2918).

[3] Frank J, Chan L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an independent world. Lancet 2010;376:1923-58. doi: 10.1016/S0140-6736(10)61854-5. Epub 2010 Nov 26.

[4] Ahmed SM, Evans TG, Standing H, Mahmud S. Harnessing pluralism for better health in Bangladesh. Lancet 2013;382:1746-55.

Box 1: Organizational structure of the health system and scope of the health workforce in Bangladesh

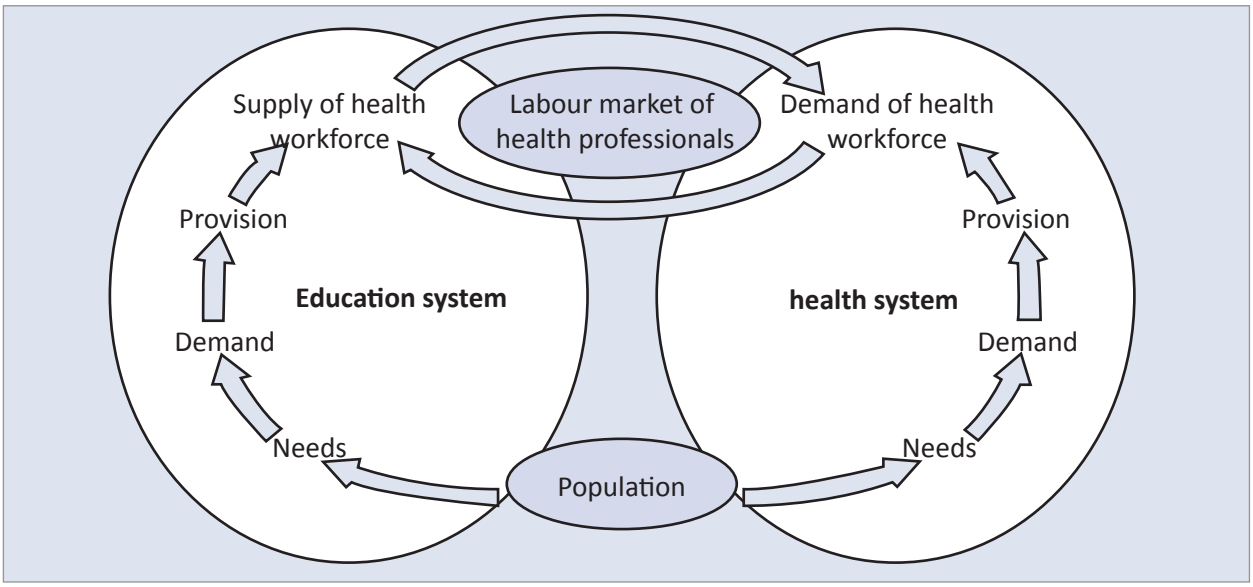


Source: Ahmed SM, Evans TG, Standing H, Mahmud S. Harnessing pluralism for better health in Bangladesh. Lancet 2013;382:1746-55.

From a systems perspective, the interdependence of health and education sectors is obvious. A balance between these two systems is critical for efficient, effective and equitable health services for all. In the Global Independent Commission's article, the role of the labour market is well acknowledged, which governs the fit and misfit between demand and supply of health professionals (Box 2). The educational institutions determine the current production of health professionals in terms of their types, quantity and quality.

However, in reality there are imbalances among health professionals in the labour market related to – undersupply, oversupply, underemployment and unemployment. These issues affect the whole health workforce planning process. To avoid these imbalances, the educational system must respond to the requirements of the health systems.[5]

Box 2: Interface between the education system and the health system



Source: Frank J, Chan L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an independent world. Lancet 2010;376:1923-58. doi: 10.1016/S0140-6736(10)61854-5. Epub 2010 Nov 26.

[5]Frank J, Chan L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an independent world. Lancet 2010;376:1923-58. doi: 10.1016/S0140-6736(10)61854-5. Epub 2010 Nov 26

2. Health professional education in Bangladesh

"Health professional" is an all-encompassing term that includes individuals with the knowledge and/or skills to contribute to the physical, mental and social well being of a community.[6] Health professional education refers to a process by which health professionals are trained and made ready through development of knowledge and/or skills to render healthcare services. Quality education is expected to produce quality professionals. In Bangladesh, various types of health professionals are produced by the respective educational institutions: Bachelor of Medicine and Bachelor of Surgery (MBBS) produces physicians/medical doctors, Diploma in Nursing Science and Midwifery (DNSM) produces nursing and midwifery professionals, Diploma in Medical Technology (DMT) produces technologist professionals and others. Table 1 shows the major health professional categories, their respective courses and the length of education.

Table 1: Major health professional categories and their respective degrees with length of education

Health professional category	Name of the degree and length of education
Physician	Bachelor of Medicine and Bachelor of Surgery (MBBS), 5 years plus 1 year internship
Dental surgeon	Bachelor of Dental Surgery (BDS), 5 years plus 1 year internship
Nurse	Bachelor of Science in Nursing, 4 years
	Diploma in Nursing Science & Midwifery, 3 years
Midwife	Diploma in Midwifery, 3 Years
Medical assistant	Diploma in Medical Faculty, 3 Years plus 1 year Internship
Pharmacist	Diploma in Medical Technology – Pharmacy, 3 years
Medical technologist	Diploma in Medical Technology – Lab Technology, 3 years
	Diploma in Medical Technology – Radiology, 3 years
	Diploma in Medical Technology – Radiotherapy, 3 years
	Diploma in Medical Technology – Dental Technology, 3 years
	Diploma in Medical Technology – Physiotherapy, 3 years
	Diploma in Medical Technology – Sanitary Inspector Training, 3 years
	Diploma in Medical Technology – Operation Theater Assistance, 3 years
	Diploma in Medical Technology – Intensive Care Assistance, 3 years
	Diploma in Medical Technology – Prosthetics and Orthotics, 3 years
	Diploma in Medical Technology – Cardiology, 3 years

[6] Framework for action on interprofessional education & collaborative practice. Health Professions Networks Nursing and Midwifery. Human Resources for Health. Geneva: World Health Organization; 2010 (http://apps.who.int/iris/bitstream/handle/10665/70185/WHO_HRH_HPN_10.3_eng.pdf, accessed 9 December 2018).

3. Rationale

According to the United Nations High-Level Commission[7] Report on Health Employment and Economic Growth (2016), there is a need-based demand of around 18 million health workforce in low- and middle-income countries to achieve SDGs by 2030. The largest needs-based shortage of health workforce is in South-East Asia – about 6.9 million.[8] Bangladesh is one of the countries in the South-East Asia region that has severe shortage of health workforce with a density of 7.4 (doctor, nurse and midwife) per 10,000 population.[9] The Global Human Resources for Health Strategy (2016) recommends a new threshold of doctor, nurse and midwife categories– 44.5 per 10,000 population. Bangladesh with 7.4 health workers per 10,000 population is far below the recommended threshold. Besides, in terms of skill-mix, Bangladesh has a reverse ratio of doctor, nurse and paramedics (1:0.51:0.023) against the international standard (1:3:5).[10] Therefore, health workforce planning and development continues to be acritical task for the GoB.

Formulation of a comprehensive health workforce plan requires balance between supply and demand of various categories of the health workforce both in the short term and long term. This prioritizes the need to align health workforce production with service delivery systems.[11]

In Bangladesh, health workforce production data are easily available at agency/institution level (such as colleges, schools, training centres). However, data is not readily and comprehensively available at one central location or one place at the national level, which makes all planning efforts complex and lengthy. It is imperative to have information on relevant categories of the workforce (such as who they are (type), how many they are, how many are joining the health labour market, public and private contribution) for better need-based planning and management as well as for quality assurance of education in the health system.

Therefore, it is important to have an updated health workforce supply data platform or database to support the formulation of comprehensive Human Resources for Health (HRH) plan to match the needed health workforce supply/production to the projected requirement. This is not only useful for planning but also to assess situations in terms of strengths, weakness, opportunity and threats to support evidence-based decision making regarding the workforce on the supply side. This should be linked to the central Human Resource Information System (HRIS), which can provide an excellent platform to capture all required data.

[7]Working for health and growth: investing in the health workforce. Report of the High-Level Commission on Health Employment and Economic Growth. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/10665/250047/1/9789241511308-eng.pdf,accessed 8 December 2018).

[8]Global strategy on human resources for health: Workforce 2030. Geneva: World Health Organization; 2016 (https://www.who.int/hrh/resources/global_strategy_workforce 2030_14_print.pdf, accessed 8 December 2018).

[9]2017 health SDG profile: Bangladesh. New Delhi: World Health Organization (updated on June 2017) (http://www.searo.who.int/entity/health_situation_trends/countryprofile_ban.pdf, accessed 7 December 2018).

[10]Health Policy 2011. Ministry of Health and Family Welfare, Government of Bangladesh (in Bangla).

[11]Bangladesh health workforce strategy 2015: On the move. [website]. (http://www.searo.who.int/bangladesh/news/BAN_HTS/en/, accessed 10 December 2018).

4. Objectives

The study aims to inform the agenda for improvement and alignment of health professional education to the health system strengthening needs of the country, and also indirectly the strategic needs and priorities of the health workforce in line with the 4th HPNSP (2017-2022). The aims are listed below.

(i) To describe the governance mechanism of health professional education institutions in Bangladesh (educational governance).

(ii) To comprehensively map out health professional education institutions in both public and private sectors in Bangladesh and gather summary data of selected variables for the period 2007–2016 (geographical mapping and a 10-year database).

(iii) To produce a summary analysis of the number of admissions and graduates registered by relevant registering bodies, respective boards and licensing organizations, by professional category and sex for the period 2007–2016 (admission and registration).

(iv) To recommend a system to be put in place, in collaboration with Management Information System (MIS) units, for regularly capturing data on preservice health professional education in education data management system/HRIS (education management information systems).

5. Scope of the assessment

This mapping study primarily aimed to focus on seven broad categories of health professionals who received formal academic training from government-recognized institutions under the MoHFW. It only considered undergraduate health professional education institutions offering the following academic certificates (see Table 2):

Table 2: Types of degrees and the institutions offering these degrees

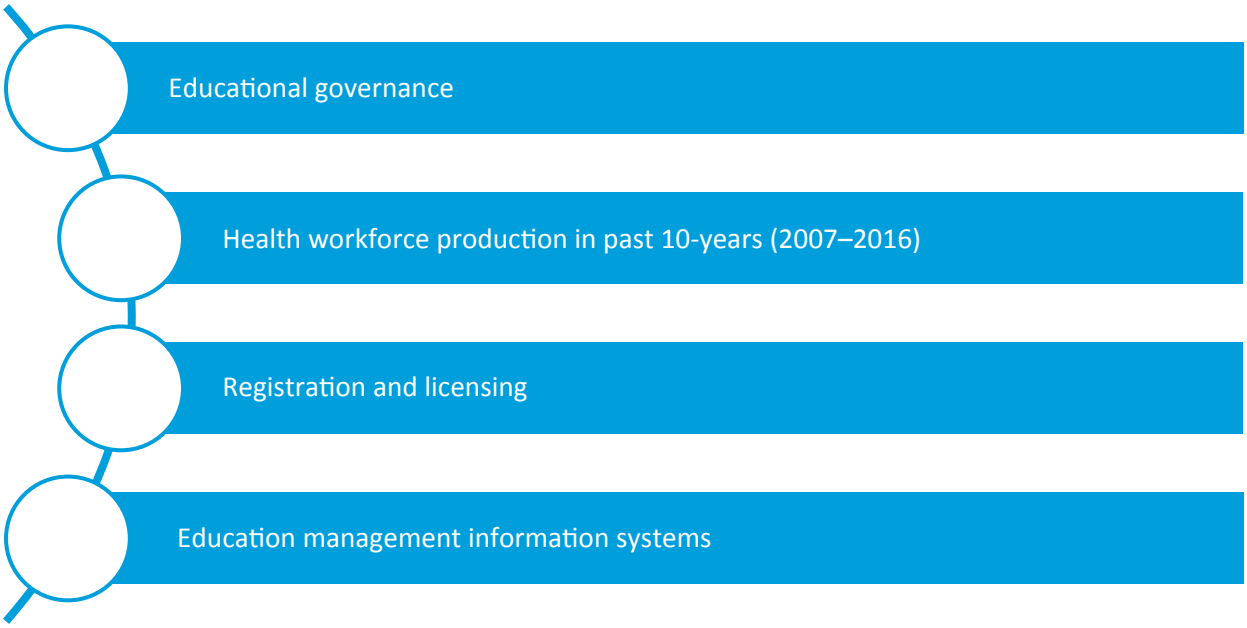
Type of degrees	Institutions that offer the degrees
Bachelor of Medicine and Bachelor of Surgery (MBBS)	Medical Colleges; Armed Forces/Army Medical College
Bachelor of Dental Surgery (BDS)	Dental College/Unit
Diploma in Medical Faculty (DMF)	Medical Assistance Training School (MATS)
Diploma in Medical Technology (different fields/disciplines)	Institute of Health Technology (IHT)
Bachelor of Science in Nursing (BScN)	Nursing College
Diploma in Nursing Science and Midwifery (DNSM)	Nursing Institute; Nursing College
Diploma in Midwifery (DM) (This course is offered at a selected number of nursing colleges.)	Nursing College; Midwifery Institute

Other ministries also took part in the education and development of health professionals in Bangladesh (such as Bangladesh Technical Education Board (BTEB) under Ministry of Education (MoE) and Ministry of Defense (MoD)), but they operated in a limited manner. This assessment focused on health professional education institutions under the MoHFW to a large extent and those under the MoD to some extent.

This assessment presented an overall description of the existing educational governance mechanism of the respective academic institutions engaged in producing respective health professionals. It also provided

10-year (2007–2016) input–output in terms of the total number of admitted students and graduated professionals database for the seven categories of health professionals (physician, dental surgeon, nurse, midwife, medical assistant, pharmacist, medical technologist).

Diagram 1: Priority areas of focus



6. Methodology

Under the leadership of the Director, Medical Education & Health Manpower Development (ME&HMD), Directorate General of Health Services (DGHS), a Technical Advisory Committee (TAC) was formed with specific terms of reference (ToR) and membership of key stakeholders to guide and follow up for successful completion of the study. A copy of the composition of TAC is attached in the Annex 1 for reference. To support TAC, a Technical Working Group (TWG) consisting of seven members was also established as the Secretariat for the study under the guidance of TAC (Annex 2). Study protocols/tools and checklists were developed in consultation with TAC and finalized after field-testing (Annex 3).

Official/government orders to the relevant academic institutions were issued along with the tool/template consisting of necessary indicators to be filled in. Group discussions, field visits and stakeholder consultations were carried out as part of the study. Divisional- and district-level field visits were also conducted for data collection, validation and quality check. However, data validation and quality check were carried out on a timely basis by the study team for a selected number of health professional education institutions.

Institutes involved and data sources: Office of the Director ME&HMD was the focal point of the assessment. This Office directly coordinated and collaborated with the Directorate General of Nursing & Midwifery (DGNM) and Bangladesh Nursing & Midwifery Council (BNMC), Bangladesh Medical & Dental Council (BMDC), State Medical Faculty of Bangladesh (SMFB) and the Pharmacy Council of Bangladesh (PCB).The Office also coordinated with the respective medical colleges, dental units and colleges, IHTs, MATS, nursing and midwifery academic institutions for collecting necessary data and information as per the prescribed formats. For assessment of education management information systems, the ME&HMD coordinated with the management information systems of BMDC, BNMC, DGHS, DGNM, PCB and SMFB.

Methods followed: Overall, a census mapping approach was adopted for this study. In general, this study comprised literature reviews, including document review and collection of policy documents, group discussions and stakeholder consultations, development and distribution of tools/forms for collection and consolidation of necessary data and information. A list of policy documents is attached in Annex 4. Stakeholder consultations were organized based on the initial results of the assessment involving representatives from both public and private sector institutions.The methods that were used to address the respective objectives are summarized in Table 3.

Table 3: Methods used to address the respective objectives of the study

Objectives	Methods
To describe the governance mechanism of health professional education institutions	Document review and collection of policy documents *(qualitative)*
To comprehensively map out health professional education institutions in both public and private sectors in Bangladesh and gather summary data of selected variables for the period 2007–2016	Primary data collection through development of tool/form *(quantitative)*
To produce a summary analysis of the number of admissions and graduates registered by relevant registering bodies, respective boards and licensing organizations, by professional category and sex for the period 2007–2016	Primary data collection through development of tool/form *(quantitative)*
To recommend a system to be put in place, in collaboration with MIS units, for regularly capturing data on pre-service health professional education in education data management system/HRIS	Existing MIS review through consultation and document review *(qualitative)*

Duration: The study began in February 2017 and ended in October 2017.

Target population: Teaching workforce, undergraduate students, relevant administrative personnel, policymakers, public health professionals, researchers and related experts.

7. Key findings

7.1 Educational governance

Governance simply refers to the way and processes to govern that is acceptable to all major parties. It denotes the structures and processes that are in place to ensure accountability, transparency, responsiveness, rule of law, equity and inclusiveness, and empowerment. Governance also represents the norms, values and rules of the game through which public affairs are managed in a manner that is transparent, participatory, inclusive and responsive.

United Nations Educational, Scientific and Cultural Organization[12] states that good governance is not an abstract concept, but about ensuring students have access to well-funded schools that are responsive to local needs, and employ trained and motivated teachers. This includes the distribution of power in decision-making at all levels of an education system from the ministry level down to school and community.

The National Health Services Education for Scotland[13] defines educational governance as: "The systems and standards through which organizations control their educational activities and demonstrate accountability for continuous improvement of quality and performance".

According to the Programme Implementation Plan of HPNSP,[14] good governance mandates adherence to the principles of participation, by being responsive to the citizens' view and encouraging decisions on the basis of consensus.

During literature review, no specific definition of the concept of "health professional education governance" was found in the available literature in the context of Bangladesh. However, the study team derived a definition based on other available definitions of the concept. Health professional education governance refers to "the systems and procedures, both written and unwritten, which are used to control and guide for quality improvement and maintain at least minimum acceptable standards of educational performance by ensuring accountability to the stakeholders".

This study focused on seven categories of health professionals, i.e. medical doctor, dental surgeon, nurse (both diploma and BSc), midwife, medical assistant and medical technologist. Production of each professional category is governed by certain rules, regulations and guidelines introduced by the government. Table 6 indicates the major acts, rules, policy and guidelines approved by the MoHFW, GoB.

According to the Rules of Business 1996 of the GoB, the MoHFW, on behalf of the government, bears the major responsibility to formulate and implement the relevant law, policy, strategy, guideline and programme as appropriate for ensuring quality and standard health professional education in the country. Educational governance at: (i) national level and (ii) institutional level.

[12] Overcoming inequality: why governance matters. Education for All Global Monitoring Report 2009. France: United Nations Educational, Scientific and Cultural Organization; 2008 (http://unesdoc.unesco.org/images/0017/001776/177609e.pdf (accessed 7 December 2018).

[13] Coward R. Educational governance in the NHS: a literature review. Int J Health Care Qual Assur 2010;23:708-17.

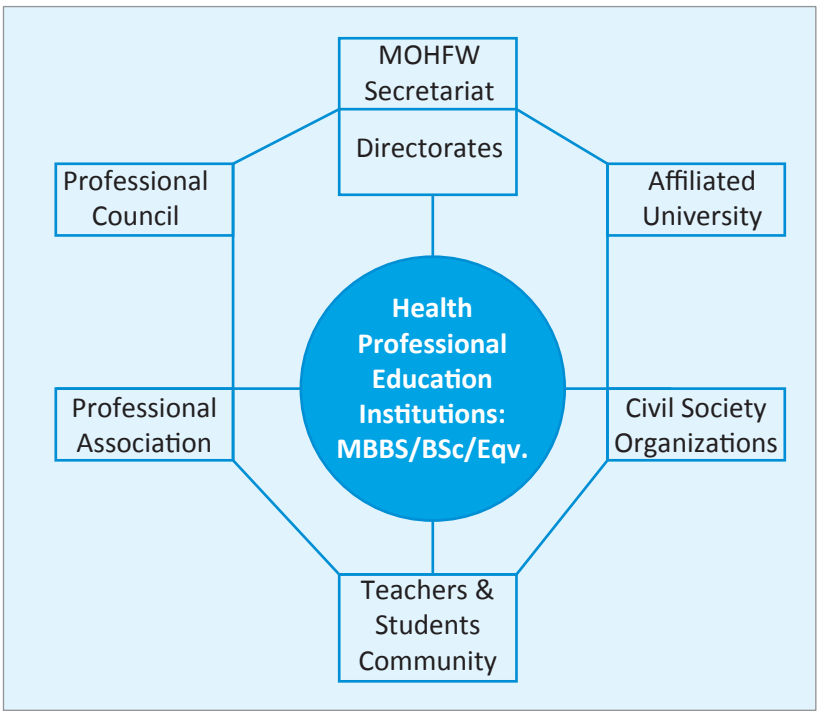
[14] Ministry of Health and Family Welfare. Programme Implementation Plan. 4th Health, Population and Nutrition Sector Programme (4th HPNSP). January 2017- June 2022. Volumn 01. Planning Wing. Government of Bangladesh.

National level governance

Box 3 denotes the interconnectedness of national level governance for educational institutions offering Bachelor's degree level courses.

For Bachelor-level courses, this study took into account Bachelor of Medicine and Bachelor of Surgery (MBBS), Bachelor of Dental Surgery (BDS) and Bachelor of Science in Nursing (BScN) level educational institutions. MoHFW played a major role in approving the establishment of any educational institutions offering MBBS, BDS and BSc courses. Six wide-ranging stakeholders (namely (i) government agencies, (ii) professional councils, (iii) affiliated universities, (iv) professional associations, (v) civil society organizations, and (vi) teacher and student communities) were identified to play a critical role for governance of the related educational institutions.

Box 3: Interconnectedness of different organizations for governance of Bachelor's level courses



(i) Government agencies (such as respective ministry and directorates): The ministry in this study refers to MoHFW that takes the lead in developing appropriate human resources in the health and family welfare sectors of Bangladesh. The ministry is the policy making and approving authority on behalf of the government. It is responsible for formulating all needed and relevant policies, strategies, plans and programmes for the development of human resources as per the health needs and demands of the people of Bangladesh. Directorates are technical agencies that implement policy and strategies. The Secretariat of the MoHFW has two divisions as per the Cabinet Division[15] of the GoB in March 2016: (i) Health Services Division and (ii) Medical Education and Family Welfare Division (ME&FWD). The ME&FWD is responsible for formulating and implementing policies regarding medical education in Bangladesh. It also guides the administration of education related components attached with other directorates, such as ME&HMD Section of DGHS and Education and Training Section of DGNM.

[15] Cabinet Division, Government of Bangladesh, Bangladesh Gazette, 16 March 2017, S. R. O. Number- 62-Law/2017. pp. 2533- 2539.

Table 4: Major functions of the focal departments for the respective courses

Course name	Focal sections/ department, directorate/agency	Major functions of focal departments	Registering body/ council
MBBS	ME&HMD, DGHS	Administer admission test, compliance of available policies/Acts, budgeting, and logistical support etc.	BMDC
BDS	ME&HMD, DGHS	*idem*	BMDC
BSc in Nursing	Education and Training, DGNM	*idem*	BNMC
Diploma in Nursing Science and Midwifery	Education and Training, DGNM	*idem*	BNMC
Diploma in Midwifery	Education and Training, DGNM	*idem*	BNMC
Diploma in Medical Faculty	ME&HMD, DGHS	*idem*	SMFB, BMDC
Diploma in Medical Technology	ME&HMD, DGHS	*idem*	SMFB, PCB

For implementation of the above seven categories of professional courses in both public and private sector organizations, the ME&HMD, DGHS and Education and Training Section of DGNM undertake all the major steps (Table 4). These two departments in collaboration with the ministry and other relevant stakeholders (such as councils) standardize the criteria and pathways for admission into the respective colleges and institutes. DGHS organizes admission tests/examinations annually at the national level for the applicants of MBBS and BDS courses at both government and nongovernment intuitions.

(ii) Professional councils: Professional councils such as Bangladesh Medical and Dental Council (BMDC), Bangladesh Nursing and Midwifery Council (BNMC) and Pharmacy Council of Bangladesh (PCB) are the independent organizations and act as regulatory bodies. The ToRs and compositions are approved by the highest competent authority of the government, i.e. MoHFW and the Parliament. They lead on formulation of respective curricula, as well as set standards and criteria for evaluation and assessment of the respective courses. They register students and graduates and also provide licenses to the respective professionals.

(iii) Affiliated universities: In Bangladesh, certain universities – such as the University of Dhaka, University of Chattogram, University of Rajshahi, and Shahjalal University of Science and Technology –certify and conduct examinations for Bachelor's degree level courses. Bangabandhu Sheikh Mujib Medical University (BSMMU) conducts all postgraduate level examinations and provides certificates to those graduates.

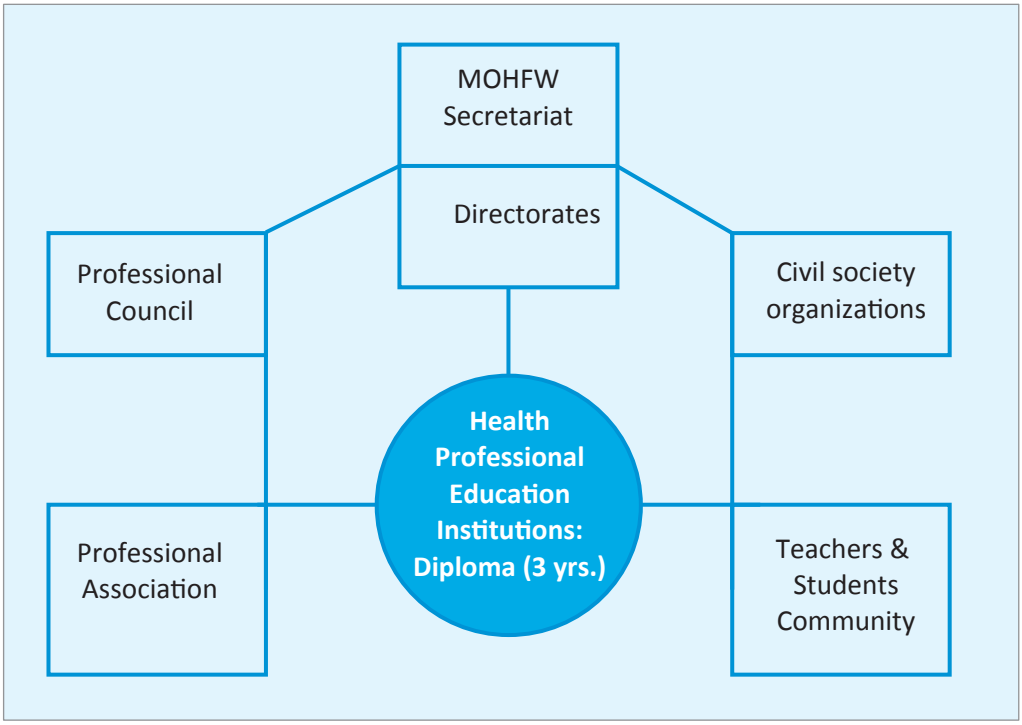
(iv) Professional associations: Professional associations such as the Bangladesh Medical Association (BMA), Bangladesh Nurses Association, Bangladesh Midwifery Association, contribute to protect the rights of their respective professionals and promote career development initiatives. A comprehensive list of these professional institutions was not available during the study period.

(v) Civil society organizations: Civil society organizations serve as watchdogs of the performance of the respective health professional education institutions. There are many civil society organizations, such as Bangladesh Consumers Associations, Citizen Forum, Bangladesh Health Watch, nongovernment organizations/associations, voluntary and charitable organizations.

(vi) Teacher and student communities: Teacher and student communities play a vital role at the national and institutional levels. They contribute to the development and standardization of the curriculum and code of conduct at the workplace.

The following flowchart denotes the national level governance of the diploma-level (3-year course) in respective educational institutions (Box 4):

Box 4: Interconnectedness of different organizations for governance of diploma level courses



The study identified five major stakeholders who contribute to and play a role in governance of the institutions providing diploma level courses. These include: the government (i.e. ministries, particularly MoHFW and its directorates), professional councils, professional associations, civil society organizations, and teacher and student communities.

Four broad categories of the workforce were identified under diploma courses –Diploma in Nursing Science and Midwifery (DNSM), Diploma in Midwifery (DM), Diploma in Medical Faculty (DMF), Diploma in Medical Technology (DMT). Of these, the DMT course is offered in 11 disciplines. The respective directorate of the ministry organizes a central admission test. Nongovernment/private sector educational institutions organize their own admission tests and duly admit students.

Institutional level governance

This is ensured by the respective institutional head and governing body. Government-owned as well as public sector academic institutions are run by the respective institutional Head or Principal, who is assisted by an academic council. There are also academic coordination committees and phase committees (a group of subjects) at the college level. Teacher and student communities also play a vital role by participating in those committees.

In private sector institutions, the respective governing body plays a critical role in governance. MoHFW has specific rules/policies on governance of private/nongovernment medical/nursing/midwifery/technologist educational institutions. A list of those policies is attached in Annex 4.

For ease of overall governance of related health professional education institutions, the GoB has formulated the following acts, policies, guidelines for effective implementation of the academic programme and appropriate development of human resources. These acts/policies/guidelines are summarized in Tables 6 and 7.

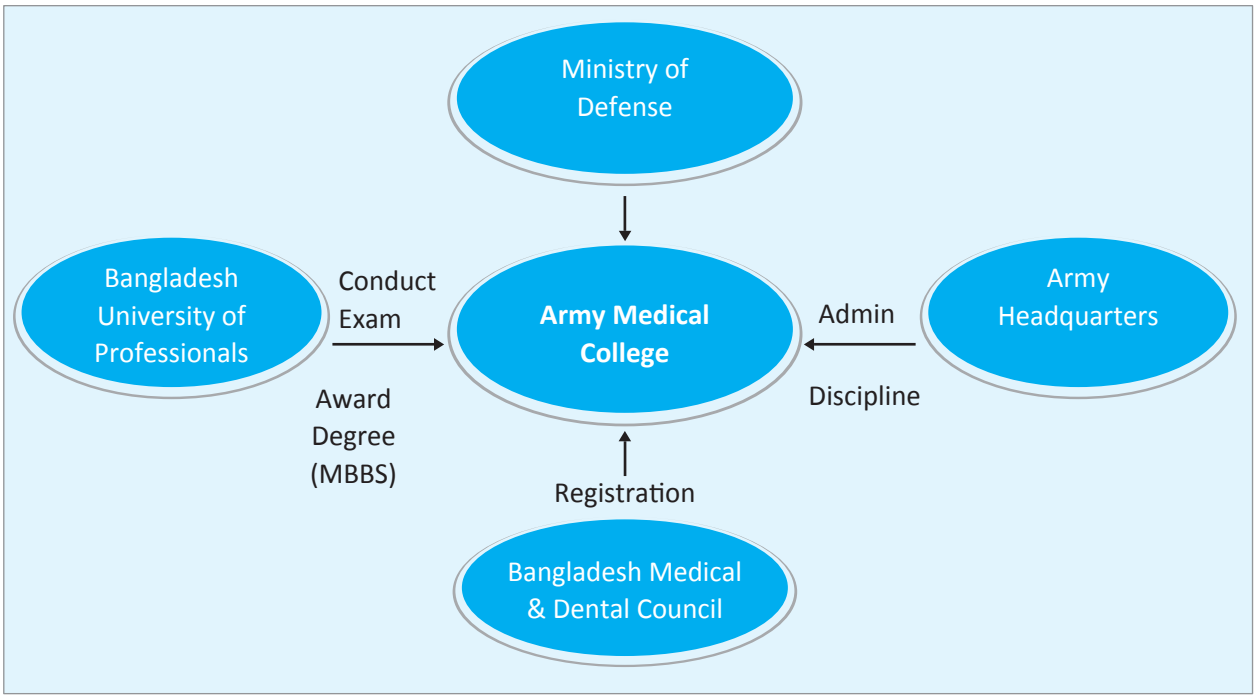
Table 5: Major acts/policies for governance of seven categories of educational institutions

MBBS and BDS acts/policies	BSc in Nursing (BScN)	Diploma in Nursing Science and Midwifery (DNSM)	Diploma in Midwifery (DM)	Diploma in Medical Faculty (DMF)	Diploma in Medical Technology (DMT)
1. Nongovernment Medical Colleges Establishment and Administration Policy, 2011 (Amended) (in Bangla) 2. MBBS/BDS Admission Policy 2011 3. Bangladesh Medical and Dental Council Act, 2010 4. Non-government Dental College Establishment and Administration Policy, 2011 (in Bangla) 5. MBBS curriculum update in 2012 6. BDS curriculum update in 2016	1. BSc in Nursing and BSc in Public Health Nursing (Basic & Post Basic) Admission Policy, 2011 (in Bangla) 2. Bangladesh Nursing & Midwifery Council Ordinance, 2016 3. Basic BSc nursing curriculum update 2006, revised draft produced in 2017	1. Private nursing institutes establishment and nursing course commencement Policy, 2009. (In Bangla) 2. Curriculum update in 2006	1. Private midwifery institutes establishment and midwifery course commencement policy, 2014 (in Bangla) 2. Curriculun update in 2012	1. Private Medical Assistant Training School Establishment and Administration Policy, 2010 (in Bangla) 2. Bengal Medical Act 1914, which was amended in 1949 as Bengal Amendment (East Bengal Amendment) Act for State Medical Faculty of Bangladesh 3. Curriculum update in 2008	1. Admission Circular for IHT 2016 by DGHS 2. Private Institute of Health Technology (IHT) Establishment and Administration Policy, 2010 3. Diploma in Pharmacy (3-years) curriculum update in 2008 4. Pharmacy Ordinance, Ordinance No. X111 of 1976

Governance at the armed forces led health professional education institutions

There are several health professional education institutions under the authority of the military of Bangladesh, established by the MoD, such as Armed Forces Medical College (AFMC), Armed Forces Nursing Institute and others. Bachelor-level courses are affiliated with the Bangladesh University of Professionals and also recognized by the relevant professional councils. In 1999, the AFMC was established under the authority of the MoD. Recognizing the growing need of medical professionals, five more army medical colleges were established (by a sanctioned letter from the MoHFW), and the Honorable Prime Minister inaugurated them on 10 January 2015. All five army medical colleges are recognized as private sector medical colleges and have their own governance mechanism. A governing body is locally established under the commanding authority of the concerned Infantry Division and area under the Bangladesh Army. The overall governance mechanism of the army medical colleges is shown in Diagram 2.

Diagram 2: Overall governance structure of the army medical colleges [16]



[16] Army Medical College. Prospectus 2017-2019. https://www.amccomilla.edu.bd/newsimg/Prospectus-of-Army-Medical-College-2017-2018.pdf (accessed 10 December 2018).

Table 6: Key policy issues related to the selected health professional education in Bangladesh

Subject	Sector	MBBS	BDS	BScN (Basic)	DNSM	DM	DMF	DMT
Governance	Public	Controlled by the GoB (DGHS under MoHFW). MoHFW enacts policies and DGHS implements them. At institutional level, an academic council and academic coordination committees are in existence. For academic functions, the academic council plays a key role. BMDC and relevant Dean's office of the University play an important role in governance.	Same as MBBS	Directly controlled by the GoB (DGNM). No dedicated governing body is in existence at institutional level. For academic activities, academic council is compulsorily there. BNMC and relevant Dean's office of the University play an important role.	Directly controlled by the GoB (DGNM). No dedicated governing body is in existence at institutional level. For academic functions, there is no academic committee. BNMC plays an important role.	Same as DNSM	Directly controlled by the GoB (DGHS). Head of the institution plays the major role. There is no dedicated academic council. For academic activities, BMDC and SMFB play a critical role.	Directly controlled by the GoB (DGHS). Institutional head plays a critical role. For academic activities, BMDC, SMFB and PCB play an important role.
	Private	Controlled by the GoB through the "Non-government Medical College Establishment and Administration Policy (corrected) 2011" (in Bangla) at national level. There is a separate governing body established by each private medical college. Academic council is compulsorily there. BMDC and University play an important role.	Same as MBBS	Controlled by the GoB through the "Non-government nursing college/institute establishment and course commencement policy 2009" (in Bangla). No provision of a governing body at the policy level. Academic council is compulsorily there. BNMC and University play an important role in conducting examinations and registrations.	Controlled by the GoB through the "Non-government nursing college/institute establishment and course commencement policy 2009". No provision of a governing body. No academic council. A disciplinary committee is there. BNMC plays an important role.	Same as DNSM	Controlled by the GoB through the "Non-government medical assistant training school establishment and course commencement policy 2010". No provision of a governing body at the policy level. BMDC and SMFB play an important role in academic activities.	Controlled by the GoB through the "Non-government medical technology institute establishment and course commencement policy 2010" (in Bangla). No provision of a governing body at the policy level. BMDC, SMFB and PCB play an important role in academic activities.
Minimum qualification required for attending central admission test	Public and private	Secondary School Certificate (SSC)/10 class equivalent with science background. Higher Secondary Certificate (HSC)/12 class completion/equivalent with science background including biology. Graduated within the past two years. GPA not less than 3.5 in all public exams.	Same as MBBS	Secondary School Certificate (SSC)/10 class equivalent. HSC/12 class equivalent with science background including biology. Minimum GPA required is 6 in total from both SSC and HSC with minimum GPA 2.5 in each. Only those who graduated within the past three consecutive years can apply.	Secondary School Certificate (SSC)/10 class equivalent. HSC/12 class equivalent with science background including biology. Minimum GPA 2.5 in each exam. Only those who graduated within the past three consecutive years can apply.	Same as DNSM	Secondary School Certificate (SSC)/10 class equivalent with minimum GPA 2.5 out of 5 and science background including biology. Must have graduated within the past five consecutive years.	Secondary School Certificate (SSC)/10 class equivalent with minimum GPA 2.5 out of 5 and science background including biology Must have graduated within the past five consecutive years.

Subject	Sector	MBBS	BDS	BScN (Basic)	DNSM	DM	DMF	DMT
National merit list through central admission test.	Public and private	DGHS conducts the central admission test and prepares a national merit list of those who qualify for admission into the MBBS course in both public and private medical colleges.	Same as MBBS	DGNM conducts admission test for BSc nursing course at national level. They select the qualifiers including a waiting list only for the public sector nursing colleges. Private sector BSc nursing colleges conduct their own admission test separately.	DGNM conducts nationwide admission test for DNSM course at national level. They select the qualifiers including a waiting list for the public and private sector nursing institutes.	Same as DNSM	DGHS conducts the admission test and prepares a national merit list of those who qualify for admission into the DMA course.	DGHS conducts the admission test and prepares a national merit list of those who qualify for admission into the DMT course.
Quota system	Public	80% seats are filled up from the merit list and 20% seats are filled up from district quota based merit list. 2% of the total seats are reserved for sons and daughters of freedom fighters.	Same as MBBS	60% of the total seats are filled up from the national merit list. 14 seats are reserved for sons and daughters of freedom fighters. The remaining are filled up from district quota.	52 seats are reserved for sons and daughters of freedom fighters. After that, 60% of the total seats are filled up from the merit list and 40% seats are filled upfrom district quota.	20 seats are reserved for the daughters of freedom fighters. 60% seats are filled up from the national merit list and 40% are filled up from district quota.	15% seats are reserved for females under divisional quota. If no qualified applicant is available, then seats are filled up from the general merit list.	70% seats are filled up from the national merit list. Remaining 30% is filled up from divisional quota. In each public IHT, 16 seats (two for each institute) are reserved for the tribal population. A total of 40 additional seats (five for each) are reserved for sons and daughters of freedom fighters. Each IHT can admit two foreign students in each discipline.
	Private/ nongov-ernment	Government medical college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.	Same as MBBS	Government college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.	Government college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.	Government college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.	Government college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.	Government college admission policy is applicable where appropriate. Minimum 5% seats are reserved for economically poor but meritorious students.

Subject	Sector	MBBS	BDS	BScN (Basic)	DNSM	DM	DMF	DMT
	Foreign quota for both public and private colleges	In private/ nongovernment medical colleges, 75% of the total approved seats can be filled up by Bangladeshi nationals and the remaining 25% by foreign nationals (non-Bangladeshi). If qualified foreign nationals are not available, then those seats can be filled up by Bangladeshi students with local fee rules being applicable for them. A total of 107 seats are reserved for foreign nationals in government medical colleges. Of the 107 seats, 57 seats are reserved for South Asian Association for Regional Cooperation (SAARC) countries and 50 seats for non-SAARC countries.	Same as MBBS	In private colleges, foreign nationals can be allotted only one third of the total allocated seats after graduation of the first batch. In government nursing colleges, foreign students can only be admitted in the College of Nursing, Mohakhali, Dhaka, and not in others. Only five of the 120 seats are reserved for foreign nationals.	In private institutes, foreign nationals can be allotted only one-third of the total allocated seats after graduation of the first batch. No specific policy for admission of foreign nationals is found for government institutes.	In private institutes, foreign nationals can be allotted only one-third of the total allocated seats after graduation of the first batch. No specific policy for admission of foreign nationals is found for government institutes.	No specific policy for admission of foreign nationals is found for both, government and nongovernment institutes.	Two foreign nationals can be admitted in each discipline/faculty of the government IHTs based in Dhaka, Rajshahi and Bogura. No specific policy for admission of foreign nationals is found for nongovernment institutes.

Summary findings

The findings indicate that the educational governance systems in Bangladesh are under the purview of MoHFW and its relevant directorates or agencies that are responsible for overall governance of the education systems of the seven health professional categories. A total of 33 policy instruments/documents including academic curricula were identified during the study period. The key findings are listed below.

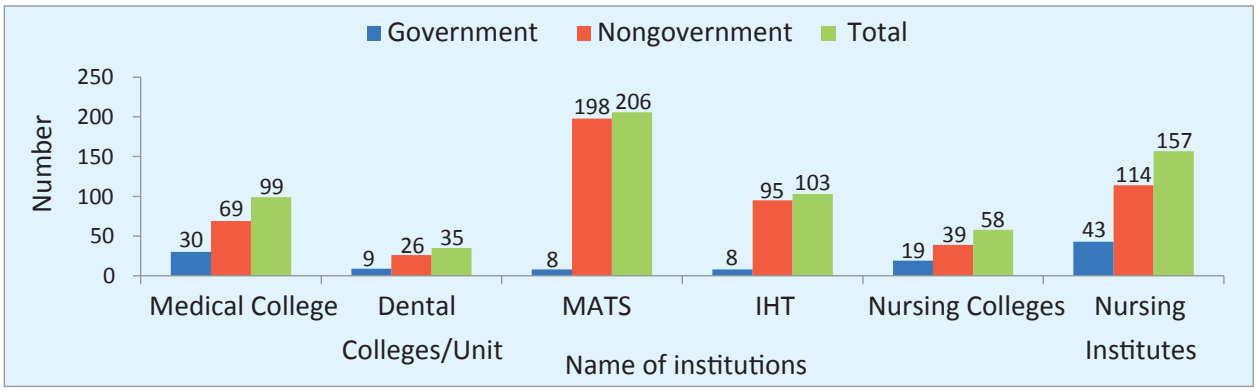
- MoHFW leads and shares the major responsibility of production and development of health professionals and their respective health professional education institutions in Bangladesh; the MoD only plays a partial role.
- The State Medical Faculty of Bangladesh (SMFB) operates as an autonomous body and has been in function through an Act of 1914 from the British period. Though the Act was amended in 1949, this is the only legal basis for SMFB. SMFB, on behalf of the GoB/MoHFW, recognizes IHTs and MATS in both public and private sectors, conducts examinations of the students of all IHTs and MATS and provides registrations to diploma graduates.
- No Act/Law was found for governance and establishment of IHTs and MATS, especially for those in the private sector. These institutes are guided by a policy formulated by the MoHFW (see Annex 4).
- Regarding curriculum updates of the seven professional categories, only the BDS curriculum was updated in 2016 after the declaration of the Sustainable Development Goals (SDGs) in 2015. The curricula for the other six categories, were developed or updated during the Millennium Development Goals (MDGs) period (2000–2015). The MBBS curriculum was updated in 2012. The DNSM and BScN curricula have not yet been updated or finalized since its inception in 2006. The DM curriculum was updated in 2012. The medical assistant curriculum was updated in 2009. Curricula of DMT in six major subjects (i.e. laboratory medicine, radiology and imaging, radiotherapy, physiotherapy, dentistry and pharmacy) were updated in 2008.
- Nationally held central admission tests/examinations for selection of students into MBBS and BDS courses has been in practice. Every year ME&HMD, DGHS under the guidance of the MoHFW conducts the admission test for both public and private sector medical and dental colleges/units. This was not found in other categories of professionals during the study period. DGNM under MoHFW conducts DNSM and BScN admission examinations only for public sector or government-owned academic institutions. ME&HMD, DGHS conducts the same for public sector IHTs and MATS. Private sector institutions conduct their own admission tests/examinations for DNSM, DM, DMF and DMT courses. The AFMC and other army medical colleges conduct their own admission processes as per guidelines of the BMDC.
- Health professional education institutes (medical colleges, dental colleges and units, nursing colleges, nursing institutes, midwifery institutes) that are under the direct control of MoHFW and its directorates follow similar governance and administration structures and tuition fee payment systems, by category. AFMC and other army medical colleges and institutes have their own fee structure.
- Diverse quota systems (district quota, freedom fighter quota and tribal quota) are in practice for admission of students in government-owned health professional institutes. Such quota provision is not available in the private sector/nongovernmental institutions.

7.2 Mapping of health professional education institutions

Seven categories of identified health professionals and their respective institutions were mapped out in this study. Based on the collected data, the following charts, graphs and maps were produced according to the professional categories.

Health professional education institutions in general

Figure 1: Total number of health professional educational institutions recognized by MoHFW, GoB (by 2016)



According to Figure 1, 658 health professional education institutions were recognized by MoHFW until December 2016. Of these, 541 institutions (82%) were in the nongovernmental/private sector and 117 institutions (18%) were in the government/public sector. The figure also shows a significant number of MATS (31%), nursing institutes (24%) and IHTs (16%).

Figure 2: Number of health professional educational institutions run by armed forces/army (by 2016)

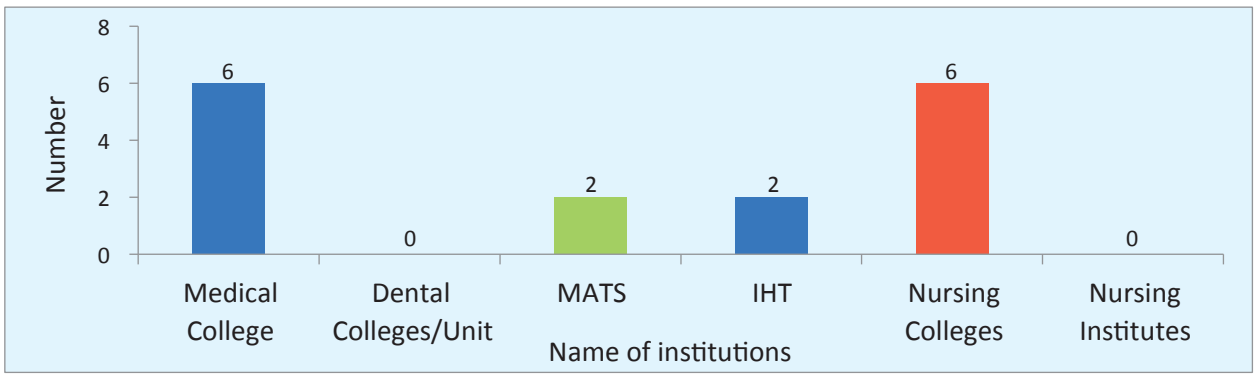


Figure 2 shows that 16 health professional education institutions were under the authority of armed forces/army. Of these, six were medical colleges; two MATS; two IHTs; and six nursing institutes up to 2016. There were no dental colleges and nursing institutes under the armed forces.

Figure 3: Total number of seats among various health professional education categories (by 2016)

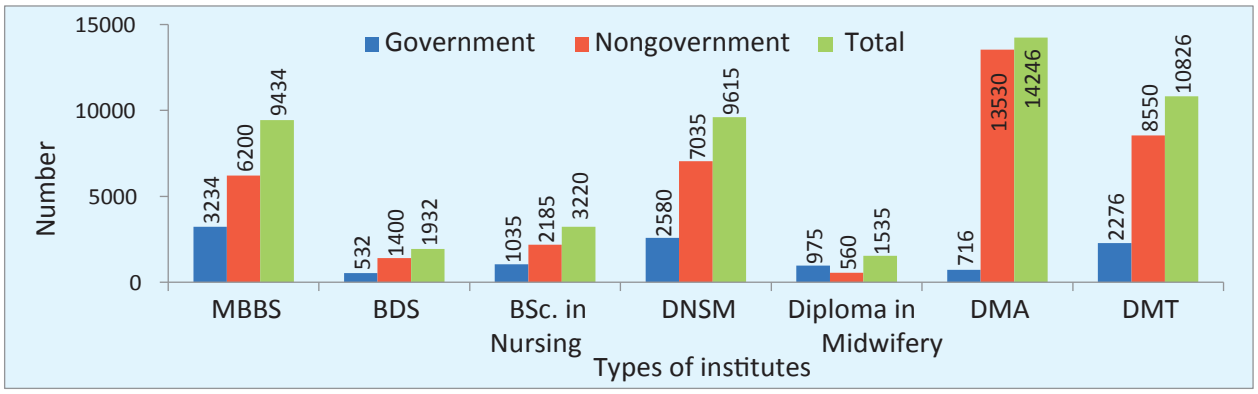


Figure 3 denotes that 50,808 seats were created in 658 health professional education institutions associated with the MoHFW. Of the total, 78% (39,460) seats were in the nongovernment/private sector while the remaining 22% (11,348) seats were in the government/public sector. Of the total number of seats, 19% belonged to MBBS graduate professionals, 4% to BDS graduate professionals, 28% to medical assistant professionals, 21% to medical technology professionals, 6% to BSc nursing professionals, 19% to diploma in nursing and midwifery professionals and 3% to diploma in midwifery professionals. The seat ratio of physician, nurse (including BScN) and midwife was 1.00:1.36:0.16.

Figure 4: Percentage of seat distributions among various health professional education categories (by 2016)

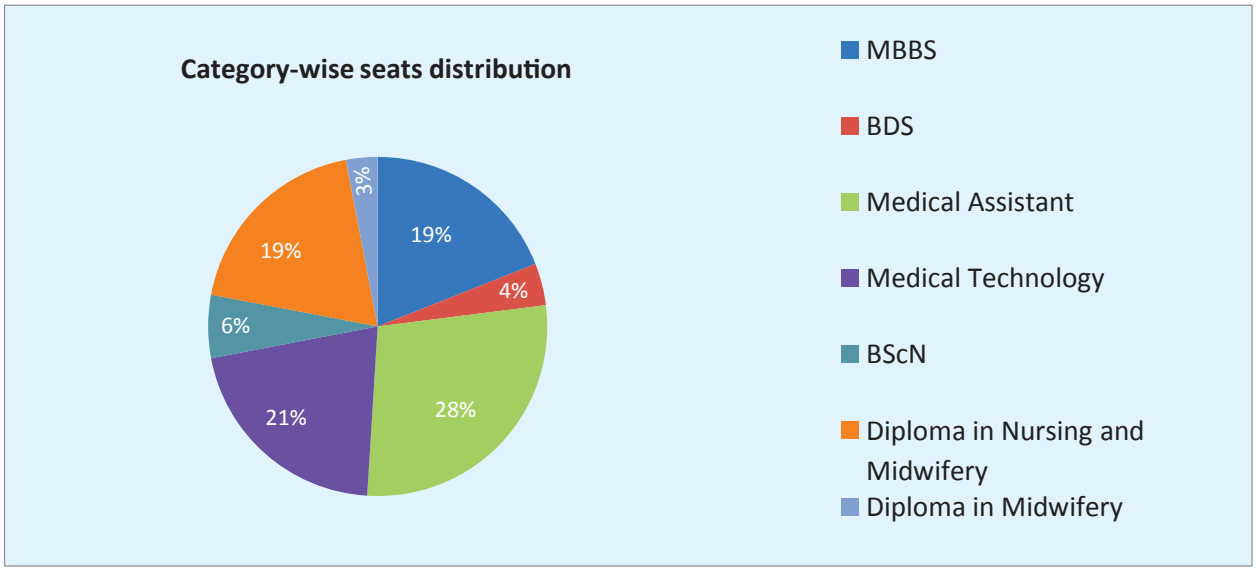
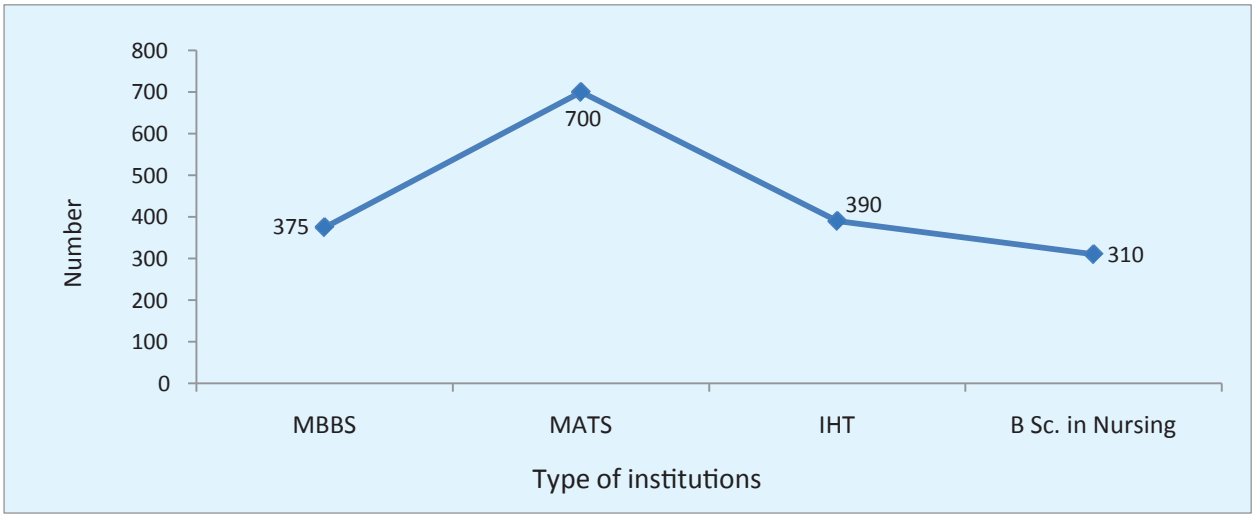


Figure 4 shows that 28% of total seats among the health professional education institutions belonged to the medical assistant professionals, followed by medical technology (21%), nursing and midwifery (19%) and MBBS (19%), whereas only 4% of seats belong to BDS professionals.

Figure 5: Number of seats in the health professional educational institutions run by army medical colleges (by 2016)



A total of 16 health education institutions were run by the army medical colleges with a total 1775 seats (Figure 5). AFMC could admit 375 MBBS students and there were 310 seats for the BScN course.

Figure 6: Number of health professional education institutions 1971–2016

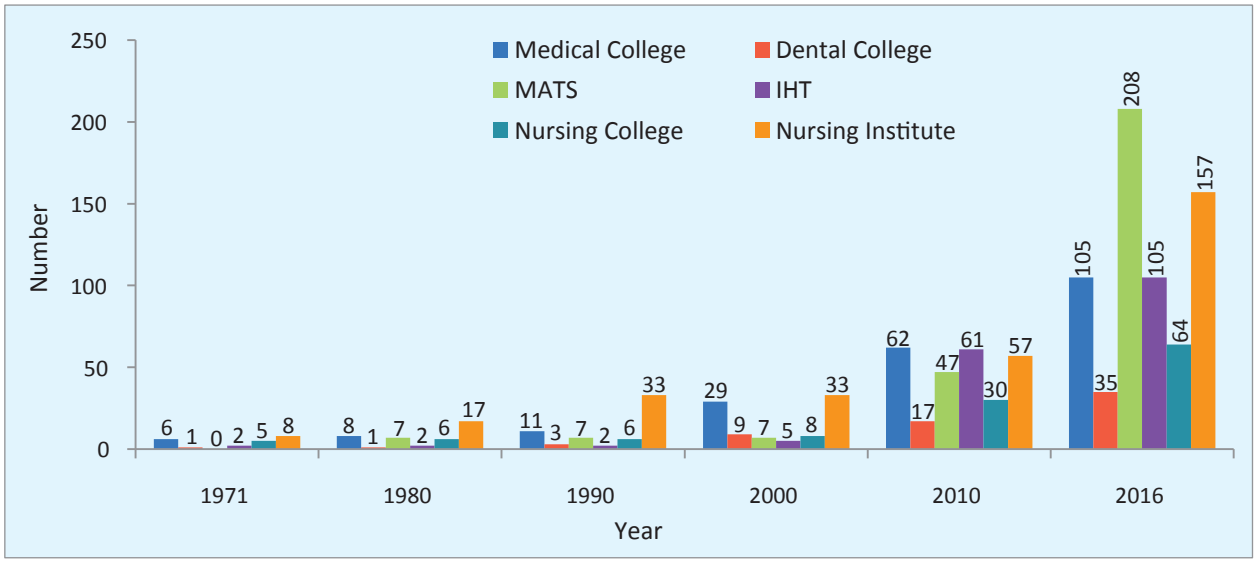


Figure 6 shows a significant increase in the number of key health professional education institutions between 1971 and 2016; i.e. from 22 to 674 in 45 years (31 times increase). There were six medical colleges in 1971 that increased to 29 in 2000 (five times increase) and 105 in 2016 (over 17 times increase-from year 1971). Number of dental colleges increased from only one in 1971 to 35 in 2016. There was no MATS in 1971 but in 2016 there were 208 MATS. Nursing colleges and institutes increased from 5 and 8 in 1971 to 64 (about 13 times increase) and 157 (about 20 times increase), respectively. The number of nursing institutions tripled from 57 to 157 from 2010 to 2016, contributing to the increase in number of nurses in Bangladesh.

Figure 7: Distribution of health professional education institutions among various divisions of Bangladesh

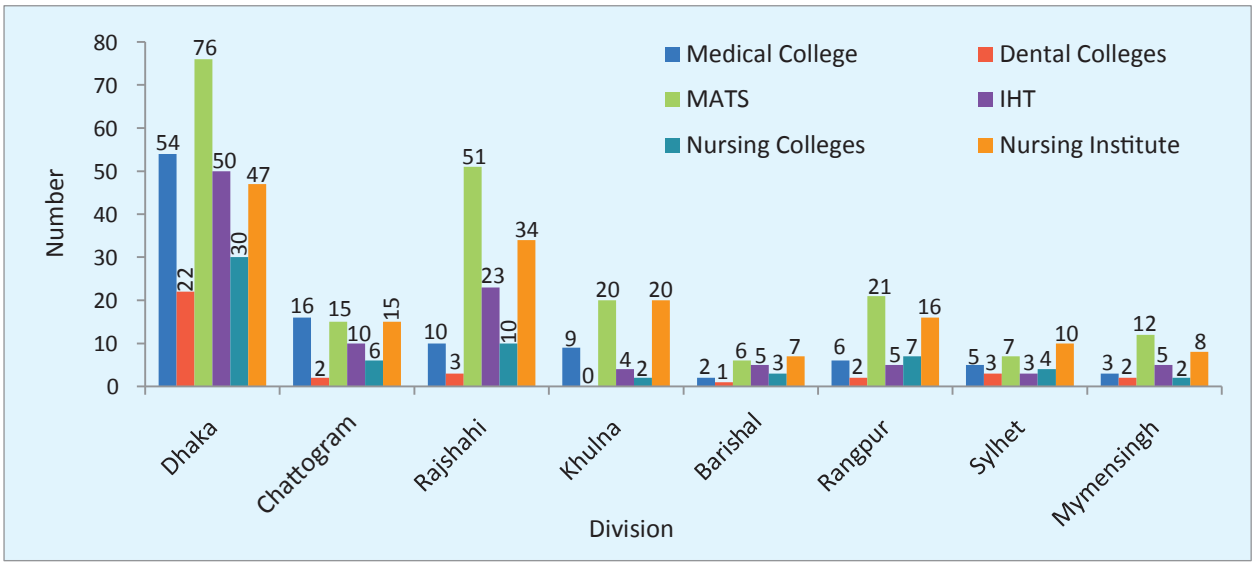
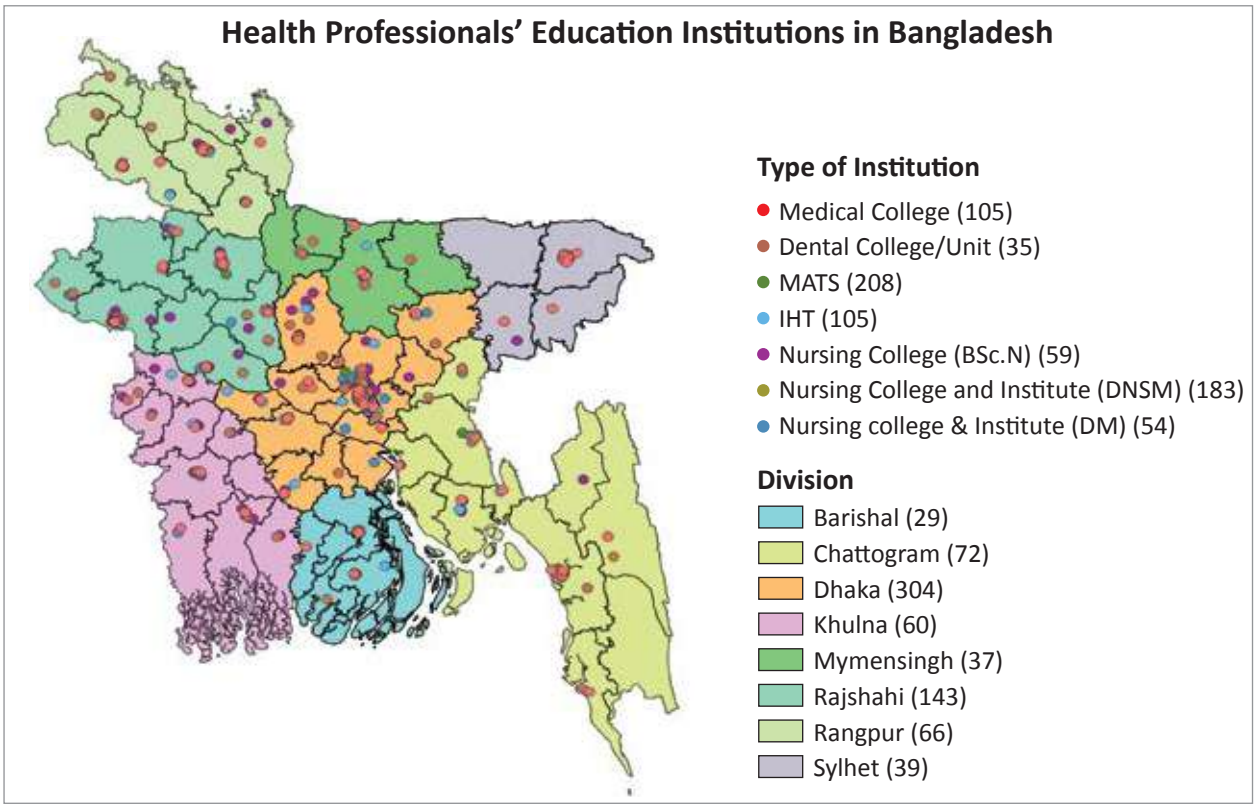


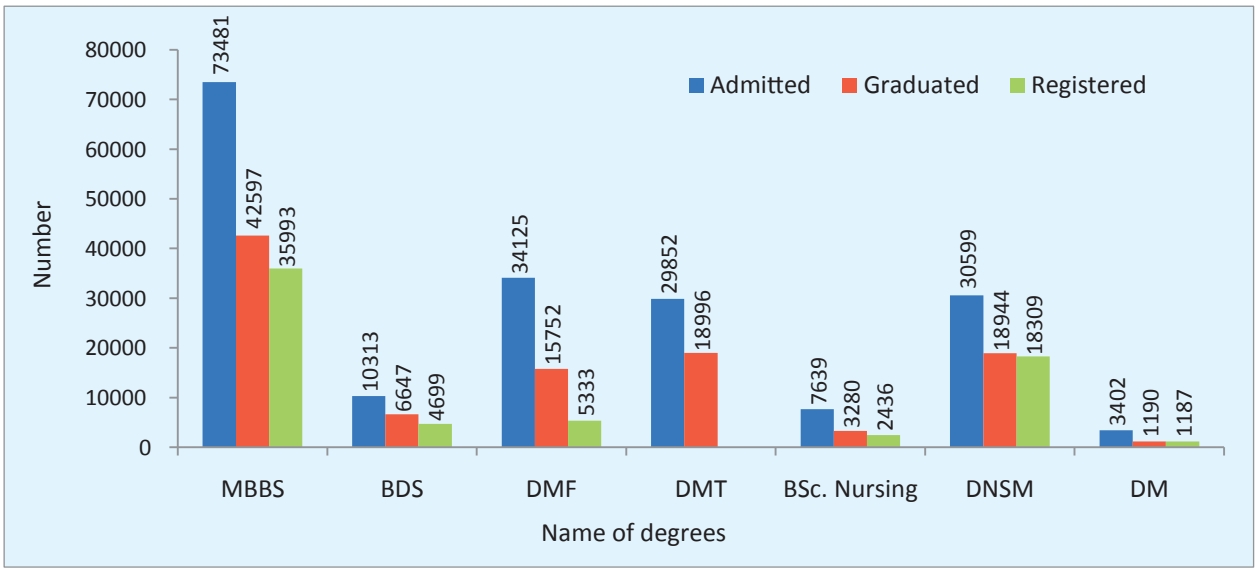
Figure 7 denotes division-wise distribution of 674 health professional education institutions in Bangladesh. About 41% of the total institutions were concentrated in the Dhaka Division, followed by the Rajshahi Division (19%). More than half (about 51%) of the total medical colleges were located in Dhaka. About 63% of the total dental colleges/units (22 out of 35) were concentrated in Dhaka. The geographical locations of these institutions are depicted in Map 1.

Map 1: Geographical locations of all health professional educational institutions in Bangladesh



More than half of the IHTs, nursing colleges and nursing institutes were also concentrated in Dhaka. This would have strong implications on the density of the formally trained workforce geographically.

Figure 8: Total number of health professionals admitted, graduated and registered/licensed in 2007–2016 (10 years)



Note: DMT included all 11 disciplines including pharmacy

Figure 8 indicates that 189,411 prospective health professionals were admitted in seven academic courses and 107,406 students graduated. Of the graduates, 67,957 were registered or licensed by the respective councils as mandatory for professional practice. The total numbers include all Bangladeshi and non-Bangladeshi professionals.

The calculation was based on year-wise input and output, and not batch-wise. The average graduation rate against the total number of admitted students (all categories) during 2007–2016 (189,411) was 57%. The number of admissions seems high because the number of schools increased many-fold from 2010 to 2016, and many of the new students have not graduated yet.

Of the 189,411 admitted students, 39% were in the MBBS category, 5% in BDS, 18% in Diploma in Medical Faculty (DMF), 16% in DMT category, 4% in BScN, 16% in Diploma in Nursing and Midwifery (DNSM), and the remaining 2% in Diploma in Midwifery (DM) category. The ratio of admission data among MBBS, DNSM and DMT was –1 (physician):0.42 (diploma nurse):0.41 (medical technologist).

Of the 107,406 graduates, 40% were in the MBBS category, 6% in BDS, 15% in DMA, 18% in DMT, 3% in BScN, 18% in DNSM, and only 1% in DM.

Of the total graduates, 67,957 (about 36%) were registered or licensed with various licensing bodies (i.e. BMDC and BNMC); of these 53% were MBBS professionals, 7% dental graduate professionals and 27% diploma nursing and midwifery professionals. Skill-mix imbalance was certainly prominent in the health workforce.

Summary findings

- Of the 674 health professional education institutions identified as of December 2016; 658 (98%) were recognized by the MoHFW and 16 were recognized by the MoD.
- Of the 674 health professional education institutions, about 41% (276) were concentrated in the Dhaka Division, followed by the Rajshahi Division (19%).
- Of the 674 health professional education institutions, 541 (82%) belonged to the nongovernmental/private sector and the remaining 18% were in the government/public sector.
- There are 50,808 seats in the 658 health professional education institutions under MoHFW, of which 78% (39,460 seats) belonged to the private sector and the remaining 22% (11,348) belonged to the public sector.
- Of the 50808 seats, about 19% belonged to each physician and diploma nurse categories; about 28% seats belonged to medical assistant category and 21% seats belonged to the diploma medical technologist category; only 4% belonged to the midwife category. Seat ratios of the three professionals, i.e. physician, nurse (including BScN), midwife was 1: 1.26: 0.16.
- Overall from 1971 to 2016, health professional education institutions under the MoHFW increased by 31 times, medical colleges increased 17 times, dental/BDS institutions increased 35 times, and diploma nursing institutes increased 20 times.

7.3 Health professional supply numbers

This section represents the number of students who applied and were admitted to the respective institutions, the number of graduates and the number of registered and licensed professionals by category. It includes data for the period 2007–2016 and takes into account distribution by public/government and private/nongovernment, sex, geography and nationality.

Medical college (MBBS)

General information

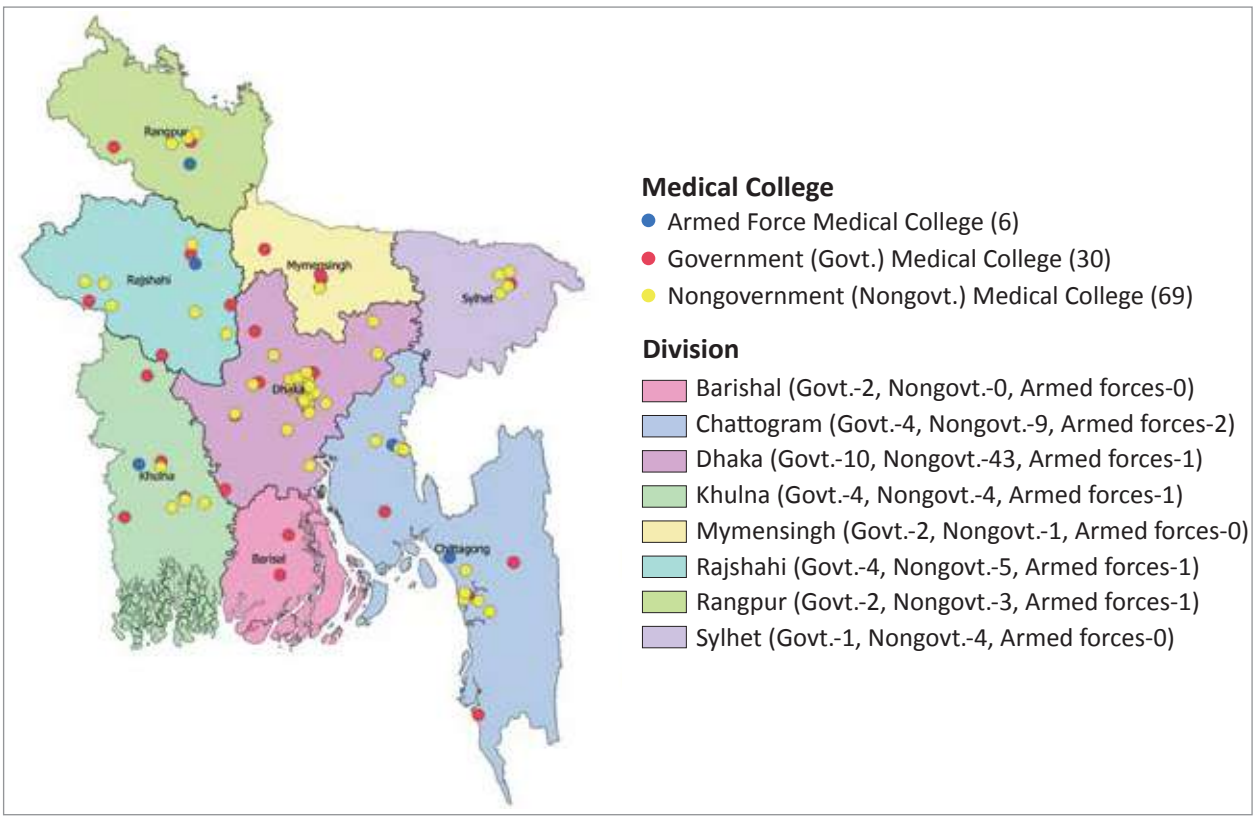
MBBS admission is highly competitive in Bangladesh. A total of 85,207 and 82,856 applicants took the centrally organized admission test during 2016–2017 and 2017–2018, respectively. This means that on average eight applicants competed for a seat for the study of MBBS in 2017–2018; and an average of nine applicants competed for a seat for 2016–2017.

Table 7: Total number of applicants for MBBS admission during 2015–2018 against the number of available seats

Academic year	Number of seats	Number of applicants
2017 -2018	9809	82,856
2016 -2017	9809	85,207
2015 -2016	-	84,784
Total		252,847

Map 2 shows the division-wise distribution of medical colleges in Bangladesh based on their ownership types (i.e. government, nongovernment or armed forces). More than half (about 51%) of the total number of medical colleges were concentrated in the Dhaka Division.

Map 2: Divisional distribution of all medical colleges in Bangladesh based on the type of college



The MoHFW through the DGHS organizes the central admission test and publishes the list of qualified applicants for MBBS first year admission in both public and private sector medical colleges. The number of seats in the medical colleges for foreign students is determined every year by a committee established by the Secretariat of the ME&FWD under MoHFW.

According to Figures 9 and 10, about 105 medical colleges were recognized by the GoB until 2016. Of these, about 29% (30) were owned and financed by the government/MoHFW; 66% were financed by the nongovernment/private sector; and about 6% belonged to armed forces/army, under the MoD. For Bangladeshi nationals, 3234 seats (about 33%) were available in government-owned medical colleges and 6200 seats (about 63%) were available in nongovernment/private medical colleges. The remaining seats were for the armed forces medical colleges for both Bangladeshi and non-Bangladeshi nationals. A committee established by the ME&FWD, determined the number of seats for foreign nationals in MoHFW-led medical colleges, every year. According to the nongovernment medical college establishment and administration policy 2011 (revised)[17], every nongovernment/private medical college can admit foreign nationals up to 25% of its total approved seats.

Figure 9: Number of medical colleges up to 2016

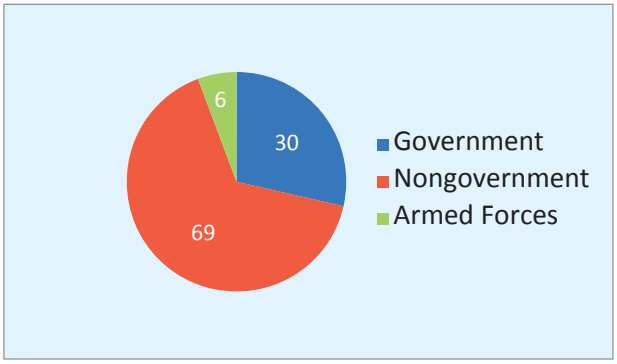


Figure 10: Total number of available seats in 105 medical colleges in 2016

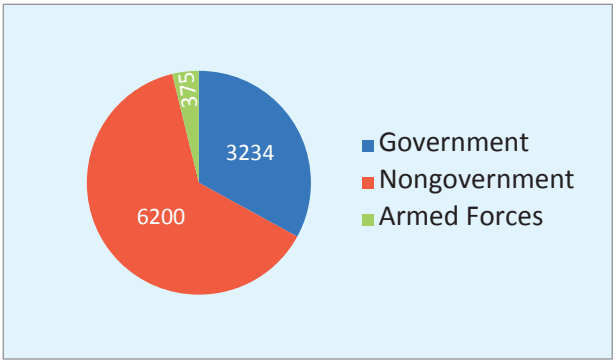
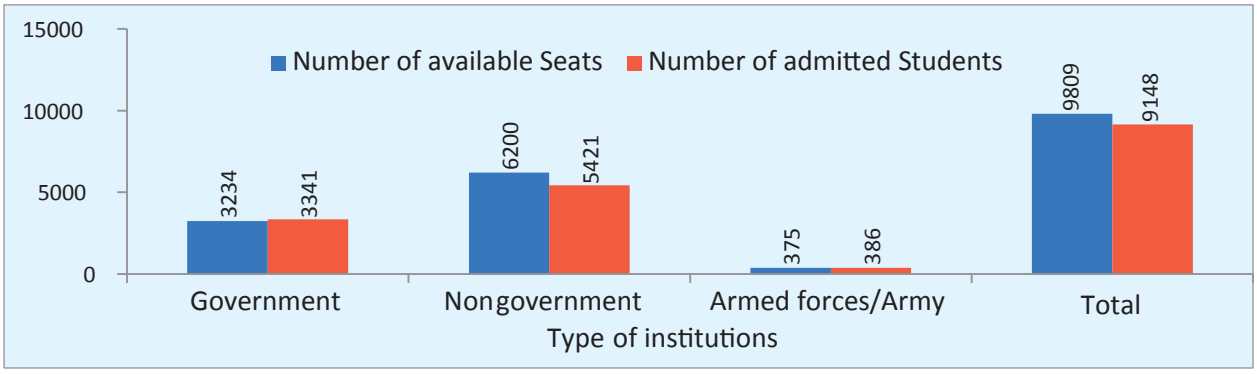


Figure 11: Number of available seats and students admitted into MBBS in 2016



In the academic year 2016–2017, 93% of the total 9809 seats were filled up (Figure 11). In the government medical colleges, all seats for Bangladeshi nationals were filled up and 107 foreign students were also admitted under the South Asian Association for Regional Cooperation (SAARC) and non SAARC quota provision.[18] Approximately 87% of the total seats in nongovernment medical colleges were filled up and 13% remained vacant.

[17]Non-government medical college establishment and administration policy 2011 (revised) (in Bangla). Ministry of Health and Family Welfare. Memo No. MOHFW/Med Edu-2/Law and Rules-3(part-2)/2008/162 Date: 22-06-2011 (in Bangla).

[18]Ministry of Health and Family Welfare. Foreign student's admission under SAARC and non-SAARC quota in medical and dental colleges in 2016-2017 (in Bangla). Memo # MOHFW/Med Edu-1/MBBS and BDS/Foreign students admission-01/2016/847 (Date: 29/12/2016). According to this Memo, a total of 176 seats for the MBBS course and 40 seats for the BDS course were allocated to foreign nationals under SAARC and non-SAARC quota provision.

Figure 12: Distribution of medical colleges in various divisions of Bangladesh

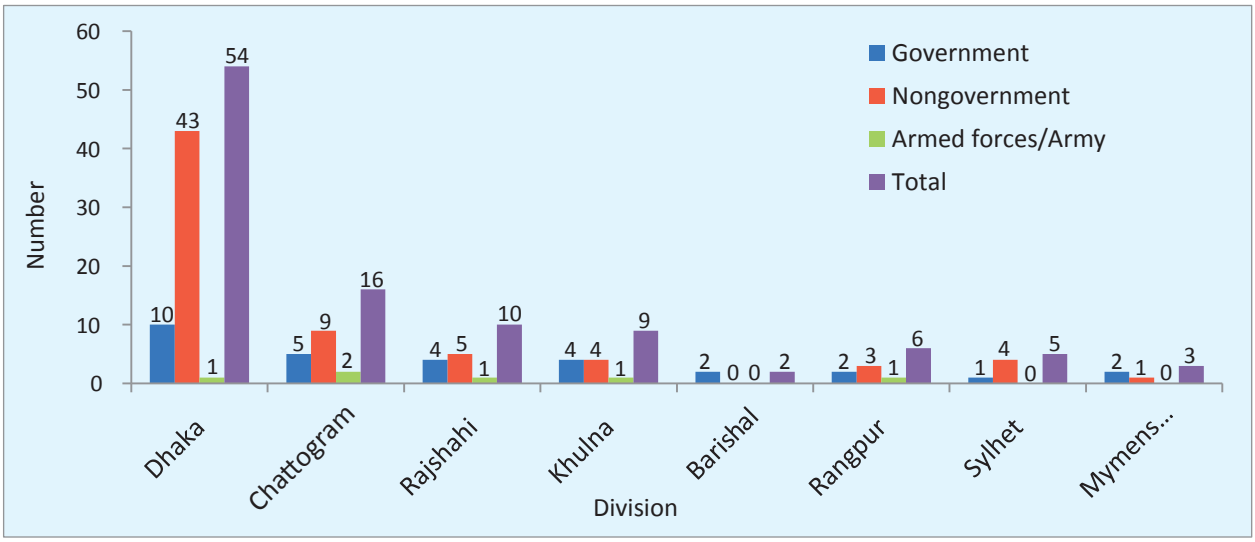
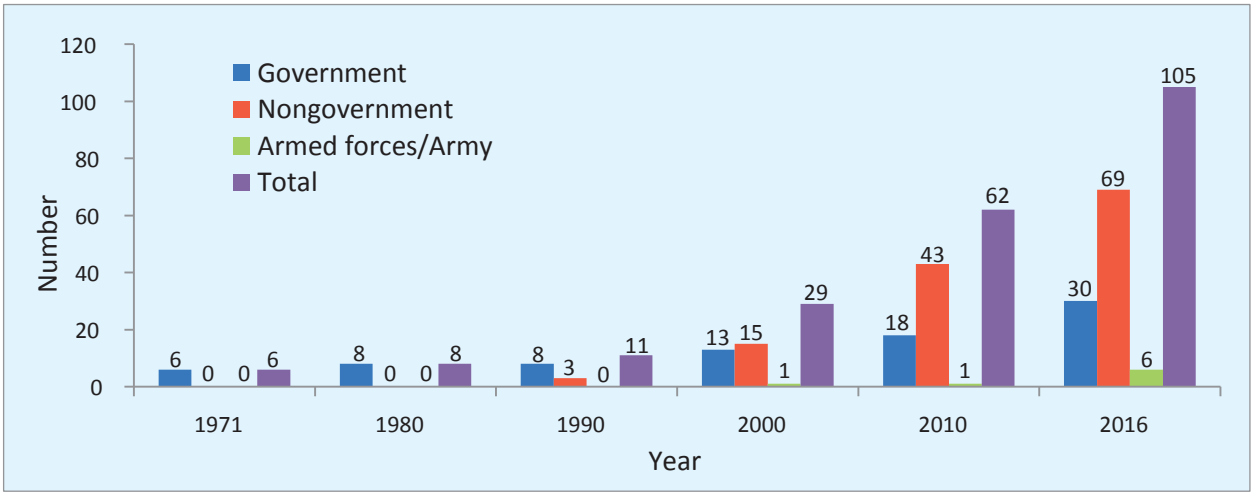


Figure 12 shows that of the 105 medical colleges, 54 (51%) were based in the Dhaka Division including Dhaka city; 15% were in Chattogram Division; and about 10% were in Rajshahi Division. Of the 30 medical colleges in the public sector, 10 (33%) were in the Dhaka Division. Of the 69 medical colleges in the nongovernment/private sector, 43 (62%) were concentrated in the Dhaka Division.

Figure 13: Number of medical colleges established between 1971 and 2016



There were only six medical colleges in 1971, and all were government owned (Figure 13). In 1990, eight government and three nongovernment medical colleges were started, totaling 11 medical colleges in Bangladesh. In 2000, the number grew to 29 (government, 13 and nongovernment, 15) and by 2016 it increased to 105, i.e. more than 262% increase in terms of establishment of new medical colleges in Bangladesh during 2000–2016. In 2000, there were only 13 medical colleges in the government sector and 15 medical colleges in the nongovernment/private sector, which increased to 30 and 69 in 2016, respectively. This indicated a 131% increase in the government/public sector and 360% increase in the nongovernment/private sector between 2000 and 2016.

Table 8: Comparison of total student expenses in government and nongovernment medical colleges in Bangladesh as per government instructions

Government medical college		Nongovernment medical college	
Item of expenditure	**Amount in BDT**	**Item of expenditure**	**Amount in BDT**
Admission fees	12,000	Admission fees	1390,000
Internship allowance	-	Internship allowance	120,000
Tuition fees	6200	Tuition fees	480,000
Session fees	-	Session fees	300,000
Daily allowance	240,000	Daily allowance	240,000
Hostel	500	Hostel	450,000
Profession fees	15,600	Profession fees	15,600
Total fees	1115	Total fees	2596

Source: ME&HMD, DGHS[19] 2016

Table 9 shows that a student needs to pay and expend approximately BDT 274,300 for completion of the MBBS course in a government medical college. On the other hand, a student pays 11 times higher, approximately BDT 2,995,600, for completion of the MBBS course in a nongovernment medical college.

Admission into MBBS course

Figure 14: Male–female distribution of students admitted into MBBS course during 2007–2016

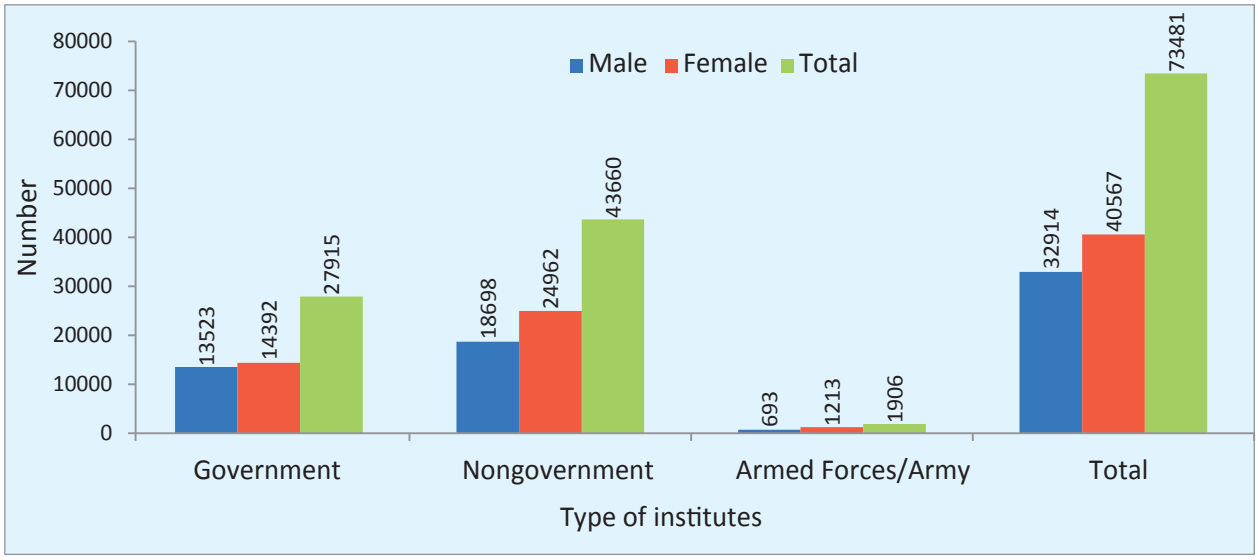


Figure 14 indicates the total number of students with male–female distribution admitted into the MBBS course in both government and nongovernment institutions during 2007–2016. Of the total consolidate number of students (i.e. 73,481), approximately 55% were female and 45% were male. In the nongovernmental sector, of the 43,660 students admitted (59% of total admitted students) 57% were female. In the government sector, of the 27,915 students admitted, 52% were female.

[19]Official memo, Medical Education and Health Manpower Development, Directorate General of Health Services, 07 September 2016.

Figure 15: Year-wise distribution of total students admitted into MBBS course during 2007–2016

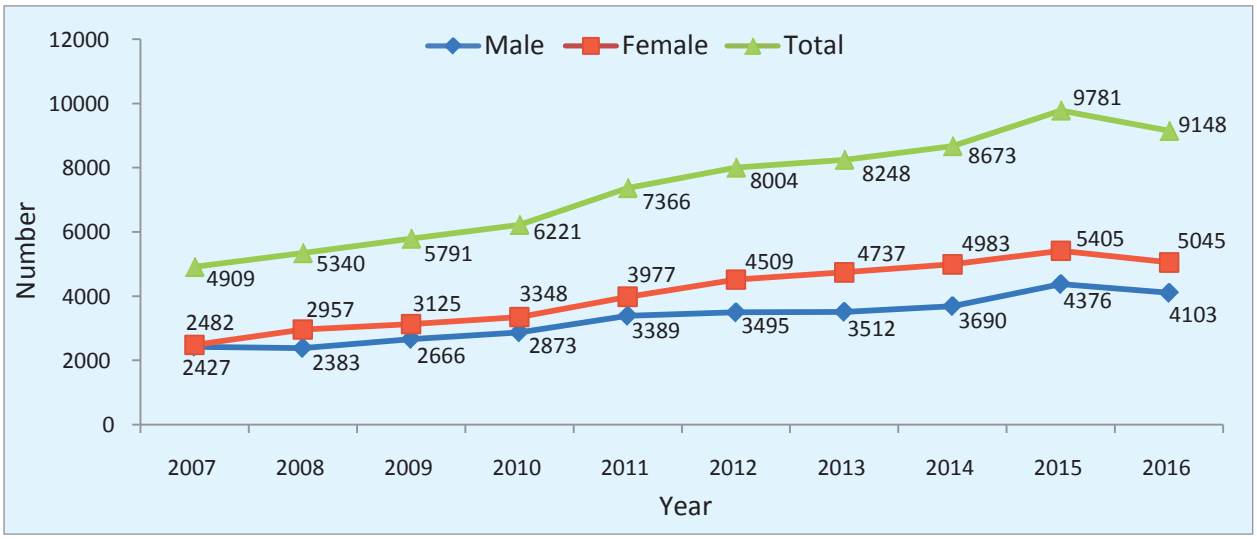
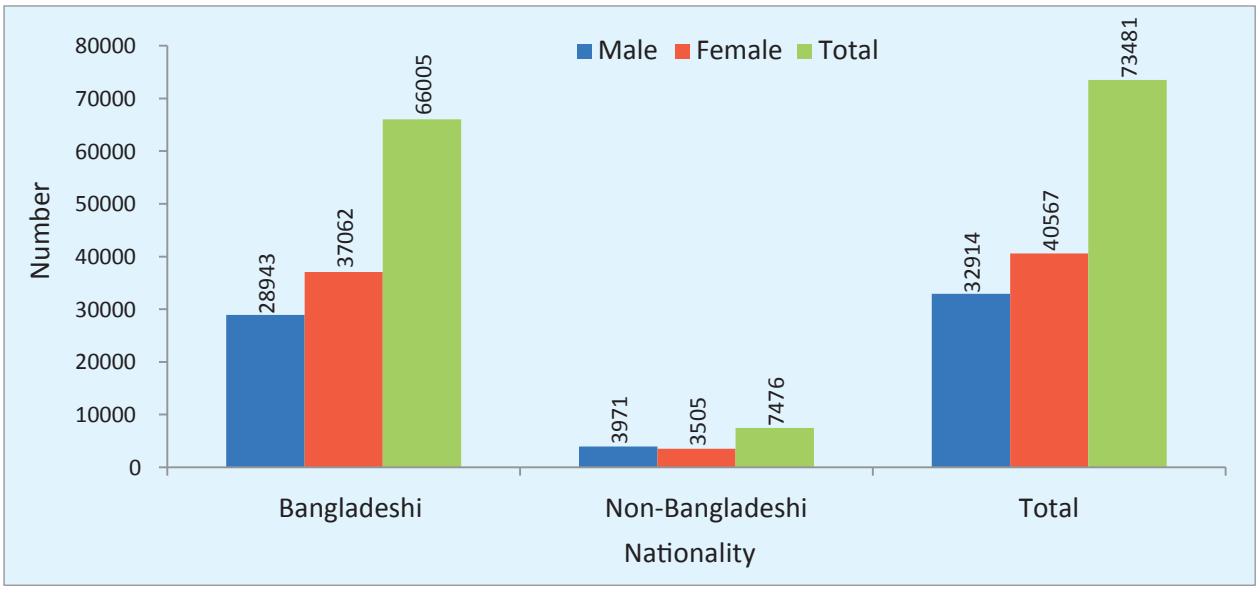


Figure 15 indicates that the number of total admitted students increased every year since 2007, except in 2016 (there was a decline from 2015). During 2007, the number of admitted male and female students was equal. But after that, the gap between the number of male and female students started increasing. After 2007, more female students were admitted into the medical colleges in both government and nongovernment colleges.

Figure 16: Number of students admitted into MBBS course during 2007–2016, by nationality



Of the total admitted students in both government and nongovernment institutions during 2007–2016, 90% were Bangladeshi and the remaining 7476 (10%) were non-Bangladeshi students (Figure 16). Of the non-Bangladeshi students, 47% were female. Among the Bangladeshi students, 56% (37,062) were female, which is significantly higher than the number of male students.

Figure 17: Year-wise distribution of the total number of Bangladeshi students admitted into MBBS course during 2007–2016

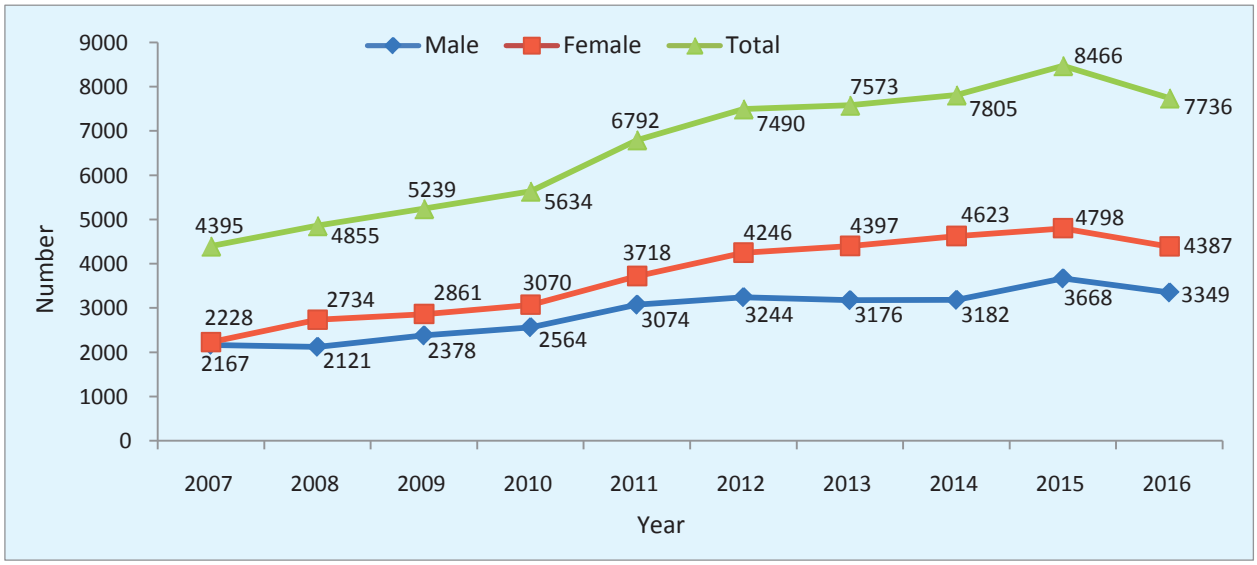


Figure 17 clearly shows that the number of total admitted Bangladeshi students has been increasing every year since 2007 except in the year 2016 (there was a little decline from the year 2015). During 2007, the number of admitted male and female students was equal. But after that, the gap between the number of male and female students started increasing. After 2007, more female students compared to male students got admitted into both government and nongovernment medical colleges.

Figure 18: Year-wise distribution of total non-Bangladeshi students admitted into MBBS course during 2007–2016

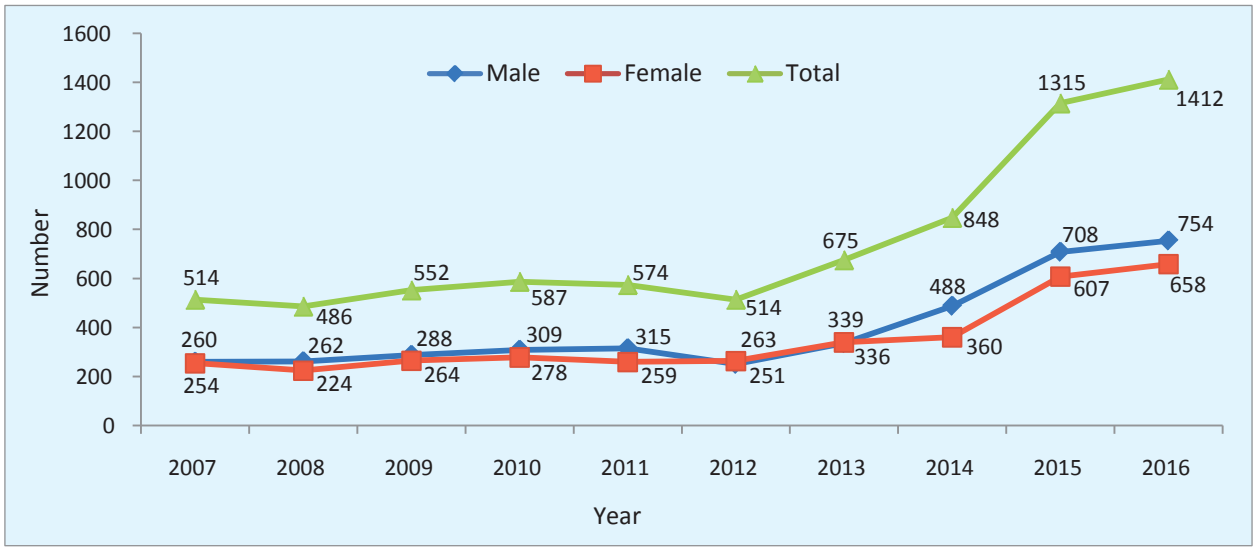


Figure 18 denotes a gradual increase in the number of non-Bangladeshi students from 2007 to 2016 in both government and nongovernment medical colleges. The number of male students has been slightly more than the number of female students.

More graphs are available in Annex 5 regarding year-wise admission of MBBS students with male–female and nationality distribution in the public sector, private sector and armed forces medical colleges.

Graduation in MBBS

Figure 19: Total number of MBBS students who graduated during 2007–2016 from government, army and nongovernment medical colleges

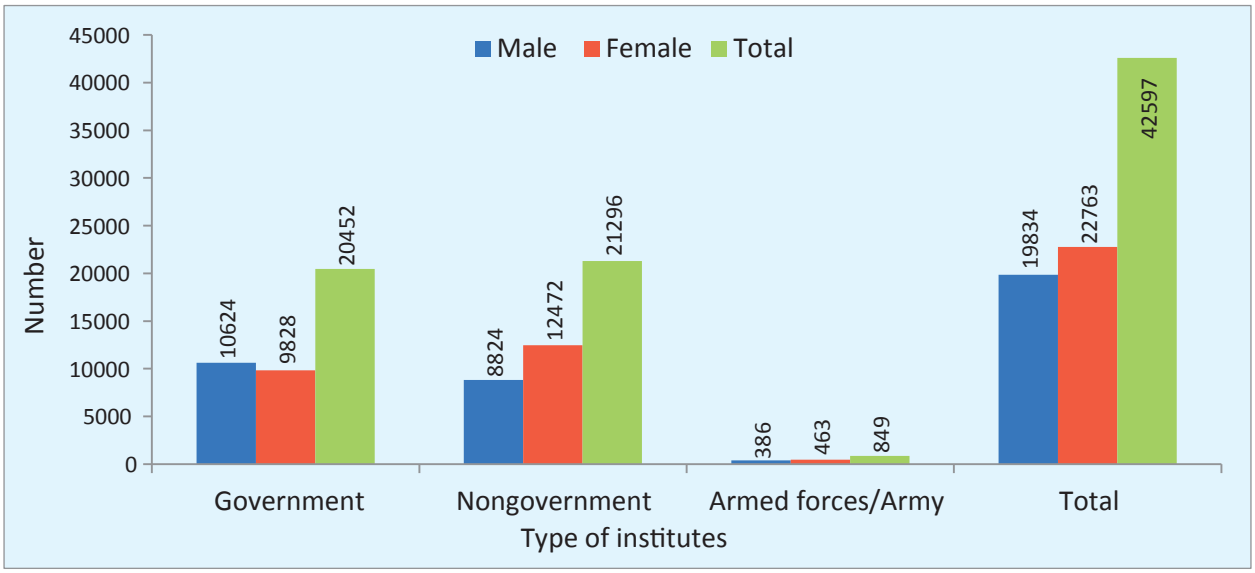


Figure 19 denotes that 42,597 MBBS students graduated during 2007–2016, of which approximately 48% were from government medical colleges, 50% from nongovernment medical colleges and the remaining 2% from armed forces medical colleges.

Figure 20: Year-wise distribution of total number of MBBS students who graduated during 2007–2016

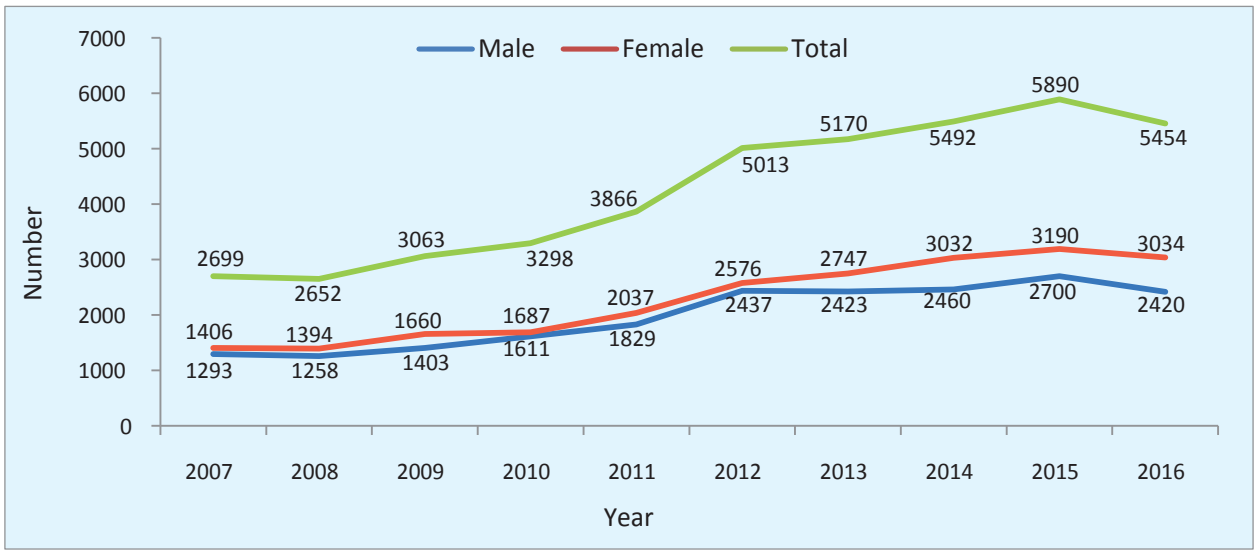


Figure 20 indicates that on average a 7% increase in the total number of graduates was noted every year during 2007–2016, with an exception between 2015 and 2016. A gradual increase in the number of female graduates was also prominent during 2007–2016. There was an average increase of 8% every year during 2007–2016.

Figure 21: Total number of MBBS students who graduated during 2007–2016, by nationality

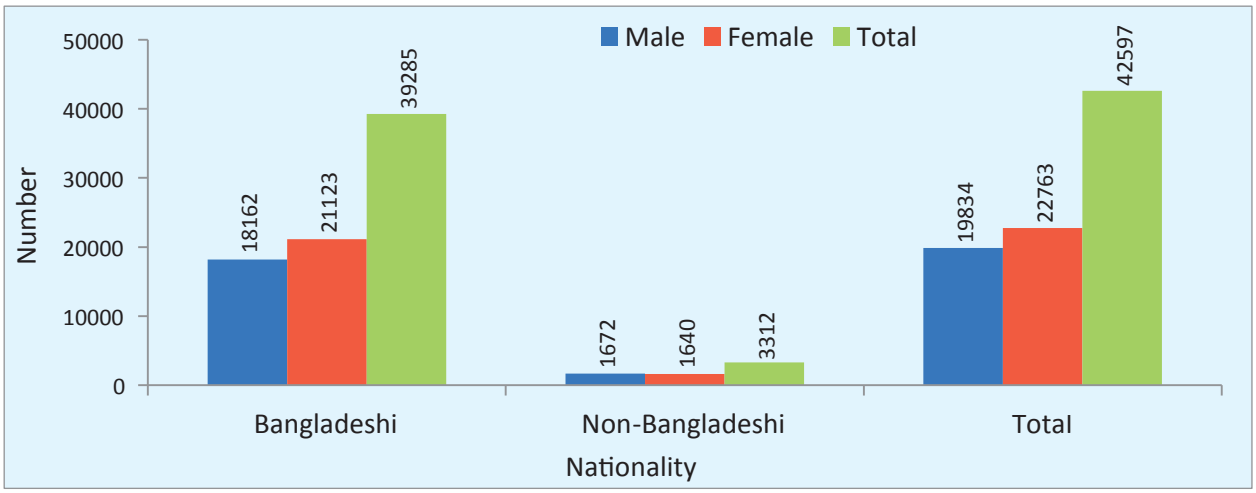


Figure 21 denotes that 92% of the total graduates were Bangladeshi citizens and about 8% were non-Bangladeshi. Of the total Bangladeshi graduates about 53% were female and of the total non-Bangladeshi graduates, about 50% were female.

Figure 22: Year-wise distribution of total Bangladeshi MBBS students who graduated during 2007–2016

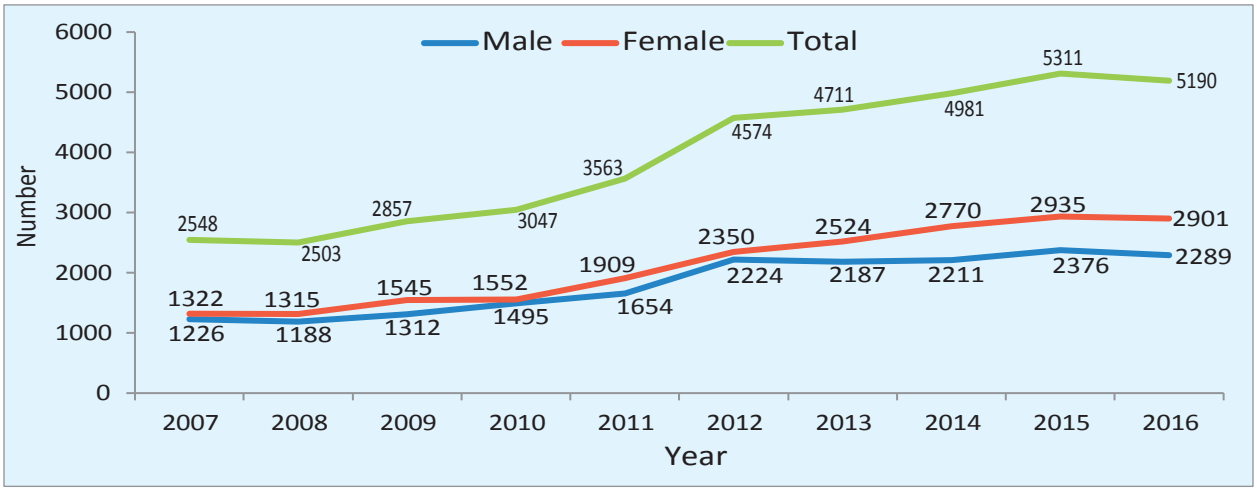
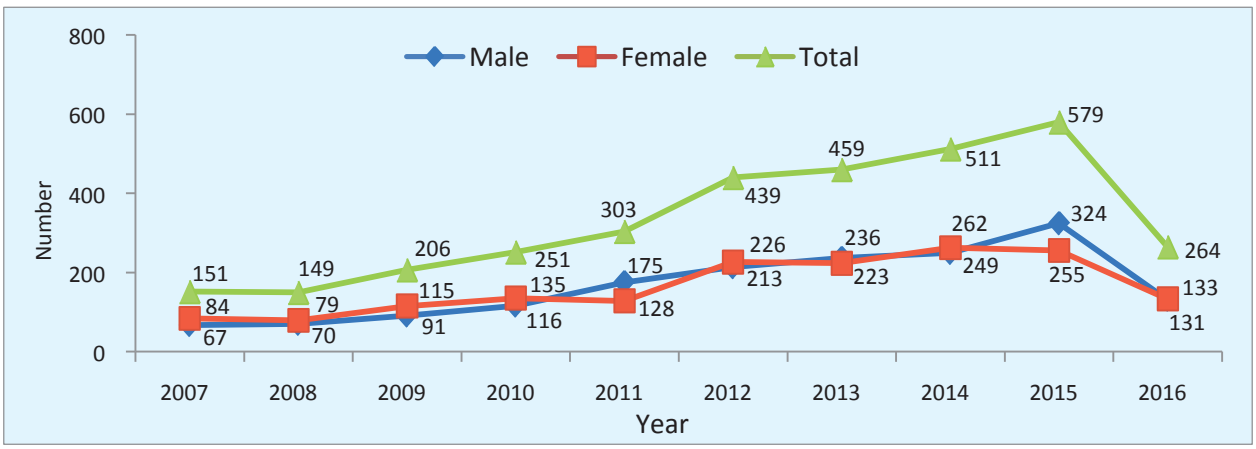


Figure 22 shows a gradual increase in the total number of graduates including both male and female segregation.

Figure 23: Year-wise distribution of total non-Bangladeshi MBBS students who graduated during 2007–2016



A gradual increase in the number of foreign MBBS graduates was noted from 2007 to 2016 with an exception between 2015 and 2016 (Figure 23). Of the total 3312 foreign students who graduated, 50% were female.

Figure 24: Total number of MBBS students who graduated in 2016

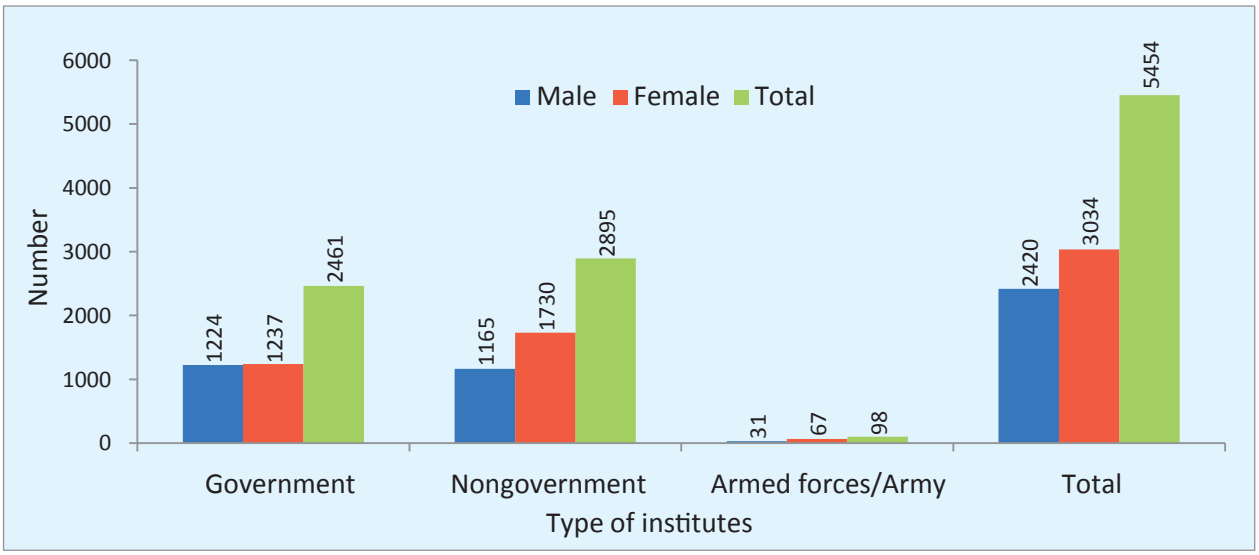
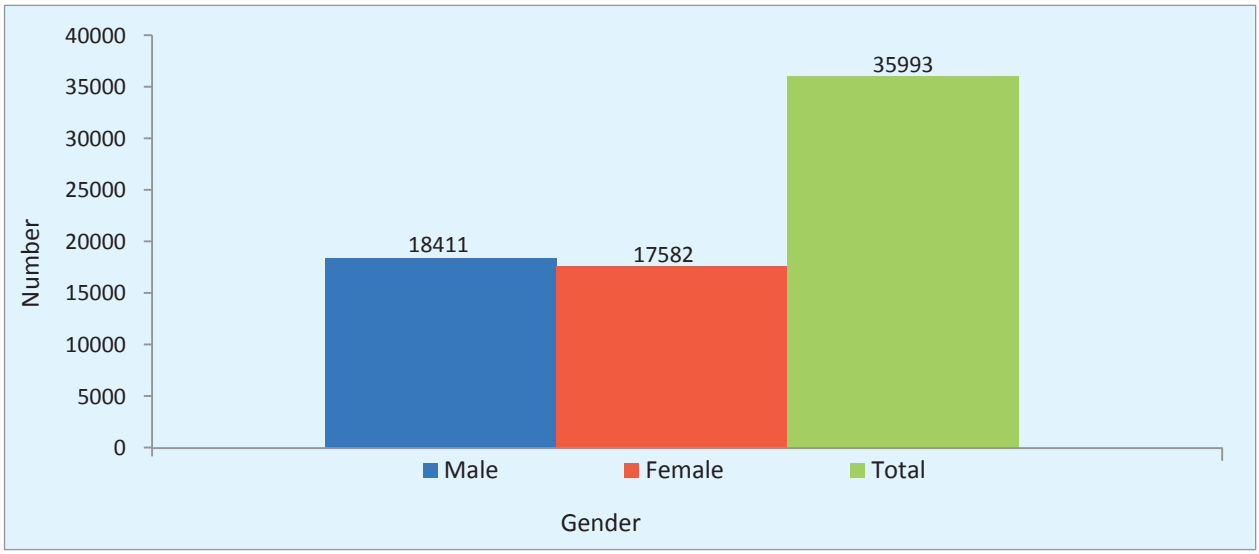


Figure 24 denotes the total number of graduates of all nationalities (Bangladeshi and non-Bangladeshi) for 2016 with male and female distribution. A total of 5454 students graduated, of which 45% (2461) were from government medical colleges and 53% (2895) were from the nongovernment medical colleges.

Refer to Annex 5 regarding year-wise graduation of MBBS students with male–female and nationality distributions in the public sector, private sector and armed forces medical colleges.

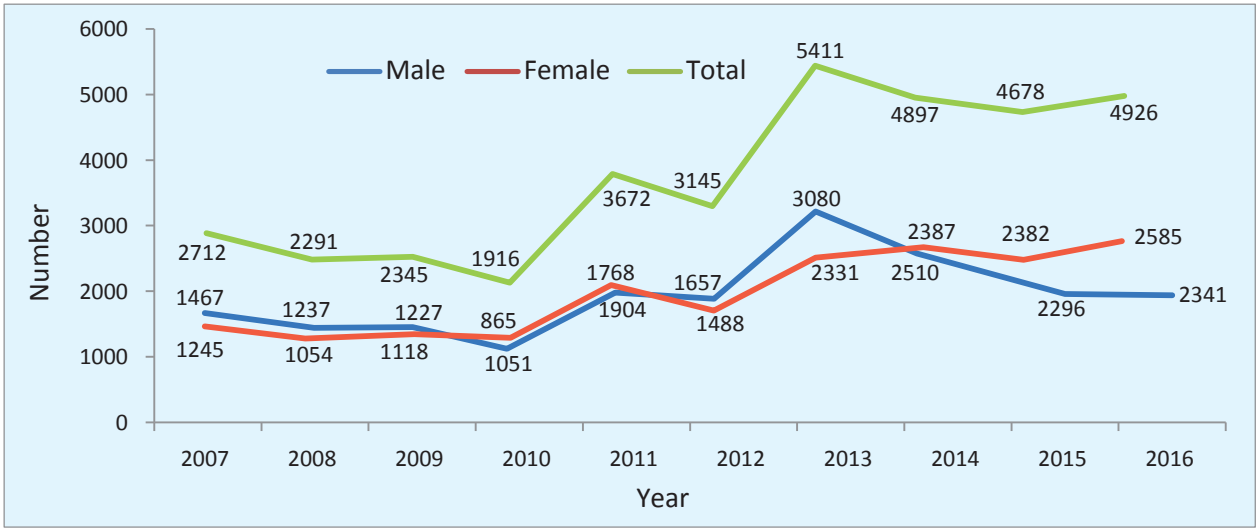
Number of MBBS graduates registered with the Bangladesh Medical and Dental Council (BMDC)

Figure 25: Total number of MBBS graduates registered during 2007–2016, by gender



According to BMDC data, 35,993 MBBS graduates were registered/licensed with them for professional practice during 2007–2016. Renewal of registration was mandatory for all physician practitioners as per regulation of the BMDC, however the total figures did not conform. Among the total number of registered graduates, 49% were female and 51% were male.

Figure 26: Year-wise distribution of registered MBBS graduates during 2007–2016



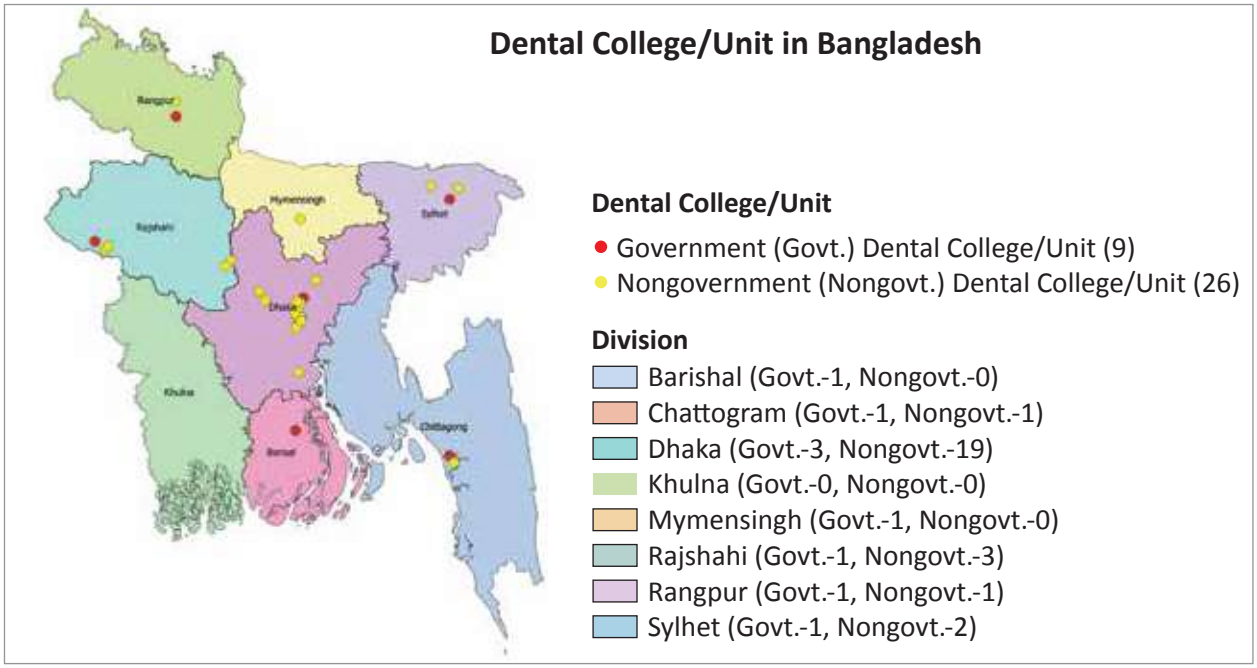
On an average, 3599 MBBS graduates received registration/license from the BMDC every year. During 2007–2016, 1758 female and 1841 male MBBS graduates were registered/licensed with the BMDC every year.

Dental college (BDS)

General information

Map 3 below illustrates the distribution of dental colleges/units among the eight administrative divisions in Bangladesh. Severe misdistribution of dental institutes was clearly notified.

Map 3: Geographical locations of dental colleges/units in Bangladesh



According to Table 9 below, of the 35 dental institutes (including colleges and units) registered/recognized from the MoHFW until December 2016, nine were in the public/government sector and 26 were in the private/nongovernment sector. Of the total 1932 available seats, 532 (28%) were in government dental colleges/units and remaining 1400 (72%) were in the private/nongovernment dental colleges/units. The "unit" is not a separate or individual institution, but a part of the broader institution and in most cases, it is an extended organ of the respective medical college.

Table 9: Number of dental colleges/units offering BDS degree with available seats (by 2016)

Type of ownership	Number of dental colleges/units		Total	Number of seats
Government	**College**	**Unit**	9	532
	1	8		
Nongovernment	**College**	**Unit**	26	1400
	14	12		
		Total	35	1932

Figure 27: Total number of students admitted into BDS course against the available seats in BDS in 2016

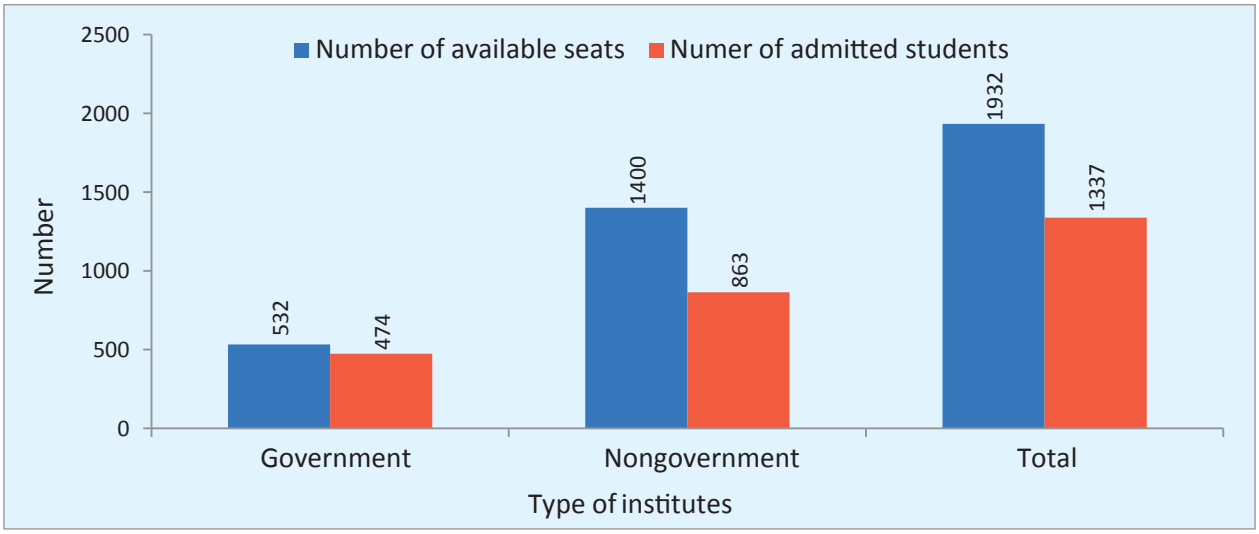


Figure 27 shows that of the total 1932 seats for the BDS course in government and nongovernment dental colleges/units, 1337 (69%) students were admitted. Approximately 31% of the total number of seats was left vacant in academic year 2016–2017. Of the total 532 seats in the government colleges/units, 474 seats were filled up and about 11% (58 seats) remained vacant. On the other hand, of the 1400 seats available in the nongovernment sector in 2016, 863 seats (62%) were filled up and 38% were left vacant.

Figure 28: Distribution of dental colleges/units in various divisions in Bangladesh

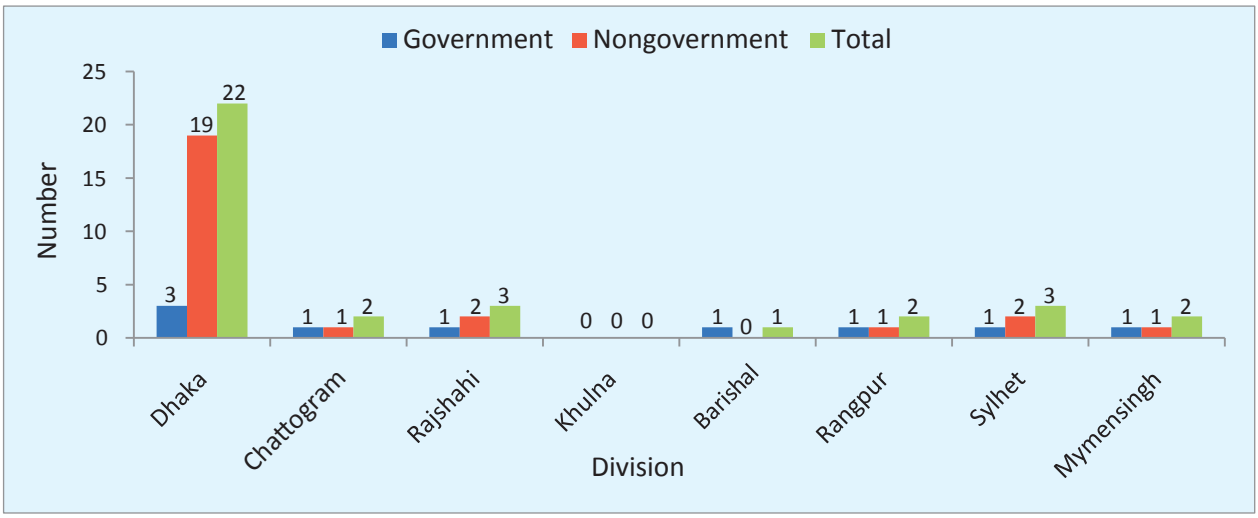


Figure 28 shows that the Dhaka Division consisted of the most number of colleges – 22 dental colleges/units, which is 63% of the total; of which 19 were nongovernment and three were government colleges/units. Khulna Division, had no dental college or unit, and the Barishal division had no private or nongovernment dental college/unit.

Figure 29: Number of dental colleges established since 1971 with interval of years

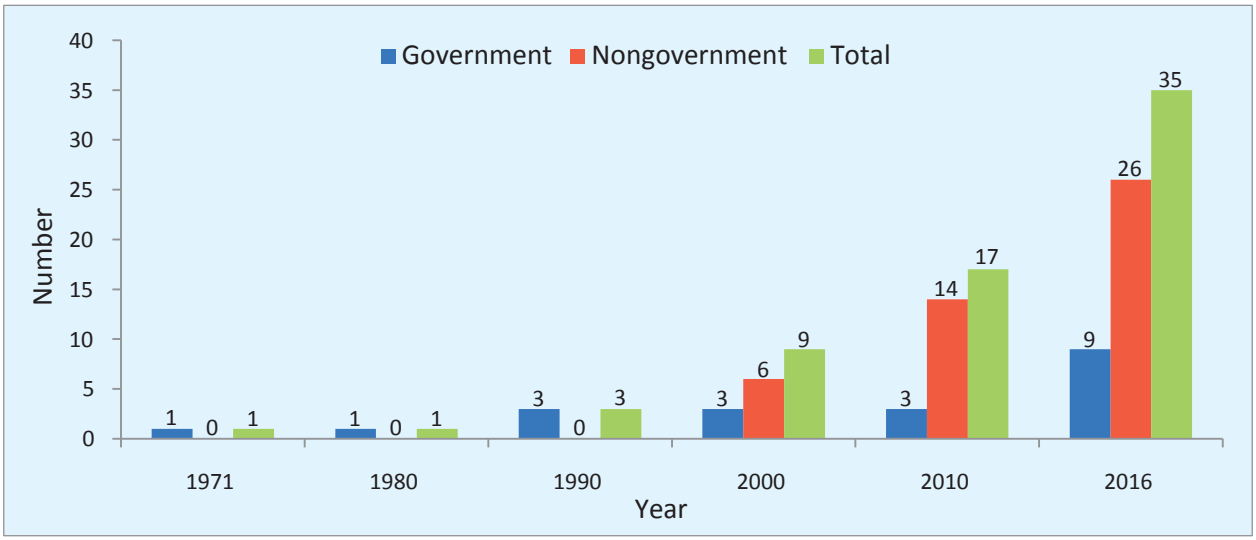
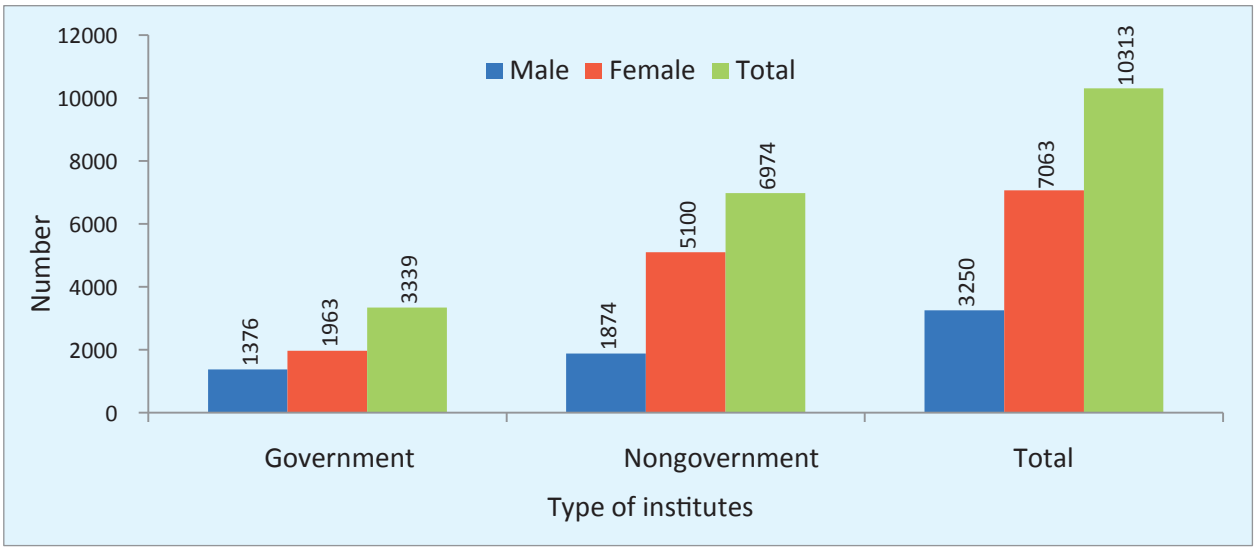


Figure 29 shows that only one dental college existed in 1971 and in 1980; in 2000, it increased to three government dental colleges and six nongovernment dental colleges/units. In 2010, the number of government dental colleges remained the same, but the number of nongovernment dental colleges increased to 14. In 2016, the number of government dental colleges/units increased to nine (200% increase in 16 years) and the number of nongovernment dental colleges/units increased to 26 (333% increase in 16 years).

Admission in BDS

During 2007–2016, 10313 BDS students were admitted into both government and nongovernment dental colleges/units (Figure 30).

Figure 30: Total number of students admitted into BDS course during 2007–2016, by type of institute



Of the total 3339 students, 32% were admitted to government-owned dental colleges/units and the remaining 68% (6974) were admitted into the nongovernment dental colleges/units. Of the total admitted students, 68% were female and 32% were male. The number of female students (about 72%) was more in nongovernment colleges.

Figure 31: Year-wise distribution of total students admitted into BDS course during 2007–2016, by male–female segregation

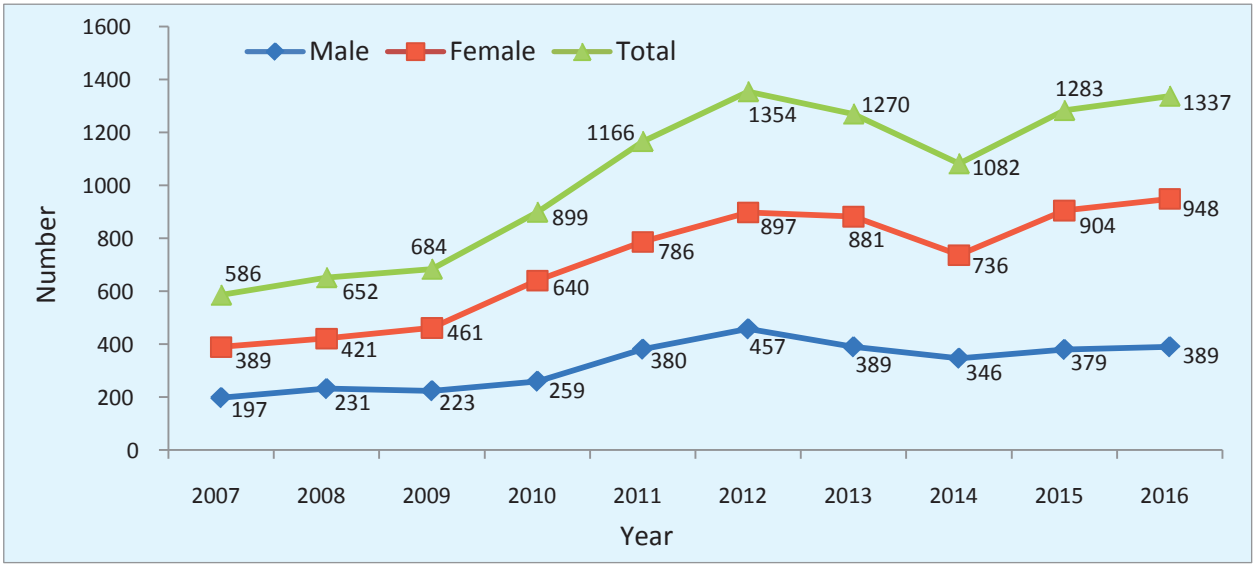


Figure 31 shows a gradual year-wise increase in the total number of admitted students. However, on an average 1031 students were admitted every year for the study of BDS in Bangladesh during 2007–2016. This figure also denotes that on an average 706 female students and 325 male students were admitted every year in both government and nongovernment dental colleges/units.

Figure 32: Number of students admitted into BDS course during 2007–2016, by nationality

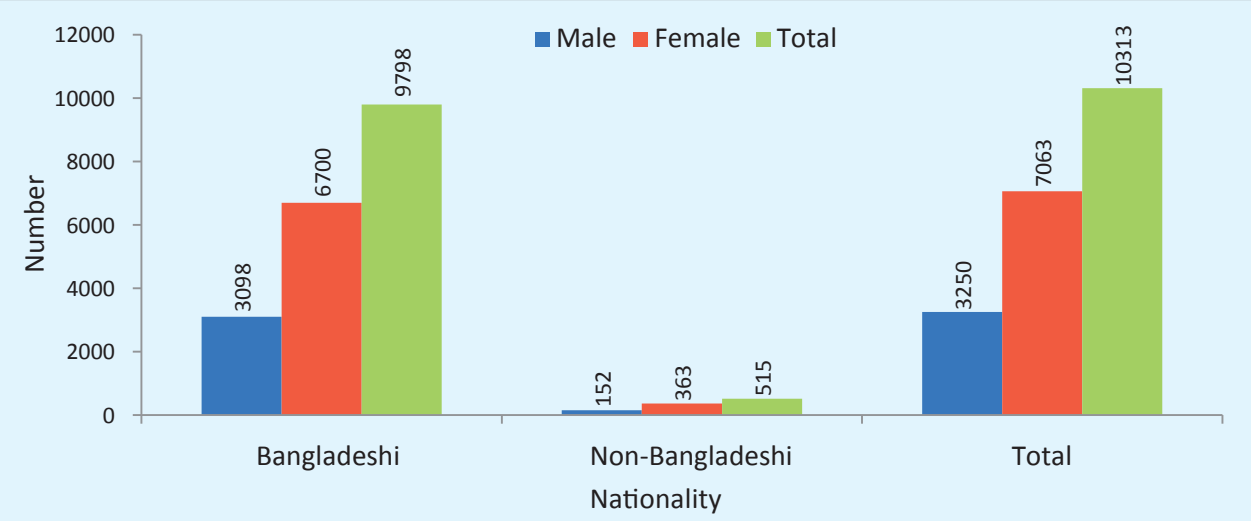


Figure 32 indicates that of the 10,313 students admitted to BDS course, 9798 (95%) were Bangladeshi nationals and only 5% were non-Bangladeshi nationals. Among the total admitted students, 7063 (68%) were female and 3250 (32%) were male. Among the Bangladeshi students, 68% were female.

Figure 33: Number of total students admitted into BDS course in 2016

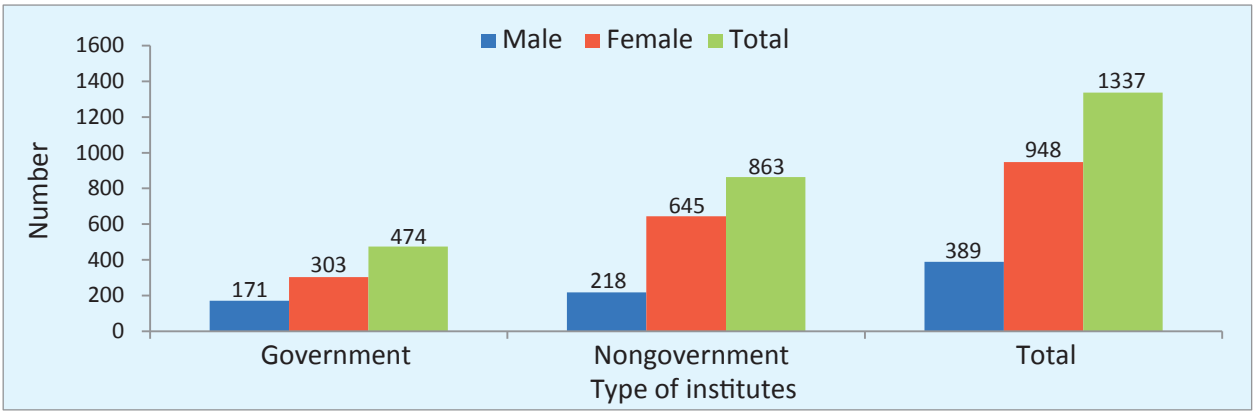
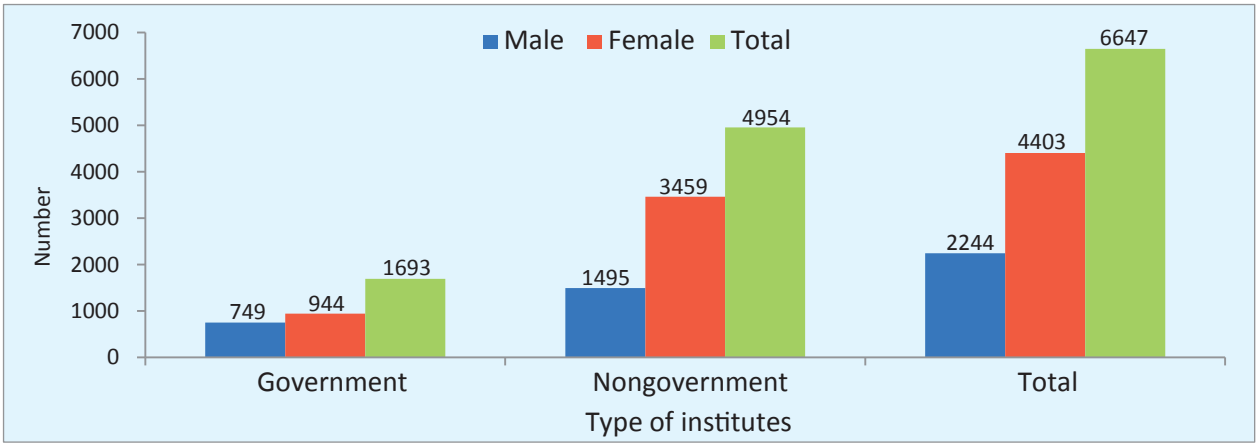


Figure 33 indicates the total number of BDS students admitted in the year 2016 with male and female distribution in the government and nongovernment dental colleges/units. The number of female students was on the rise in comparison to the number of male students for both government and nongovernment institutions.

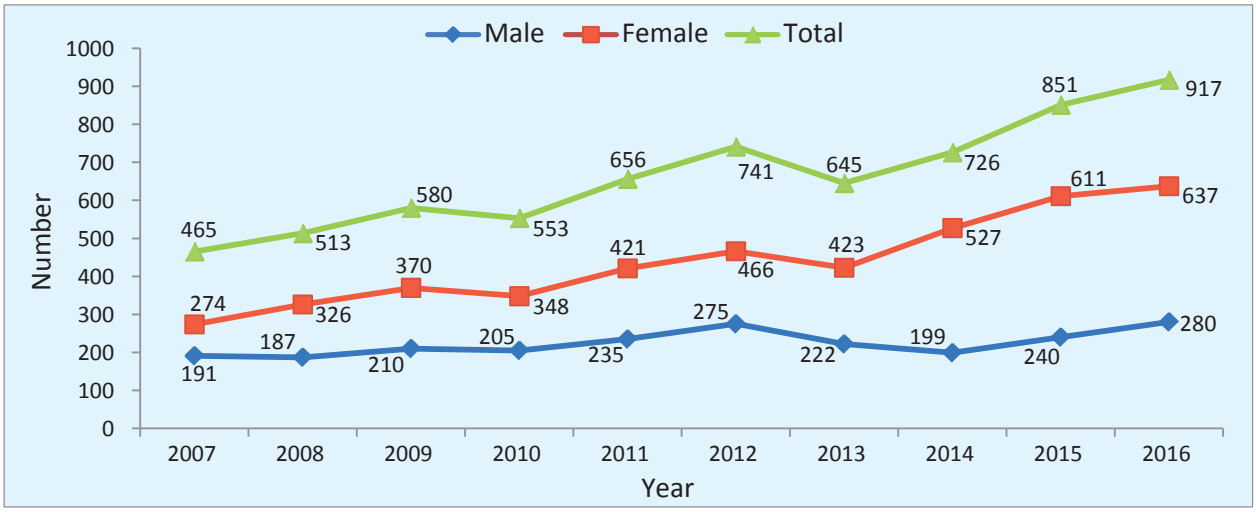
Graduation in BDS

Figure 34: Total number of BDS students who graduated during 2007–2016



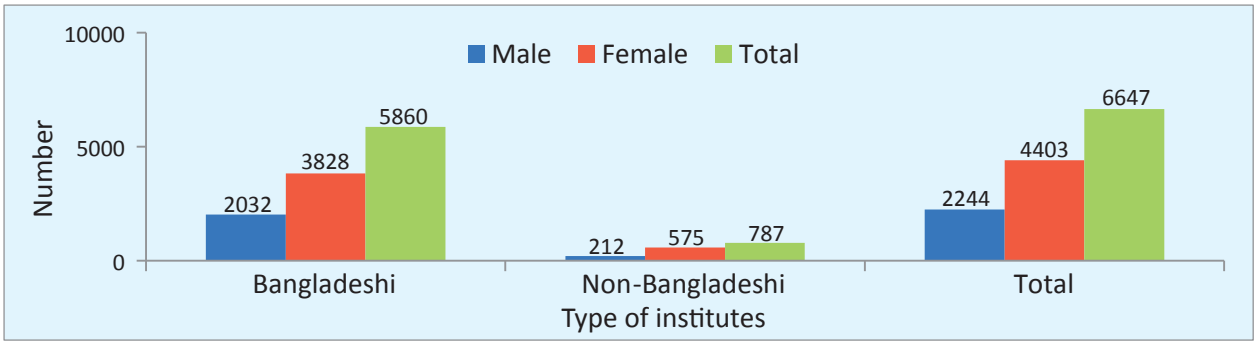
According to Figure 34, of the 6647 BDS students who graduated during 2007–2016, 25% were from government dental colleges and the remaining (75%) from the nongovernment dental colleges; and of the total graduates, 34% were male and 66% were female.

Figure 35: Year-wise distribution of total number of BDS students who graduated during 2007–2016



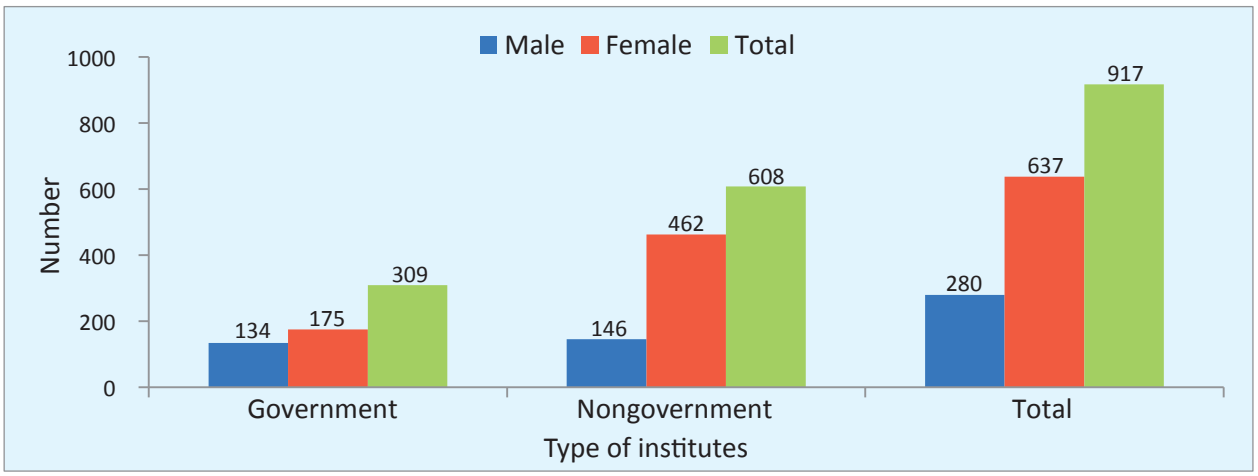
The trend in distribution of BDS students shows that the number of graduates was increasing almost every year (Figure 35). The figure also indicates that the number of female graduates was consistently more than the number of male graduates.

Figure 36: Total number of BDS students who graduated during 2007–2016, according to nationality



Of the 6647 BDS students who graduated during 2007–2016, 88% were Bangladeshi and 12% were non-Bangladeshi. Of the total number of BDS graduates, 66% were female and 34% were male; 73% of non-Bangladeshi graduates, were female.

Figure 37: Total number of BDS students who graduated in 2016



Of the total 917 graduates in 2016, 69% were female and 31% were male (Figure 37). Furthermore, about 34% of the total students graduated from government dental colleges/units and 66% from nongovernment dental colleges.

Figure 38: Number of Bangladeshi BDS students who graduated in 2016

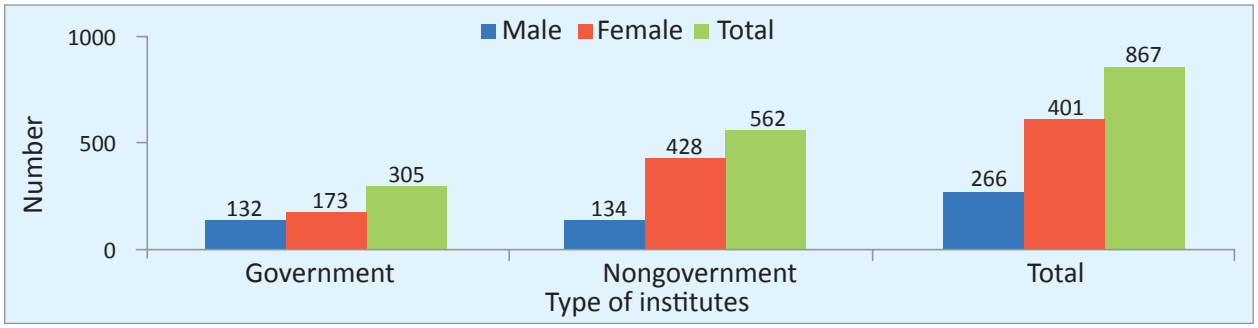


Figure 38 shows that 867 Bangladeshi BDS students graduated in 2016, of which 69% were female and 31% were male. Among the graduates, 57% graduated from nongovernment dental colleges and 43% from government dental colleges.

Figure 39: Number of non-Bangladeshi BDS students who graduated in 2016

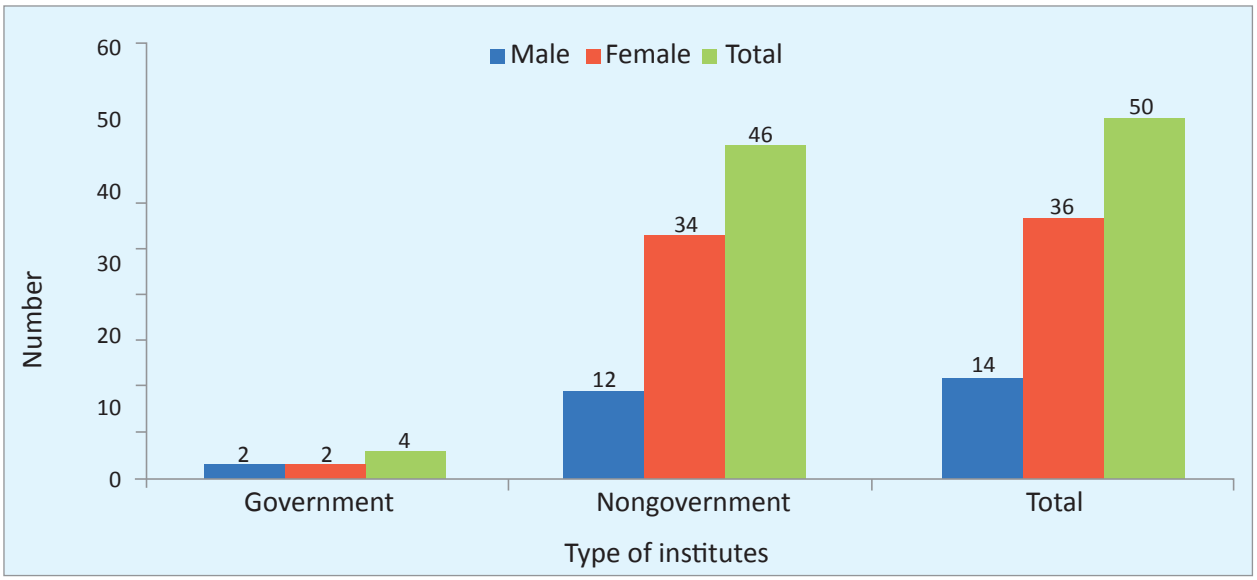
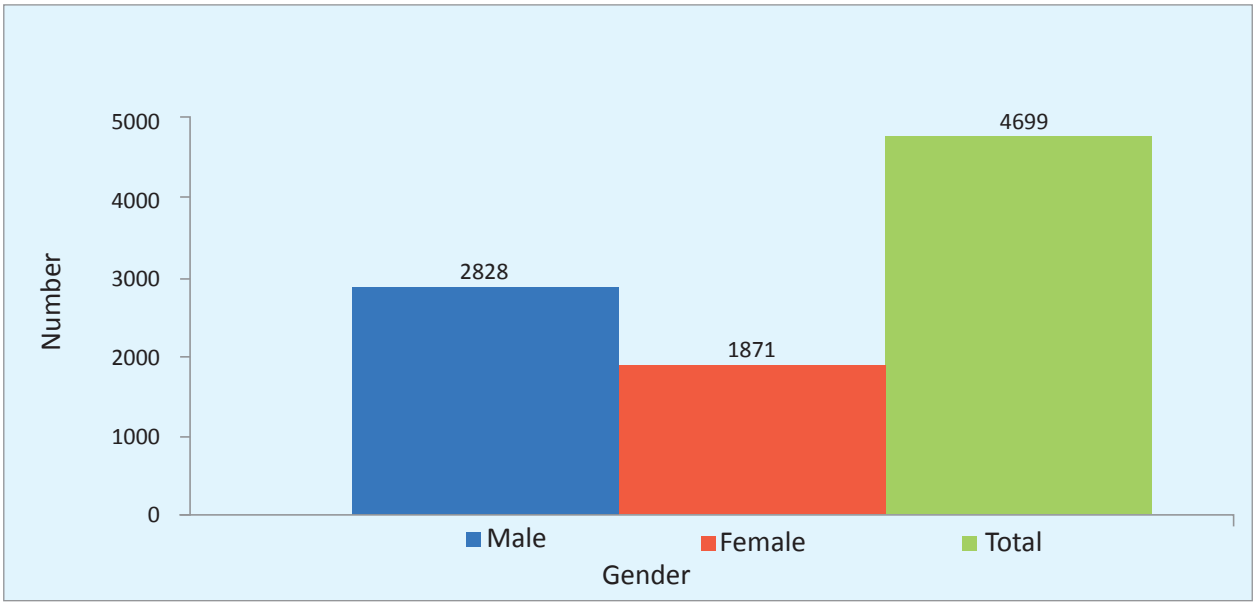


Figure 39 shows that of the total 50 non-Bangladeshi students who graduated in 2016, 72% were female (36) and 28% were male (14). Only four students graduated from government dental colleges.

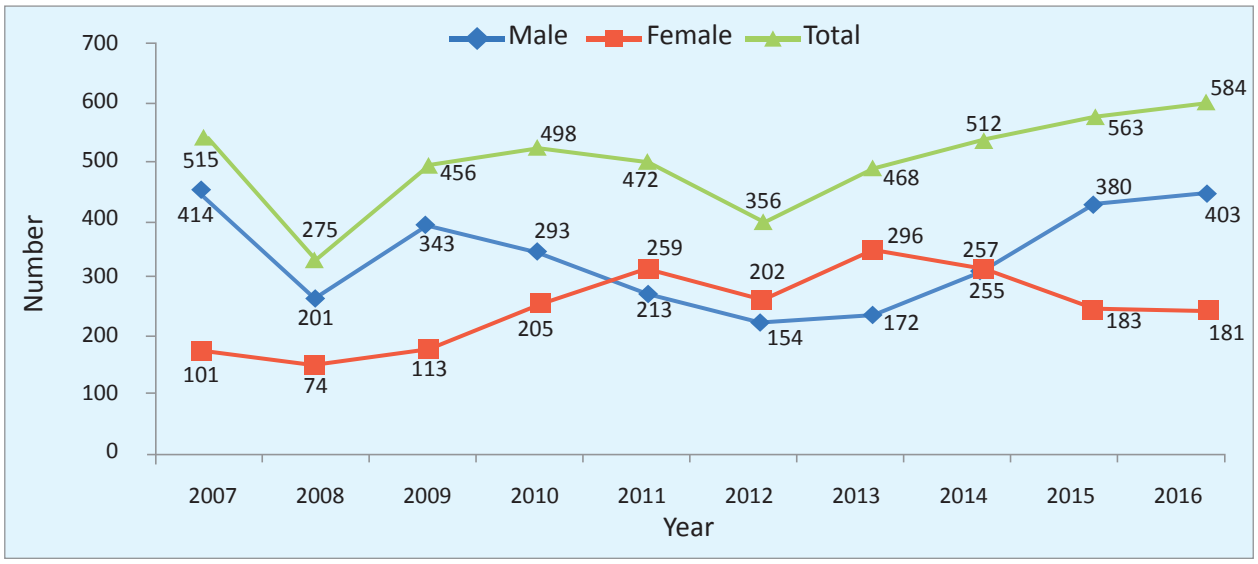
Number of BDS graduates registered with Bangladesh Medical and Dental Council (BMDC)

Figure 40: Total number of BDS graduates who registered during 2007–2016



According to Figure 40, 4699 BDS graduates registered with the BMDC during 2007–2016. This included both Bangladeshi and non-Bangladeshi nationals. Of these 40% were female and 60% were male.

Figure 41: Year-wise distribution of registered BDS graduates during 2007–2016



A fairly increasing trend in the number of registered BDS graduates was noted (Figure 41) despite fluctuations in the number of male and female BDS graduates. The number of male graduates was greater than female. Moreover, in terms of the numbers of admitted students and graduates, the females were more prominent.

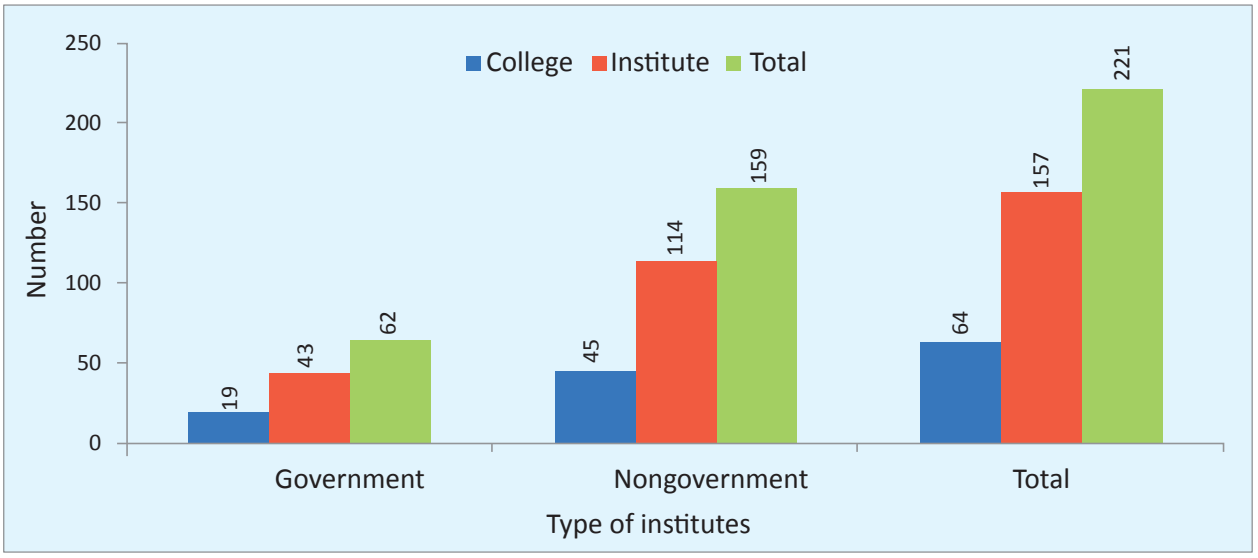
Refer to Annex 5 for data on year-wise admission and graduation of BDS students with male–female and nationality distributions in the public sector and private sector dental colleges/units.

Nursing and midwifery educational institutions

General information

There are numerous nursing and midwifery colleges and institutes in Bangladesh providing different levels of degrees, such as BSc in Nursing, Diploma in Nursing and Diploma in Midwifery.

Figure 42: Number of nursing andmidwifery colleges and institutes in Bangladesh up to 2016



Of these institutions, only 28% (total 62; 19 colleges and 43 institutes) belonged to government sector while the remaining 72% (total 159; 45 colleges and 114 institutes) was affiliated with the nongovernment sector. Among these institutions, 64 were colleges (government 19, nongovernment 45) and 157 were institutes.

Figure 43: Distribution of nursing and midwifery educational institutions in Bangladesh, by course

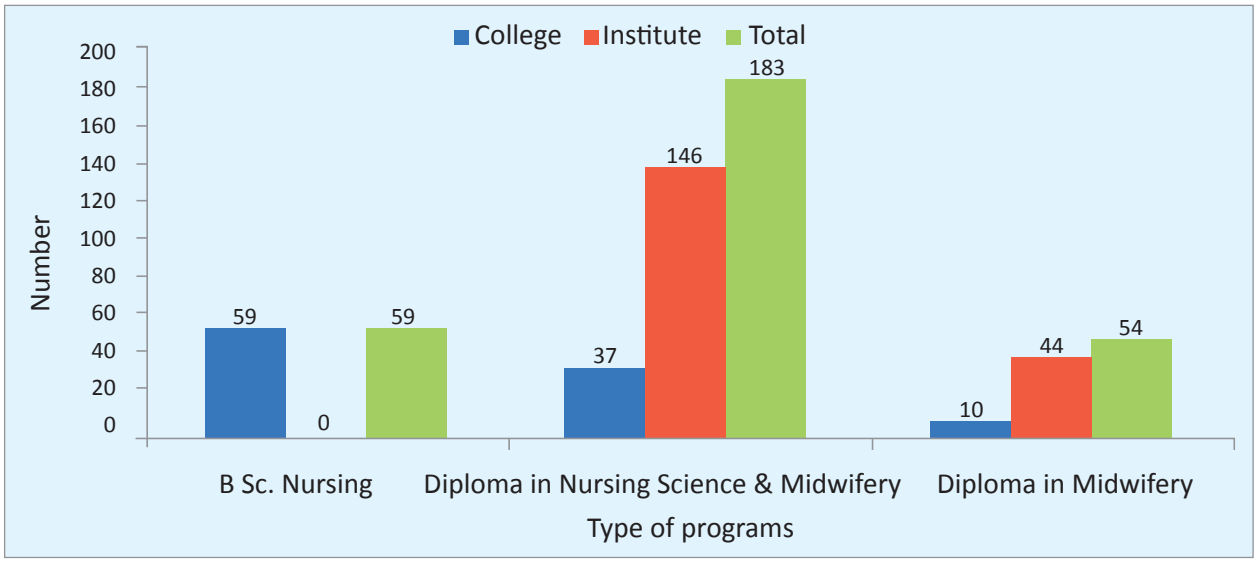


Figure 43 shows that 59 colleges provided BSc in Nursing degree, and 183 institutions offered Diploma in Nursing Science and Midwifery (37 were nursing colleges and 146 were institutes). The 37 colleges offered both BScN degree and diploma. However, 54 institutions offered Diploma in Midwifery degree, of which 10 were colleges and 44 were institutes.

Figure 44: Total number of admitted, graduated and registered/licensed with Bangladesh Nursing and Midwifery Council (BNMC) during 2007–2016

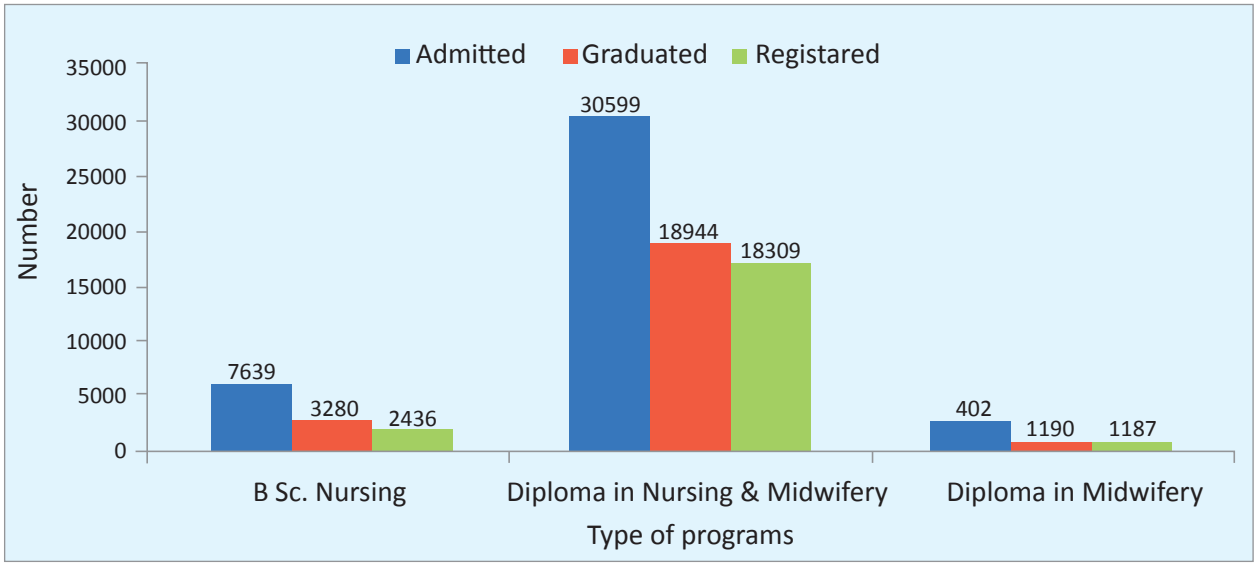


Figure 44 indicates that of the 7639 students admitted into BSc. in Nursing; 3280 graduated; and 2436 got registered/licensed by the BNMC for professional practice. The number of total admissions was significantly higher because of rapid growth of both public and private sector institutions.

Of the 30,599 students admitted into Diploma in Nursing Science and Midwifery, 18,944 graduated and 18,309 got registered or licensed by the BNMC for professional practice. As for Diploma in Midwifery, 3402 were admitted, 1190 graduated and 1187 became registered for professional practice during 2013–2016 (as the course commenced only in 2013).

Figure 45: Distribution of nursing and midwifery educational institutions among the various divisions of Bangladesh up to 2016

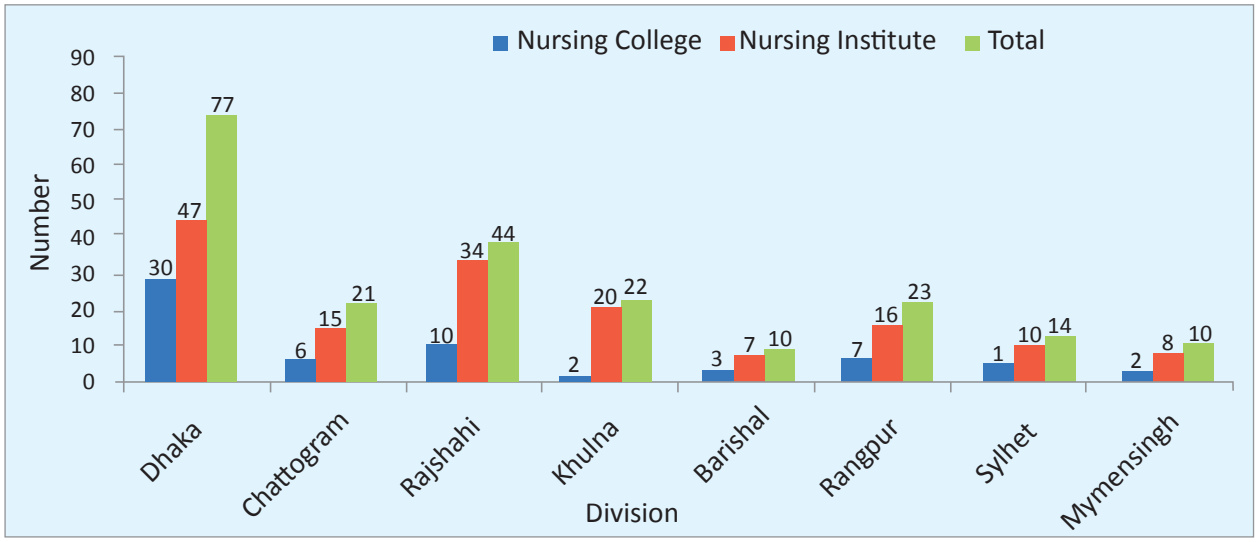
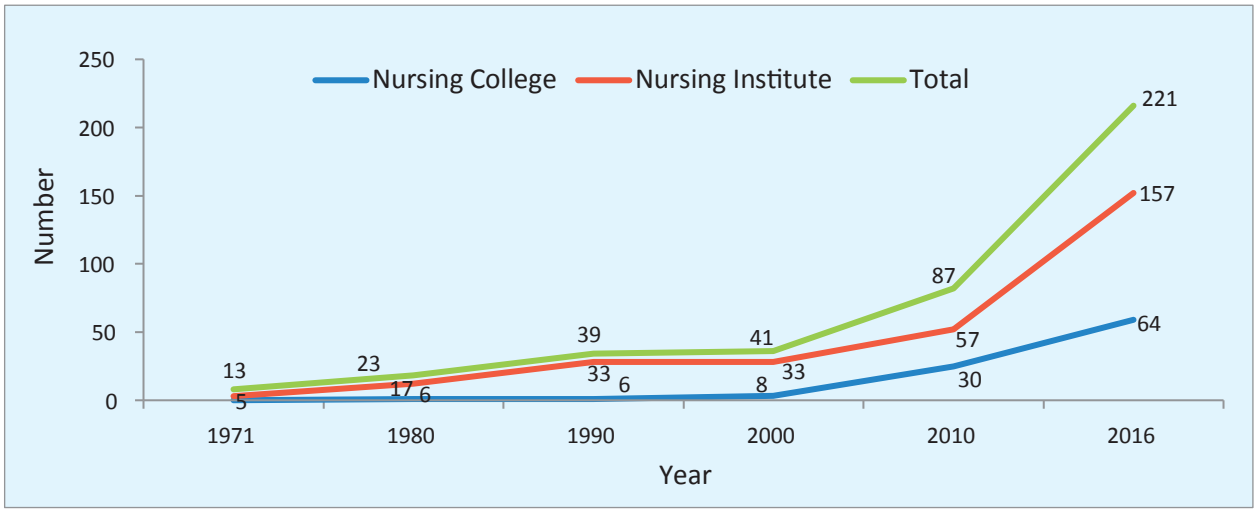


Figure 45 shows that approximately 35% of the institutions were located in the Dhaka Division, which was the highest among all eight divisions. Chattogram division had 10% institutions, Rajshahi 20%, Khulna 10%, Rangpur 10%, Sylhet 6%, Barishal 5%, and Mymensingh 5%.

Figure 46: Number of nursing and midwifery educational institutions established between 1971 and 2016



The number of nursing and midwifery educational institutions increased significantly only since 2010 from only 87 to 221 by 2016. This is almost a 154% (nearly 1.5 times) increase in only six years and 439% (4 times) increase compared to 2000. There was a 17 times increase in the number of nursing and midwifery colleges and institutes between 1971 and 2016 (Figure 46). A similar trend was also observed for both professions, i.e. nursing and midwifery, and included BSc and diploma courses.

BSc in Nursing (BScN)

Admission

Figures 47 and 48 show the distribution of 59 colleges that offered BScN degree with 3220 available seats, by type.

Figure 47: Number of nursing colleges offering BScN up to 2016

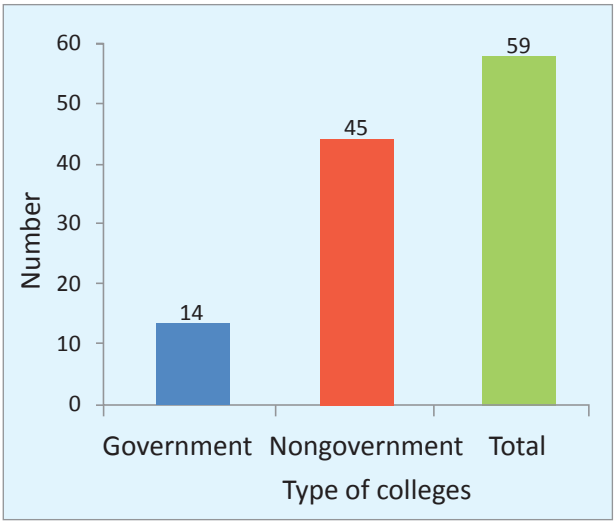
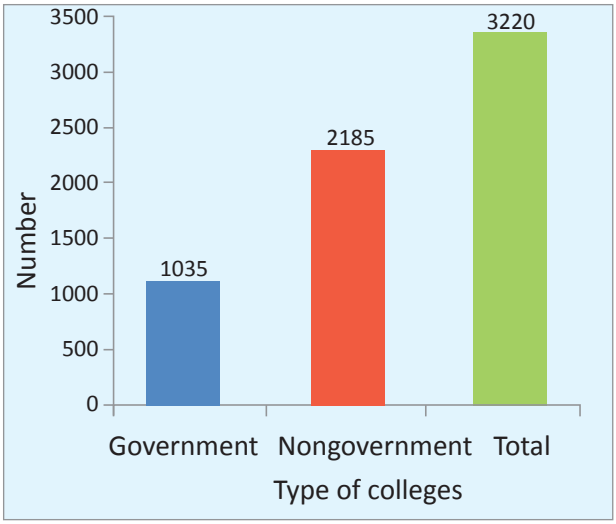
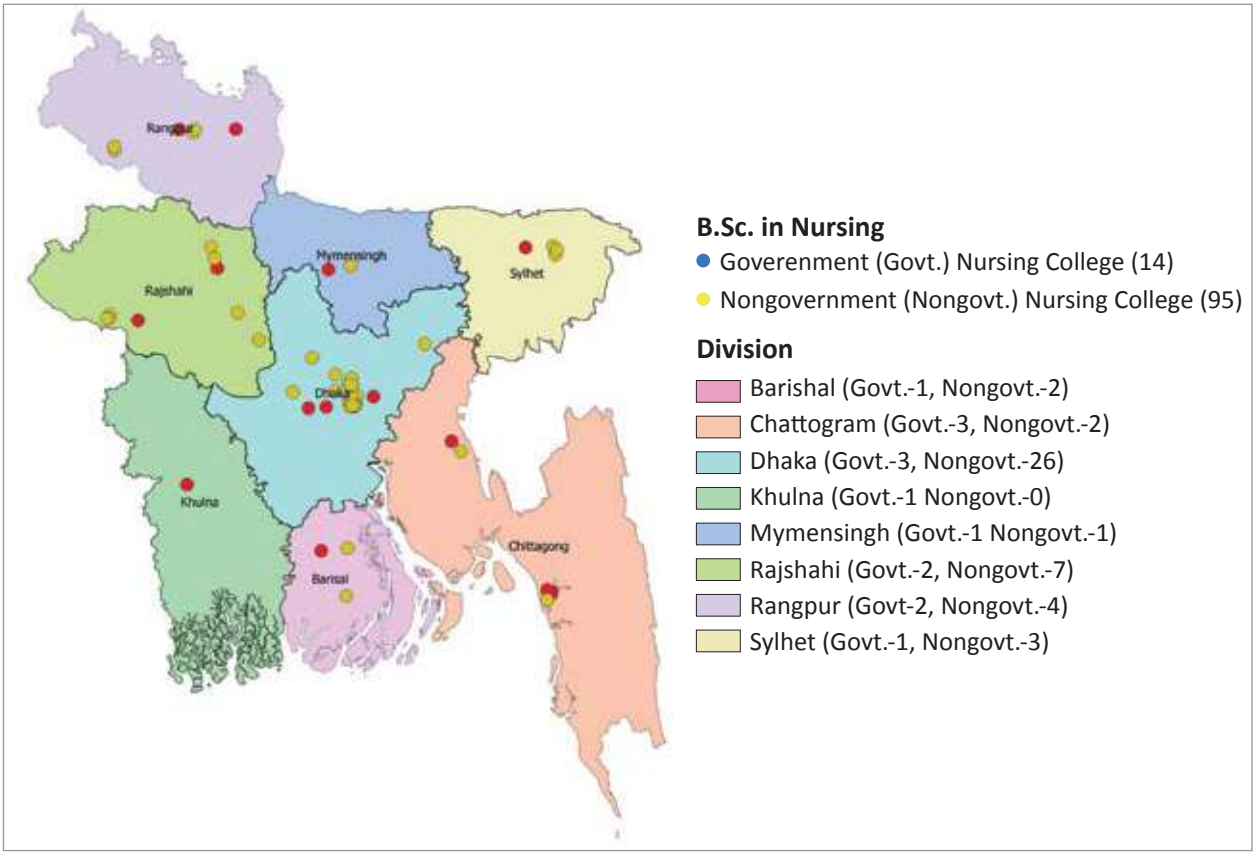


Figure 48: Number of seats in nursing colleges up to 2016



Among the 59 colleges, 24% (14) were in the government sector (with 32% of the total number of available seats (1035)) and 76% were in the nongovernment sector (with 68% of the total number of available seats).

Map 4: Geographical distribution of the nursing colleges that offered BScN degree in Bangladesh



Based on Map 4, among the total nursing colleges in Dhaka Division, 29 nursing colleges (which is 49% of the total) offered BScN degree. Of the total nursing colleges that offered BScN degree in Dhaka, 26 were nongovernment and three were government colleges. In Khulna division, there was no private or nongovernment nursing college that offered BScN degree.

Figure 49: Total number of students admitted into BSc in Nursing during 2007–2016, with male–female distribution

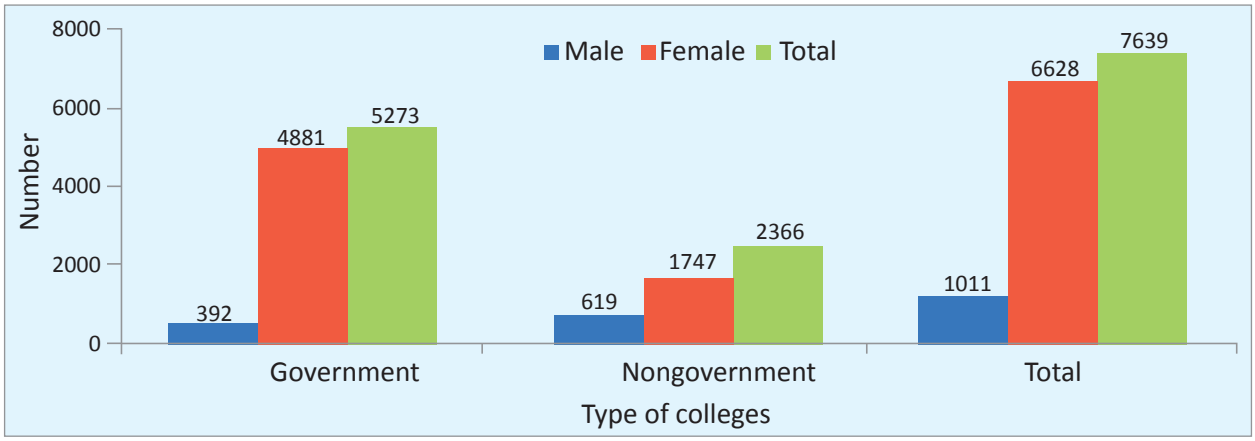
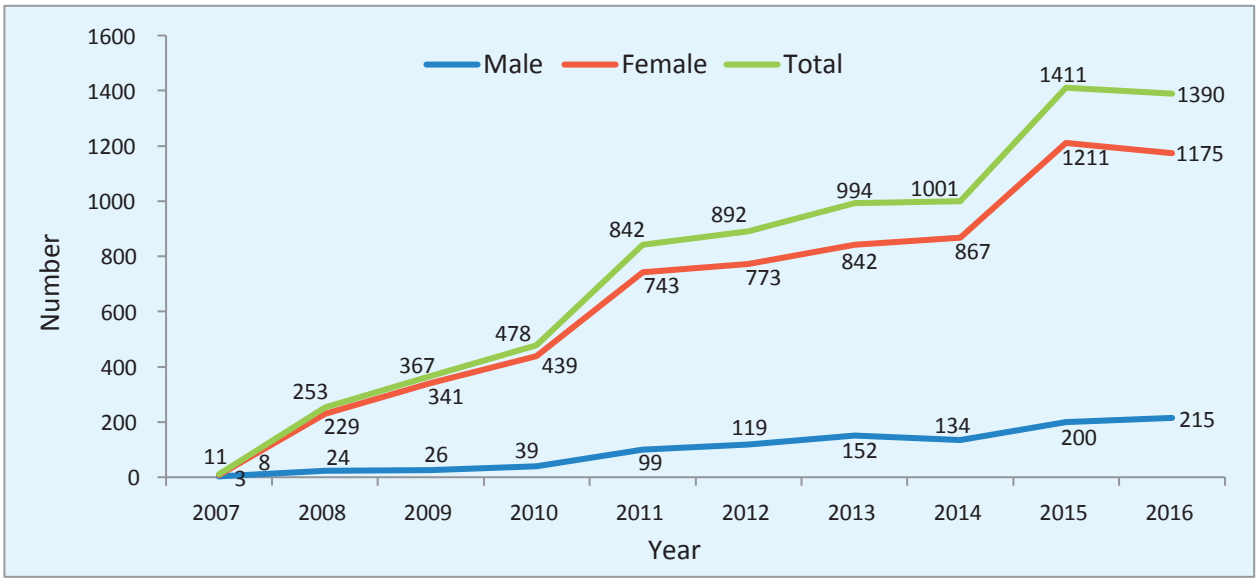


Figure 49 indicates that of the total number of students (7639), admitted to the BSc in Nursing course in both government and nongovernment institutions, approximately 87% were female and only 13% were male. In the nongovernment sector, 2366 students were admitted, which is about 31% of the total admitted students of which about 74% were female.

In the government sector, 4881 students were admitted of which approximately 93% were female. Figure 50 indicates a gradual and sharp rise in students admitted to BSc in Nursing during 2007-2016. This is mainly due to a policy that only allowed 10% of seats for male students in government and nongovernment colleges and institutes.[20]

Figure 50: Year-wise distribution of students admitted to BSc in Nursing during 2007–2016



In 2007 only 11 students were admitted tothe BSc. in Nursing course, while in 2016 the number reached to 1390. (BScN was introduced in 2007).

[20]According to the BSc in Nursing admission circular 2017 by DGNM date: 11/12/2017 (in Bangla)

Graduation in BSc in Nursing

Figure 51: Total number of students who obtained BScN during 2007–2016

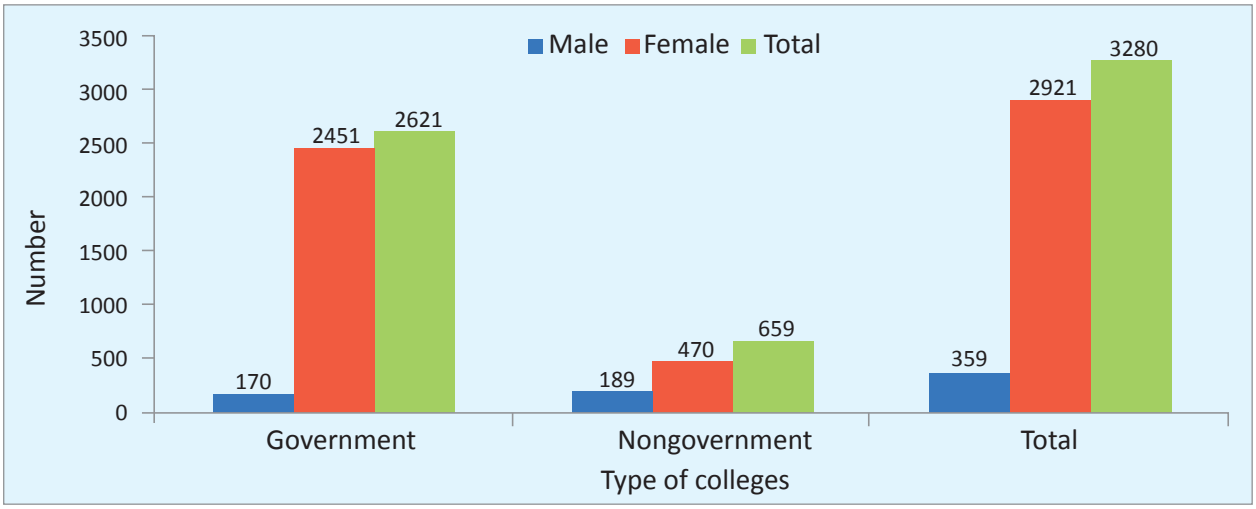
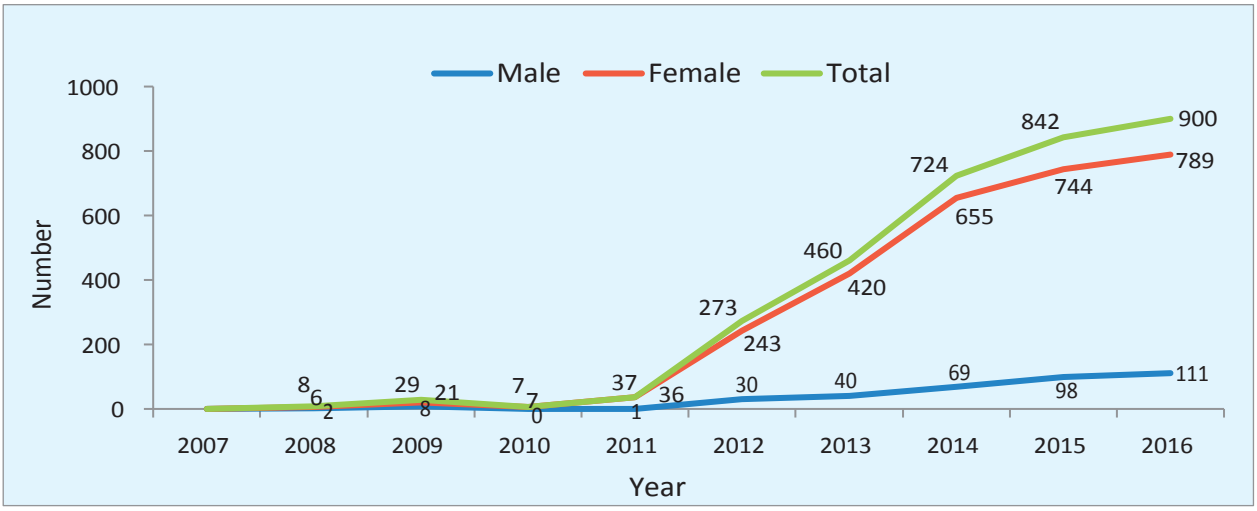


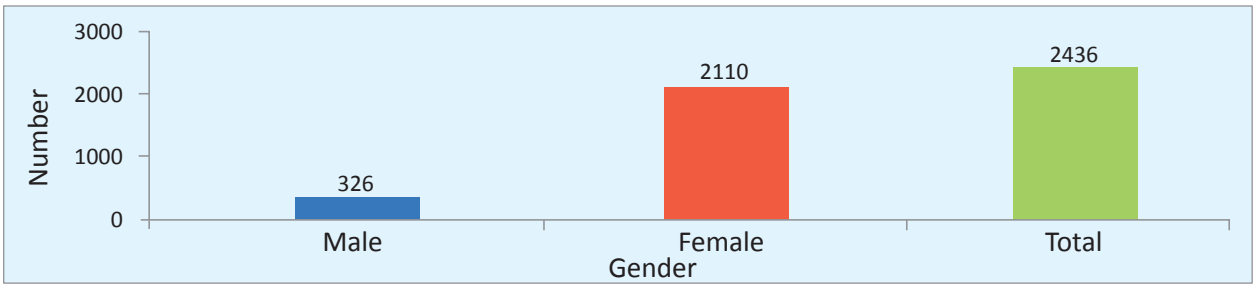
Figure 51 shows that 3280 students acquired BScN during 2007–2016, of which 89% were female, and approximately 80% graduated from government nursing colleges; the remaining 20% graduated from nongovernment nursing colleges. Of the total graduates, approximately 89% were female.

Figure 52: Year-wise distribution of students who acquired BSc in Nursing degree during 2007–2016



There has been a gradual increase in the number of students achieving BScN during 2007–2016. In 2012, the total number of graduates increased to 273, which was more than seven times higher than the number of graduates in 2011. In 2016, of the 900 students who acquired a BScN degree –approximately 230% increase from 2012– 88% were female.

Figure 53: Total number of BScN graduates registered during 2007–2016



According to BNMC data, 2436 BScN graduates were registered/licensed with them for professional practice during 2007–2016; of these about 87% were female.

Figure 54: Year wise distribution of the registered BScN graduates during 2007–2016

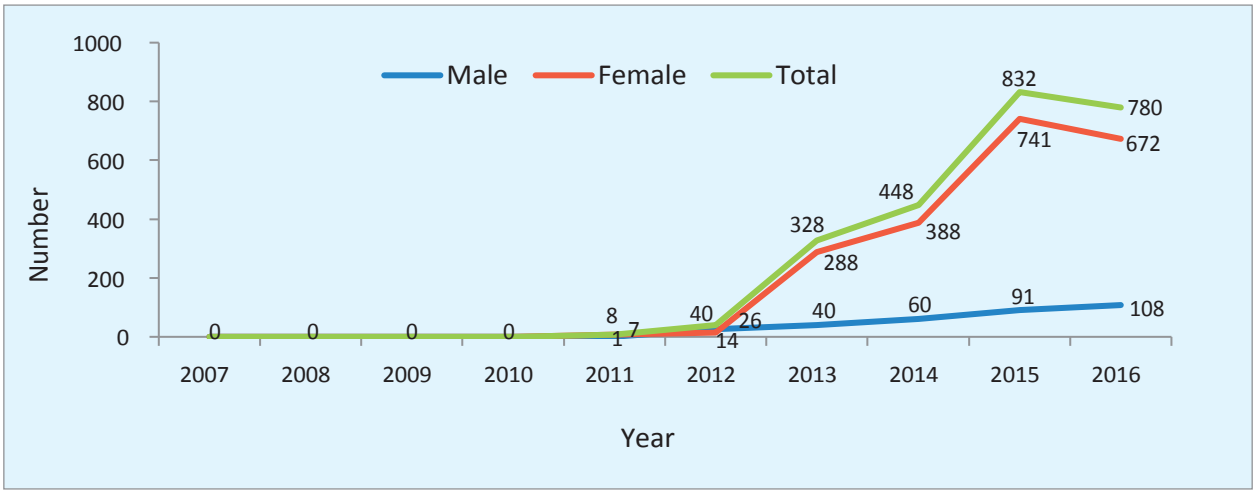


Figure 54 indicates year-wise distribution of the registered number of BScN graduates with male–female distribution for six years (2012–2016) (BNMC started registration of BSc. Nursing graduates in 2012). On an average 406 BScN graduates were registered/licensed with the BNMC every year. During 2012–2016, on an average 350 female and 54 male BScN graduates registered/licensed with the BNMC every year.

Figure 55: A comparison of the total number admitted, graduated and registered/licensed BScN professionals up to December 2016

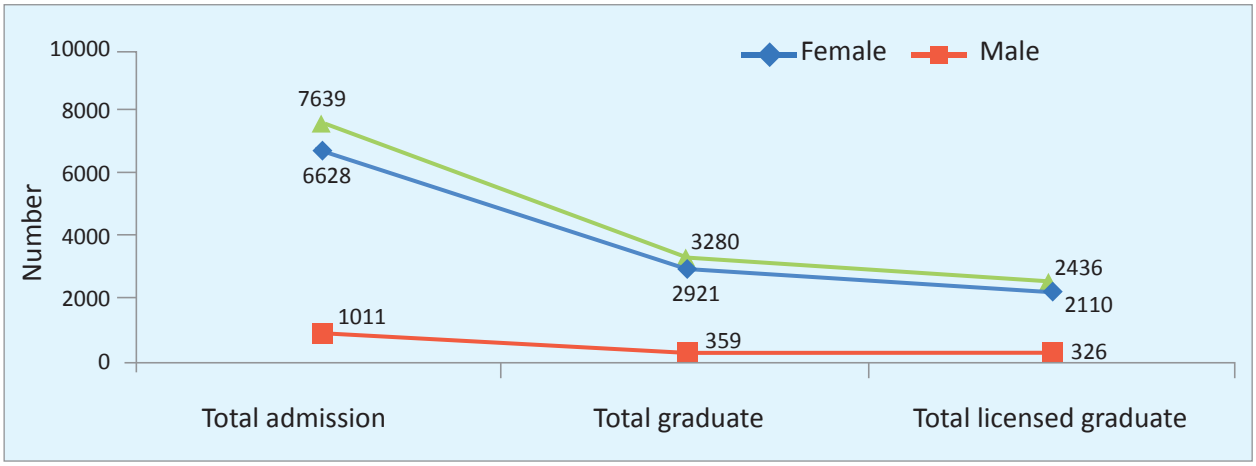


Figure 55 shows that 7639 students were admitted into the BScN course during 2007–2016; of these 3280 students graduated and 2436 of the graduates registered with BNMC up to December 2016. It can be assumed that there was a drop out of some students as well as graduates.

Refer to Annex 5 for data regarding year-wise admission and graduation of BScN students with male–female distribution in public and private sector nursing colleges and institutes.

Diploma in Nursing Science and Midwifery (DNSM)

Admission in nursing science and midwifery

Figure 56: Total number of institutions that offered Diploma in Nursing Science and Midwifery (by 2016)

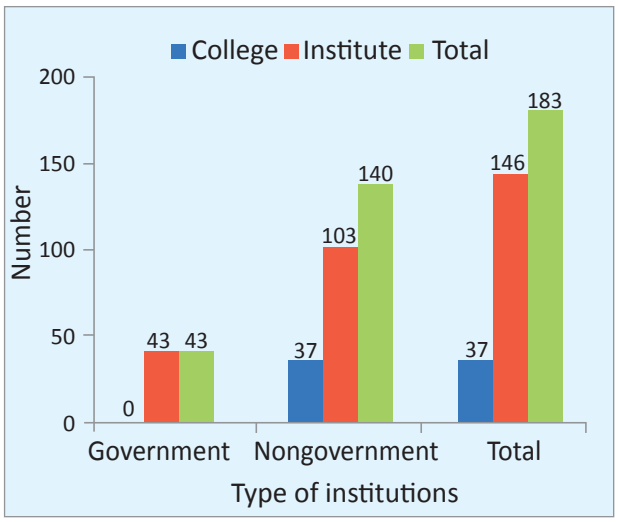
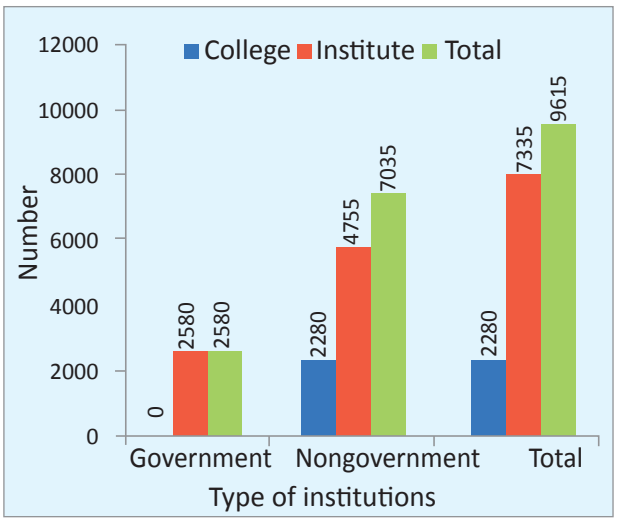
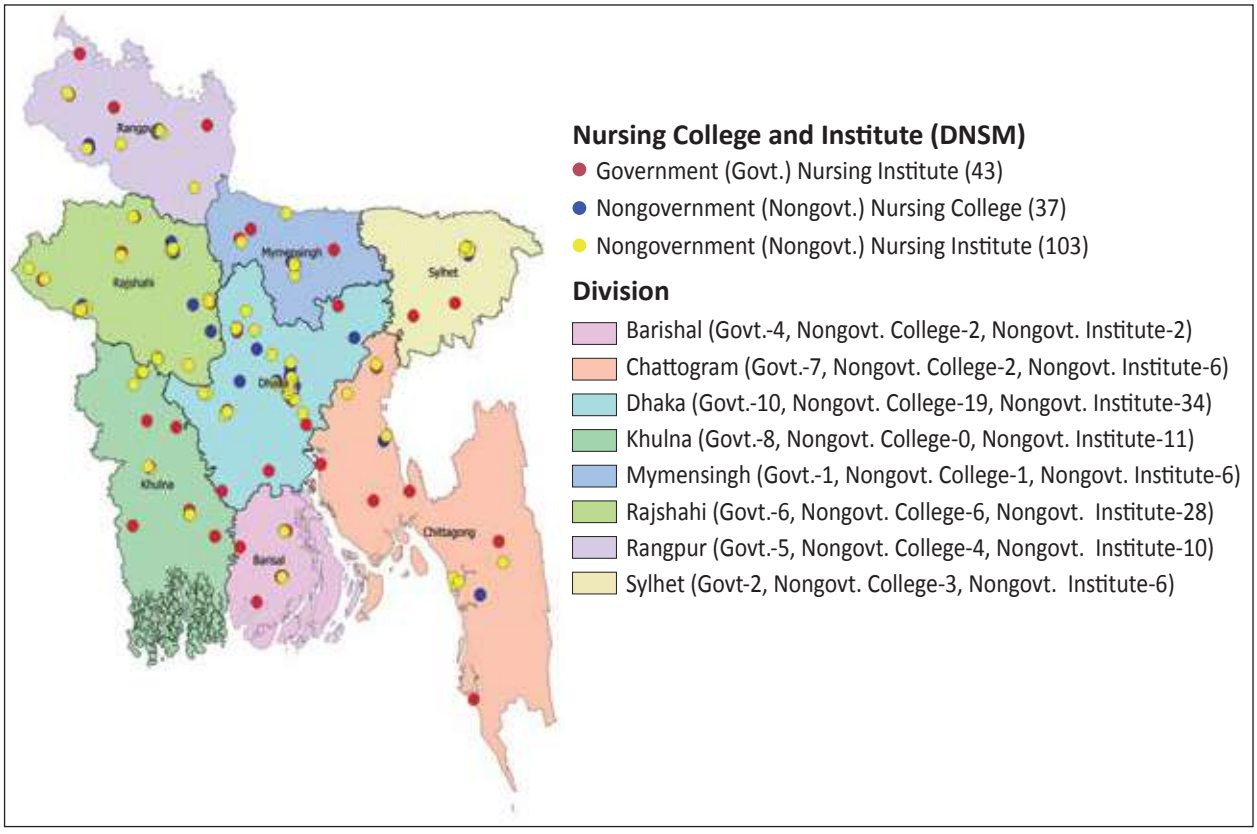


Figure 57: Number of available seats (by 2016)



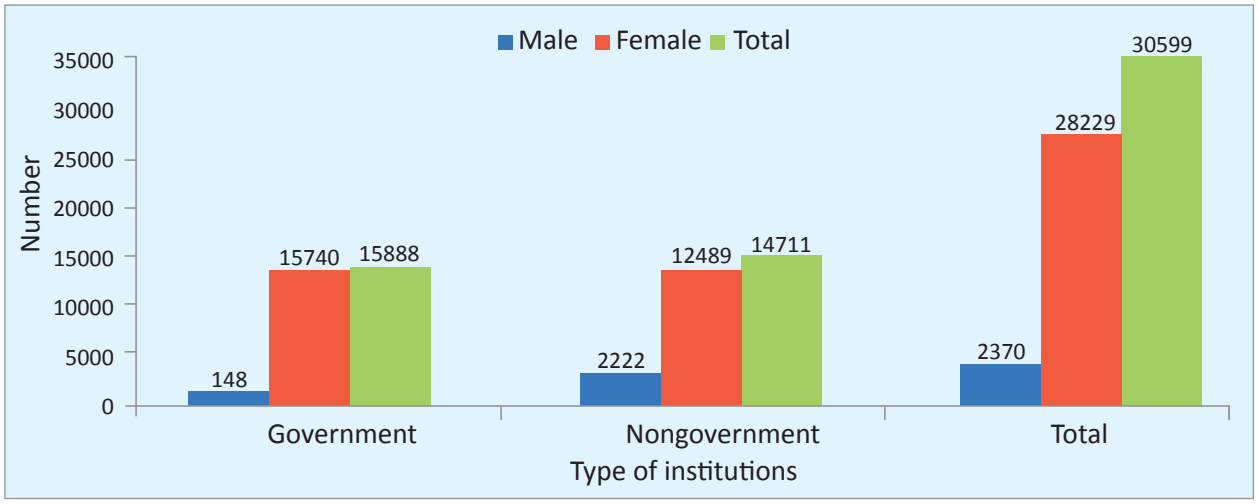
Figures 56 and 57 show that of the 183 institutions offering Diploma in Nursing Science and Midwifery (DNSM) as of 2016, the 9615 available seats. The government sector had 43 (23%) institutions and a 27% share of total number of available seats. On the other hand, the nongovernment sector had 77% of institutions (37 colleges and 103 institutes) that owned 73% of the total number of seats.

Map 5: Geographical distribution of nursing colleges and institutes that offered Diploma in Nursing Science and Midwifery (DNSM) in Bangladesh



Map 5 clearly illustrates the maldistribution of nursing colleges and institutes offering DNSM in Bangladesh, with the Dhaka Division having 63 (34% of total) nursing colleges and institutes offering DNSM.

Figure 58: Total number of students admitted into Diploma in Nursing Science and Midwifery during 2007–2016



Of the total consolidated number, i.e. 30,599 students, approximately 92% were female and only 8% were male. In the nongovernment sector, 14,711 students were admitted, which is about 48% of the total admitted students, and of which about 85% were female (Figure 58). In the government sector, 15,888 students were admitted, of which approximately 99% were female.

Figure 59: Year-wise distribution of total admitted students into Diploma in Nursing Science and Midwifery during 2007–2016

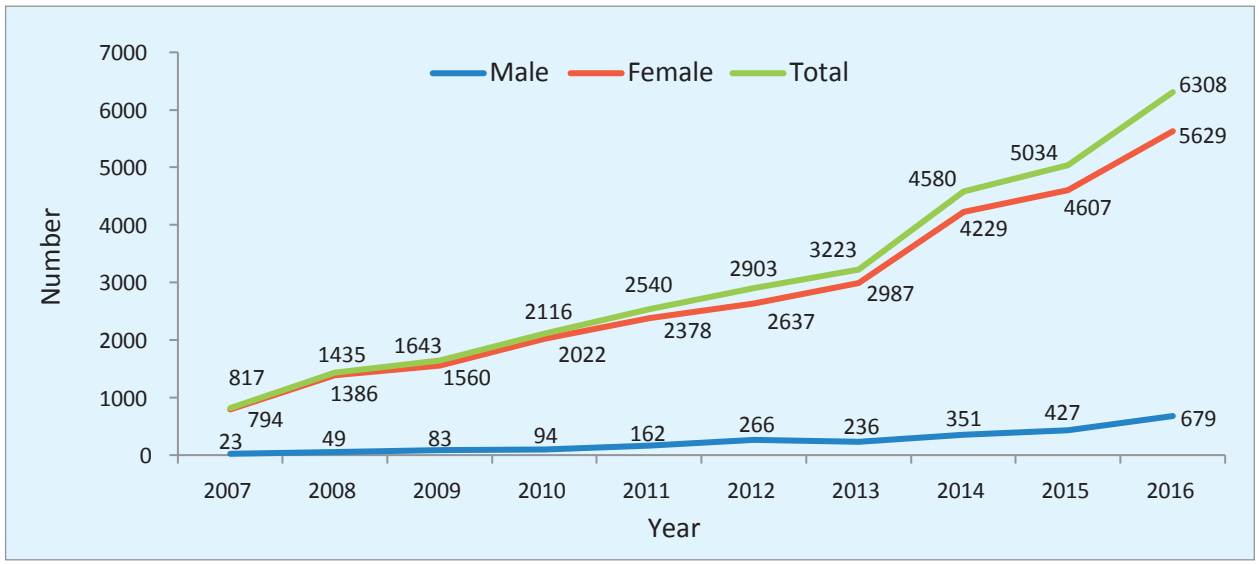


Figure 59 indicates a gradual increase instudents admitted into DNSM during2007–2016. In 2007, 817 students were admitted to DNSM, but their numbers increased to 6308 in 2016; approximately eight times higher than the number admitted in 2007. The number of male students remained steady but the number of female students gradually increased during the 10 years.

Number of students who acquired Diploma in Nursing Science and Midwifery

Figure 60: Total number of students who acquired Diploma in Nursing Science and Midwifery during 2007-2016

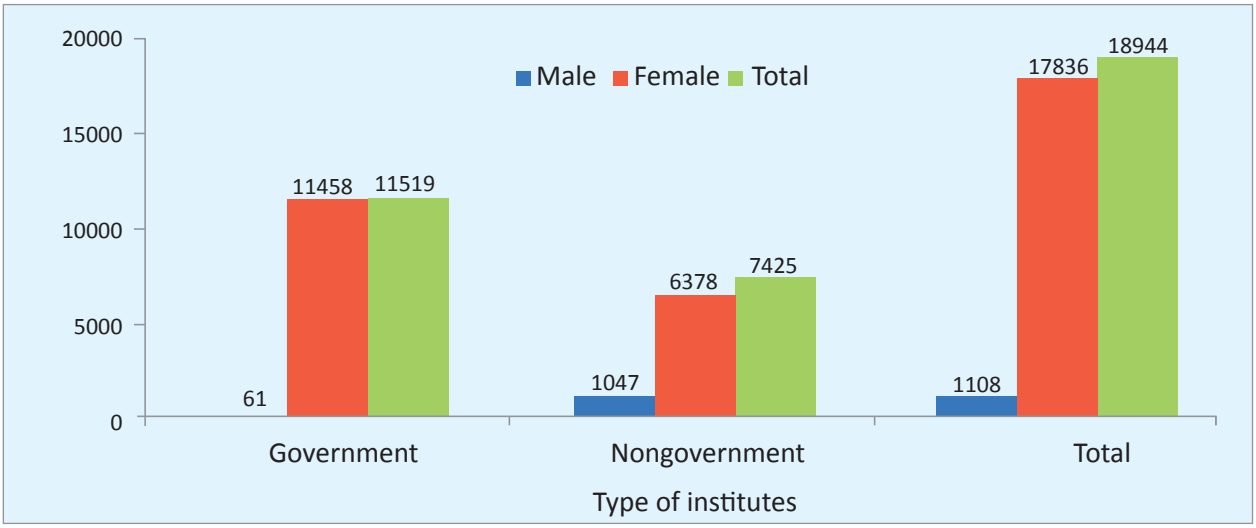
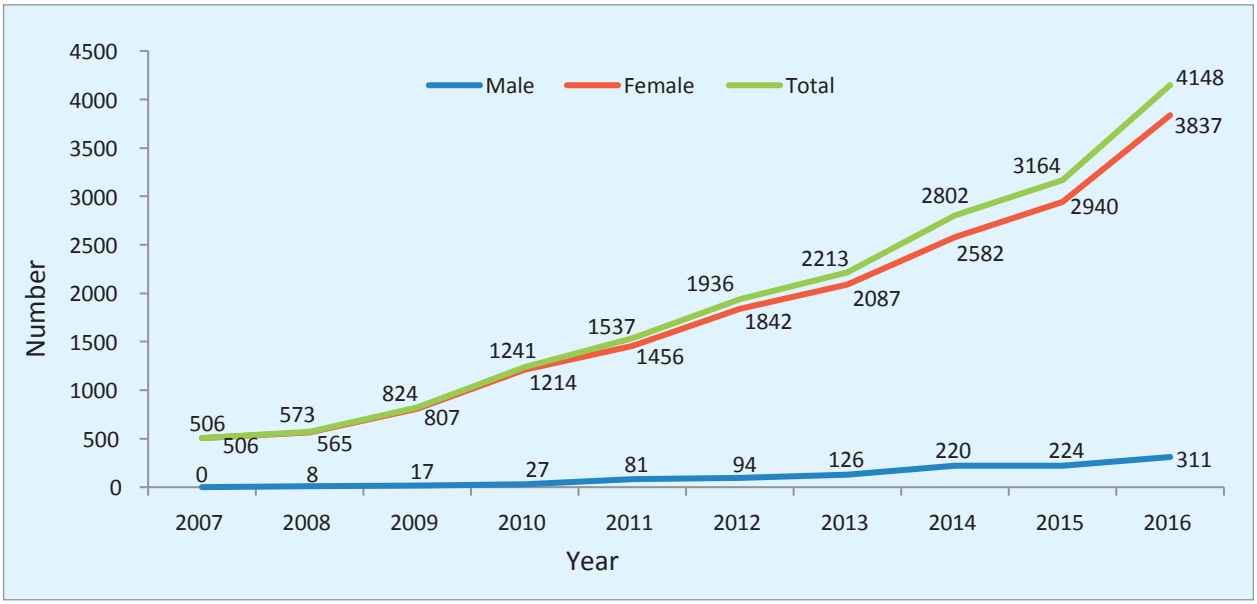


Figure 60 shows that 18,944 students acquired a DNSM degree during the 10 years from both government and nongovernment nursing institutions; of these only less than 6% were male. Of the total graduates, approximately 61% graduated from the government sector.

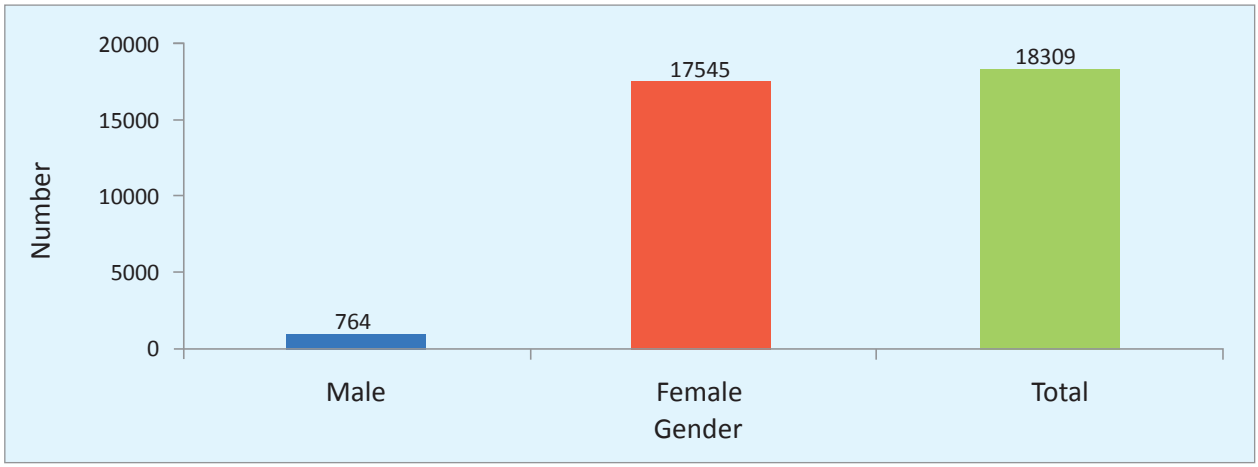
Figure 61: Year-wise distribution of male and female students who acquired Diploma in Nursing Science and Midwifery during 2007–2016



In 2007, 506 students acquired DNSM from both government and nongovernment nursing institutes (Figure 61) and all of them were female. This number reached 4148 in 2016 and among them only about 8% were male.

Number of Diploma in Nursing Science and Midwifery professionals registered with BNMC

Figure 62: Total number of Diploma in Nursing Science and Midwifery professionals registered during 2007–2016, by gender



BNMC data showed that 18309 DNSM professionals were registered/licensed for professional practice during the 2007–2016, and more than 95% of these were female.

Figure 63: Year wise distribution of registered Diploma in Nursing Science and Midwifery professionals during 2009–2016

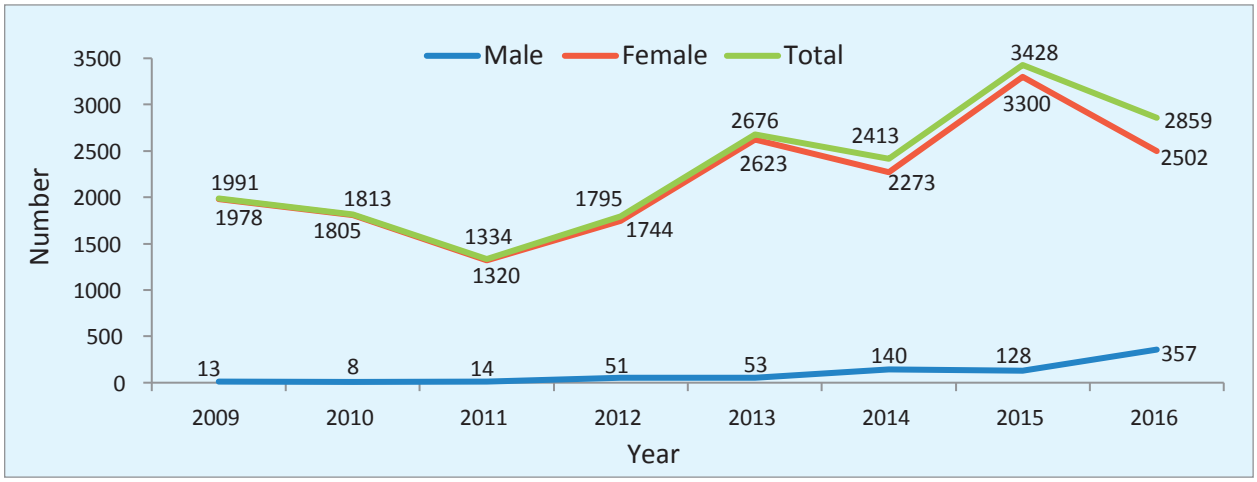


Figure 63 indicates year-wise distribution of registered DNSM professionals with male-female distribution of eight years, i.e. 2009–2016 (BNMC started registration of DNSM professionals in 2009). On average, of the 2289 DNSM professionals who received registration/licenses from the BNMC every year, 2193 were female and 95 were male.

Refer to Annex 5 for year-wise admission and passing out data of DNSM students with male–female distributions in the public and private sector nursing institutes.

Diploma in Midwifery

Admission to Diploma in Midwifery

Figures 64 and 65 show the numbers of institutions that offered Diploma in Midwifery and available seats as of 2016 according to the nature of institutions.

Figure 64: Total number of institutions offering Diploma in Midwifery

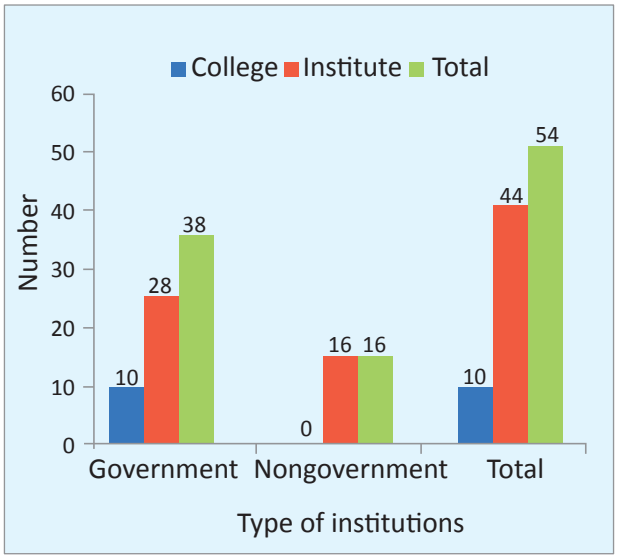
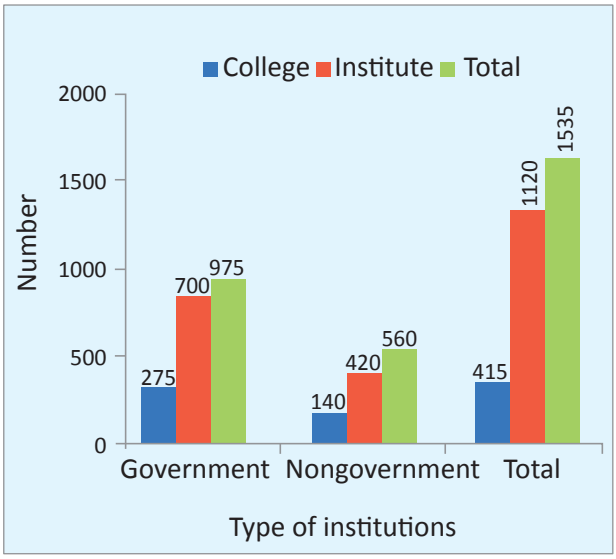
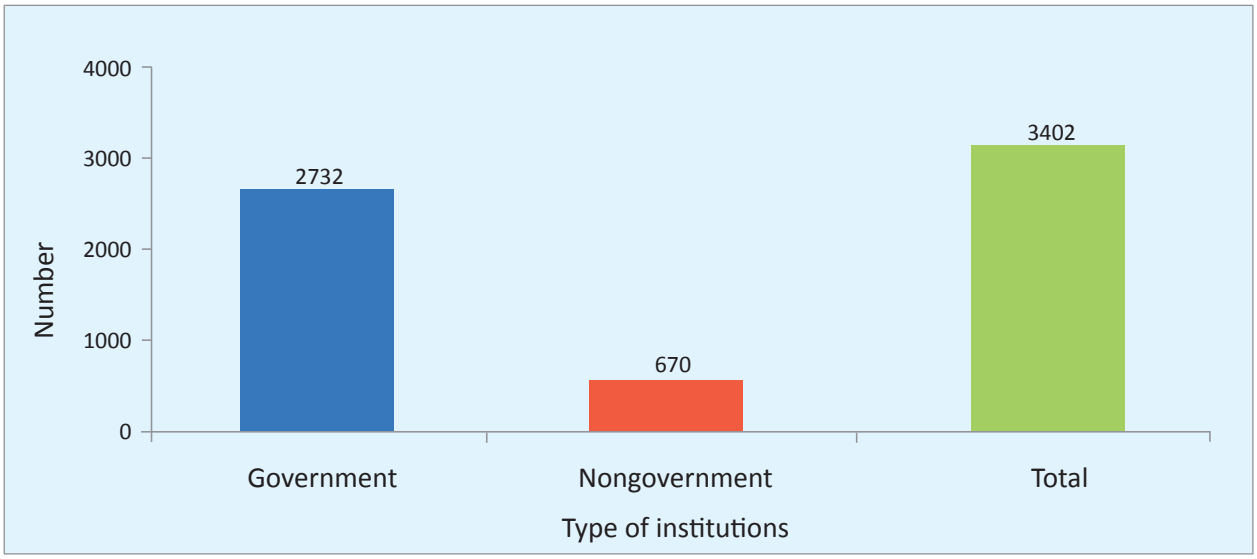


Figure 65: Total number of available seats by 2016



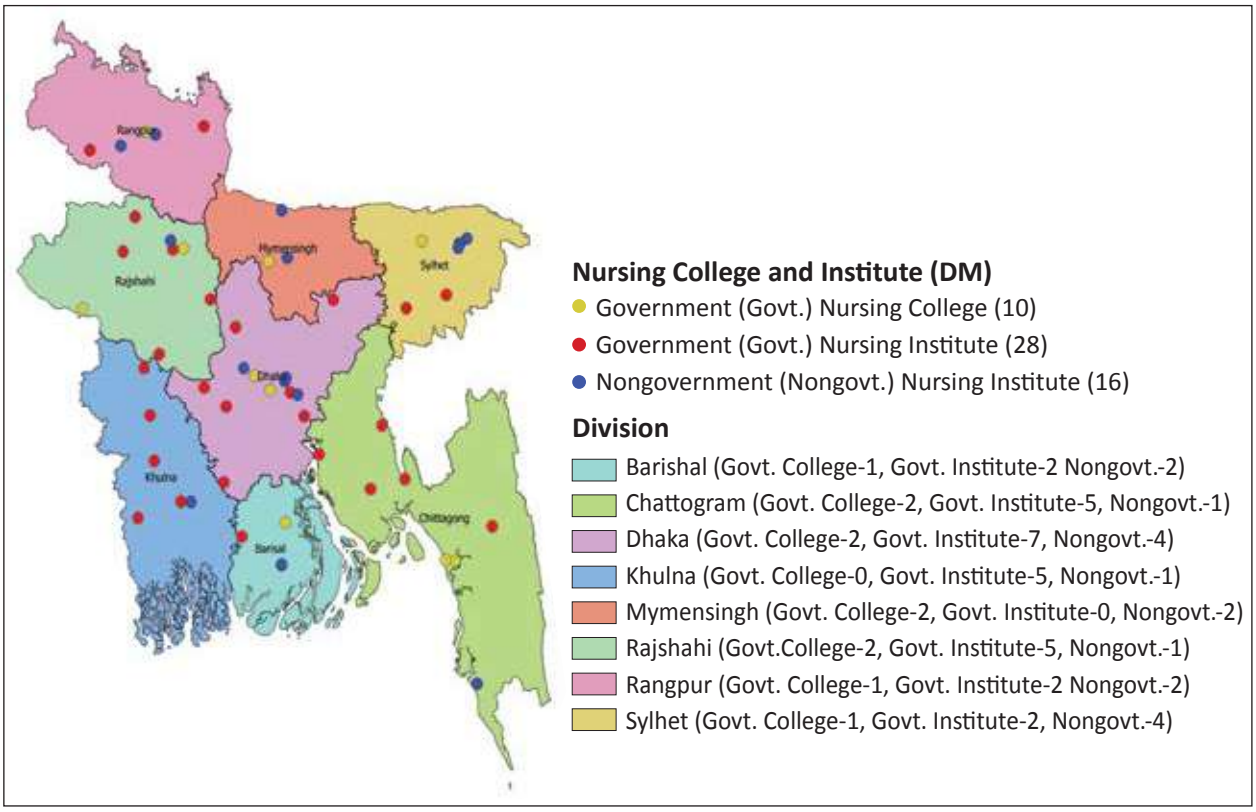
Of the 54 institutions that offered Diploma in Midwifery with 1535 available seats, 38 (70%) were in the government sector accounting for 64% of the total number of available seats. Nongovernment sector accounted for 30% of institutions (16 institutes) that owned 36% of the total number of seats.

Figure 66: Total number of students admitted into Diploma in Midwifery during 2013–2016



The Diploma in Midwifery course was introduced in 2013. Of the 3402 students admitted into the course, approximately 80% was in the government sector and the remaining 20% was in the nongovernment sector (see Figure 66). Map 6 shows the geographical distribution of the number of institutions that offered Diploma in Midwifery in Bangladesh.

Map 6: Geographical distribution of the number of institutions offering Diploma in Midwifery in Bangladesh



Ten government nursing colleges, 28 government nursing institutes and 16 nongovernment nursing institutes offered Diploma in Midwifery course in Bangladesh. Institutes that offered Diploma in Midwifery were almost equally distributed across the country, except in the Dhaka division.

Figure 67: Year-wise distribution of total students admitted into Diploma in Midwifery during 2013–2016

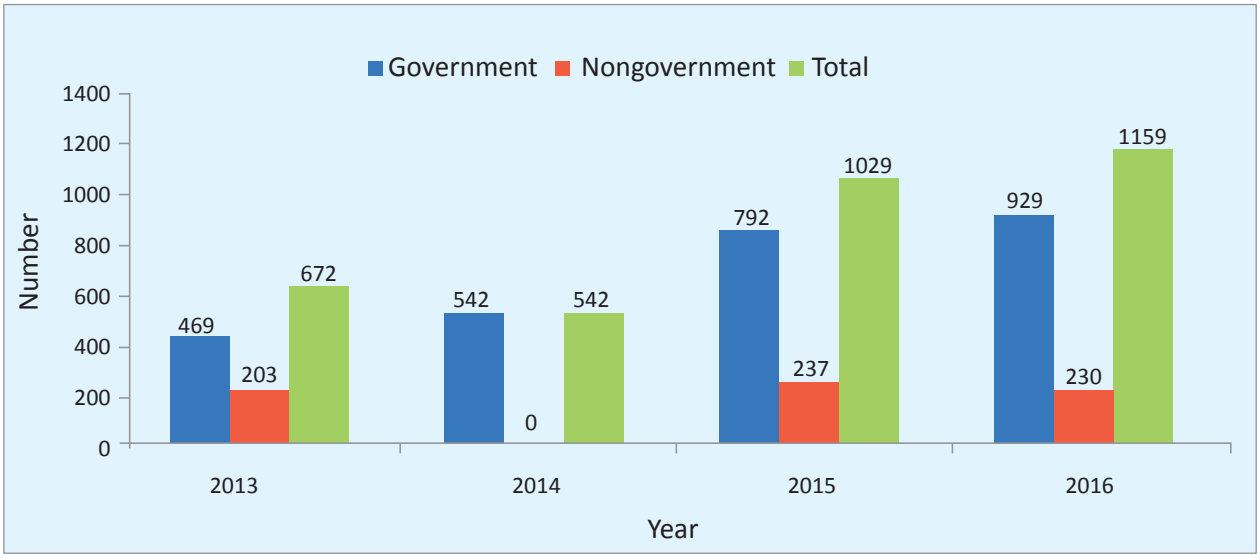


Figure 67 indicates a gradual rise in students admitted into the Diploma in Midwifery course during 2013–2016; from 672 students in 2013 to 1159 in 2016. As the figure shows the numbers however remained steady (203 to 237) in the nongovernment nursing and midwifery institutions.

Number of students who acquired Diploma in Midwifery

Figure 68: Total number of students who acquired Diploma in Midwifery during 2015-2016

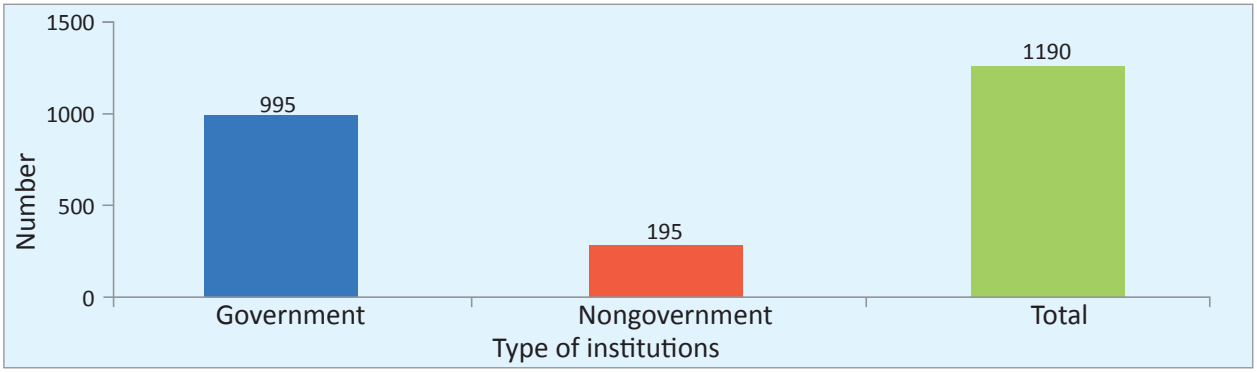
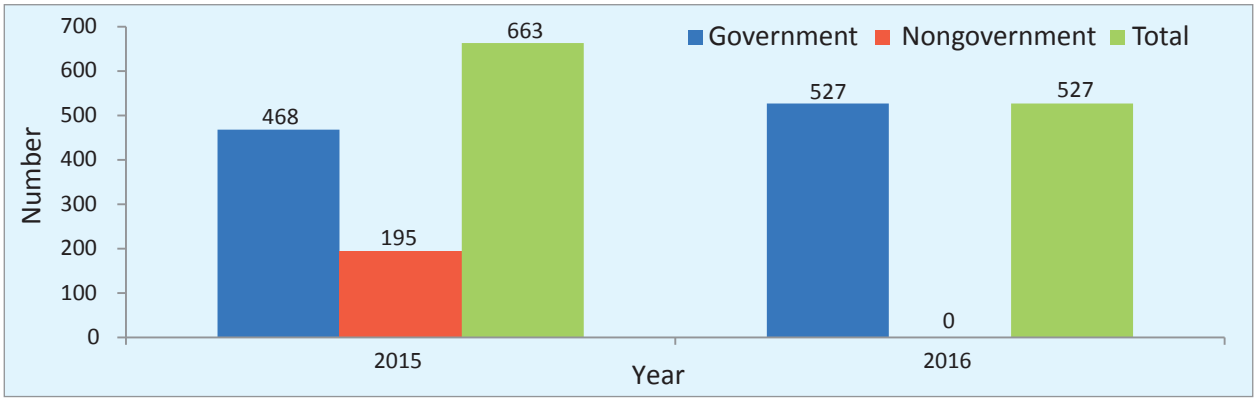


Figure 68 shows that 1190 students acquired Diploma in Midwifery during 2015 and 2016 from both government and nongovernment nursing institutions. Approximately 84% graduated from the government sector.

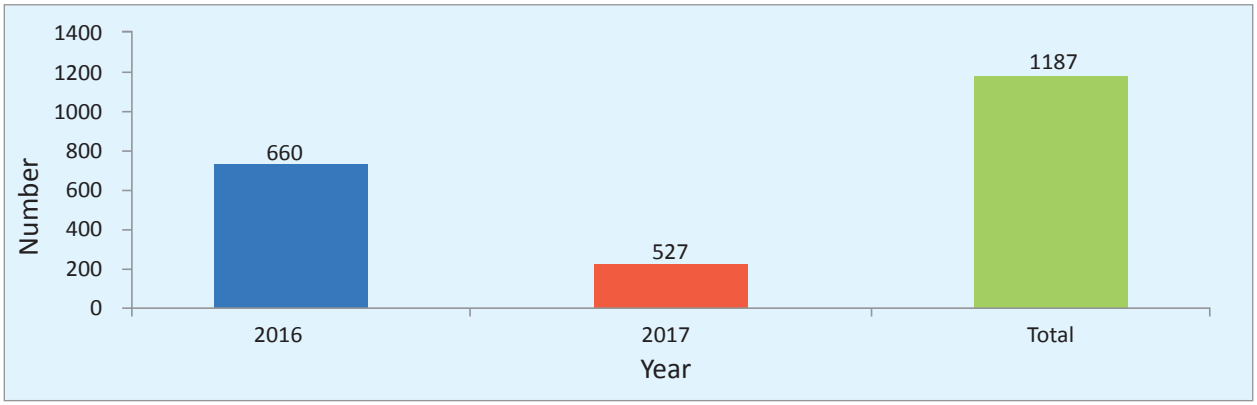
Figure 69: Year-wise distribution of students who acquired Diploma in Midwifery during 2015-2016



In 2015, of the 663 students who acquired Diploma in Midwifery, more than 70% were from government institutions (Figure 69). The total number decreased slightly to 527 as no student acquired the Diploma from the nongovernment sector.

Number of Diploma in Midwifery professionals registered with BNMC

Figure 70: Number of Diploma in Midwifery professionals registered with BNMC during 2016–2017



A total of 1187 Midwifery professionals were registered/licensed with the BNMC for professional practice during 2016 and 2017.

Medical Assistant Training Schools (MATS)

Course/degree name: Diploma in Medical Faculty (DMF)

Of the 14 246 enrolment capacity in Diploma in Medical Faculty (DMF), 208 were enrolled in MATS.

Figure 71: Total number of MATS

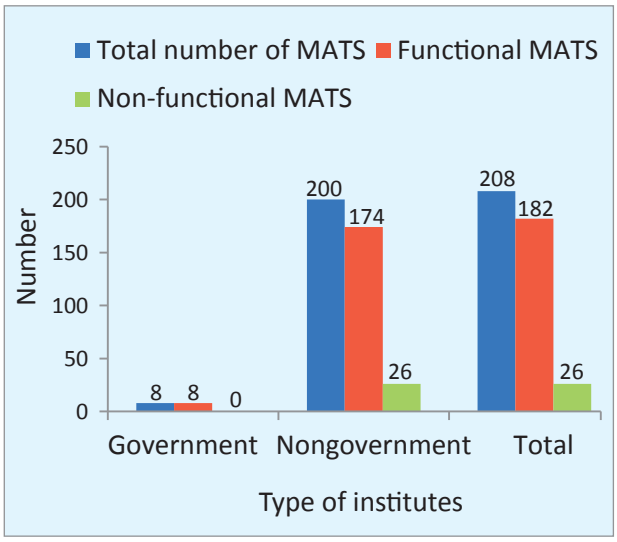
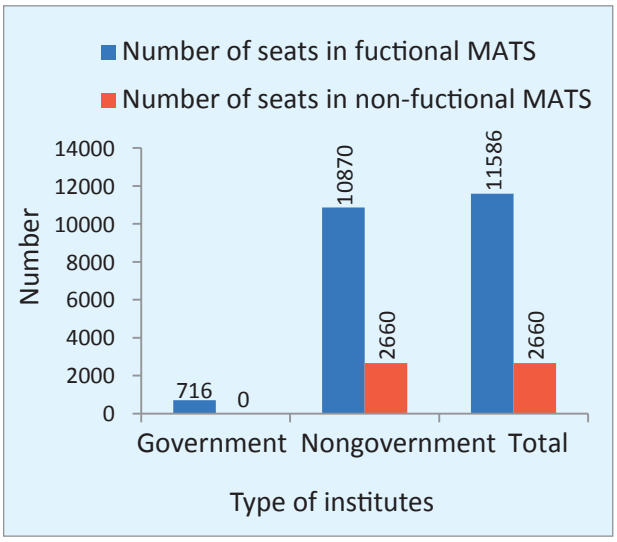


Figure 72: Number of available seats (by 2016)



Among the institutions offering medical assistants training, only 4% institutions belong to the government sector accounting for only 5% of the total number of available seats; all of these institutions were in operation. The nongovernment sector accounted for about 96% of the total institutions; 13% of the these (26) were inactive resulting in nonavailability of more than 19% of total number of available seats (2660).

Figure 73: Distribution of MATS by administrative division across Bangladesh

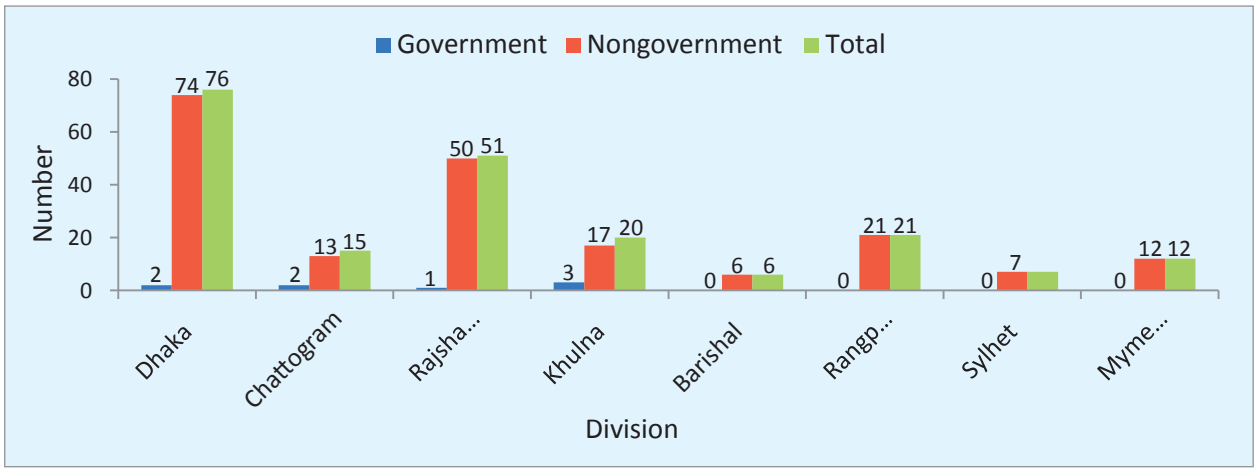
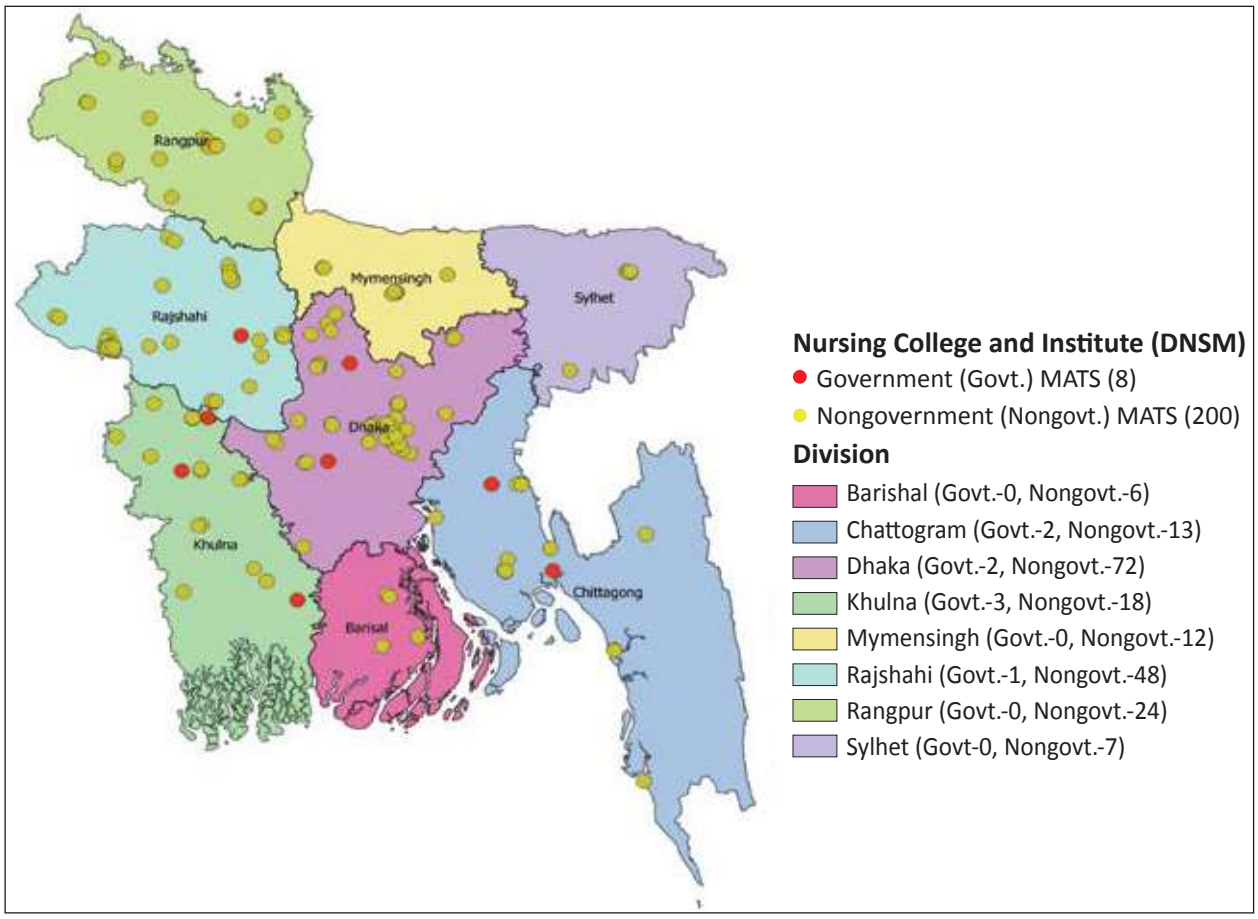


Figure 73 shows that of the total 208 MATS, 76 (about 37%) were based in Dhaka Division, 25% in Rajshahi Division. Barishal and Sylhet Divisions accounted forthe lowest number of MATS, 3% and 4% respectively.

Map 7: Geographical distribution of MATS in Bangladesh



Map 7 shows the geographical distribution of the medical assistant training schools across the Bangladesh by administrative divisions by type.

Figure 74: Year-wise distribution of MATS

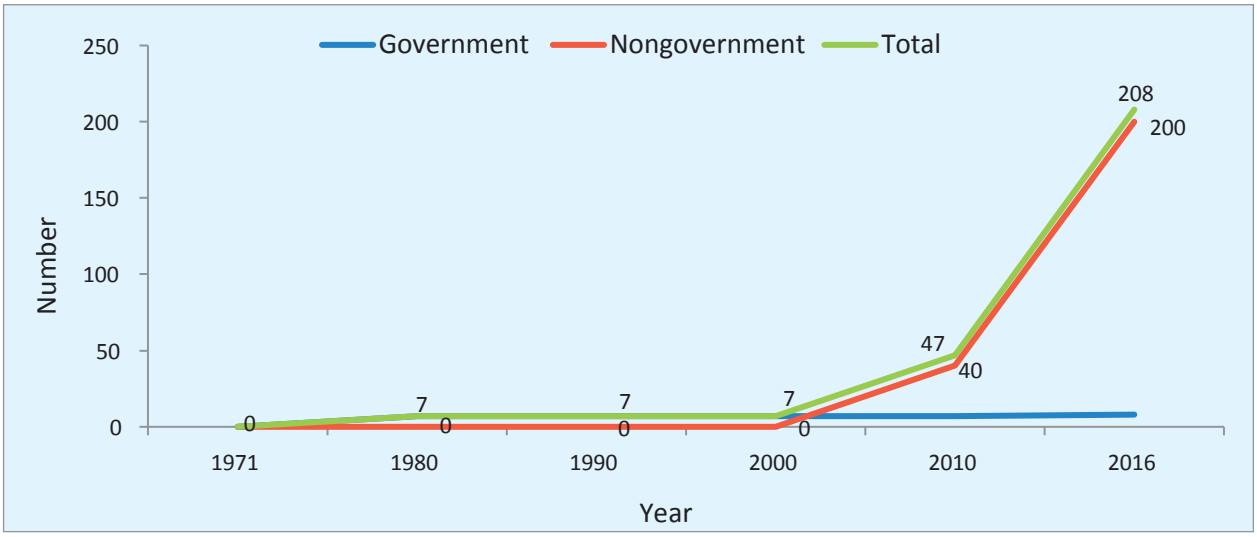
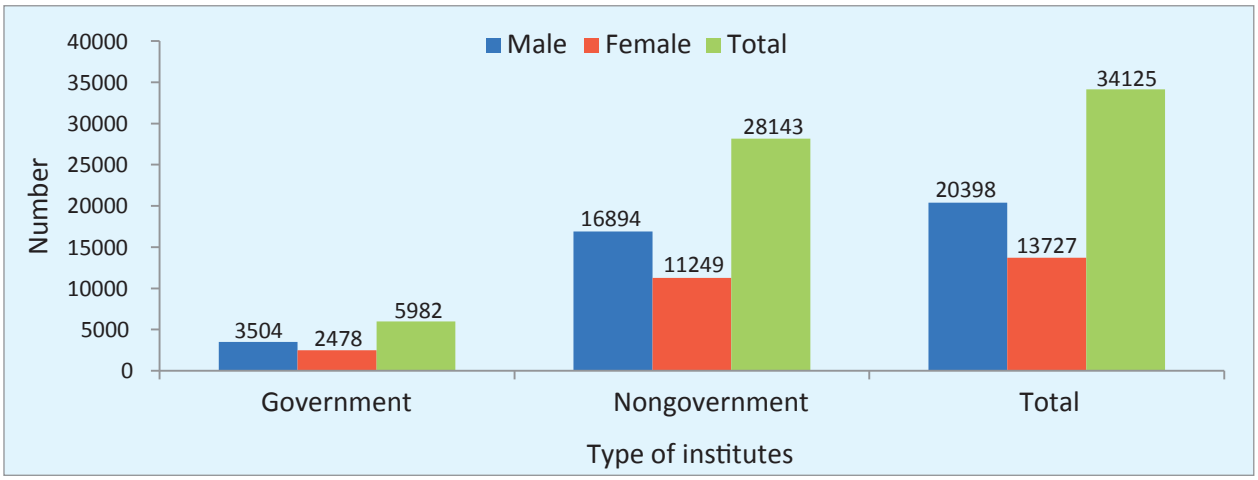


Figure 74 shows that the number of MATS increased more than twice in just six years: from only 87 in 2010 to 208 by the end of 2016. By 2016, the number of nongovernment MATS had drastically increased to 200 from zero in 2000. There has been only one increase in the number of government-owned MATS since 1980. On the other hand, a very significant increase occurred in the number of the nongovernment-owned MATS.

Admission into DMF

Figure 75: Total number of students admitted into DMF during 2007–2016



Of the total consolidated number of admitted students (34,125), approximately 40% were female and 60% were male. In the nongovernment sector, of the 28,143 admitted students (more than 82% of the total admitted students) 40% were female. In the government sector, of the 5982 students approximately 41% (2478) were female.

Figure 76: Year-wise distribution of the total students admitted into DMF during 2007–2016

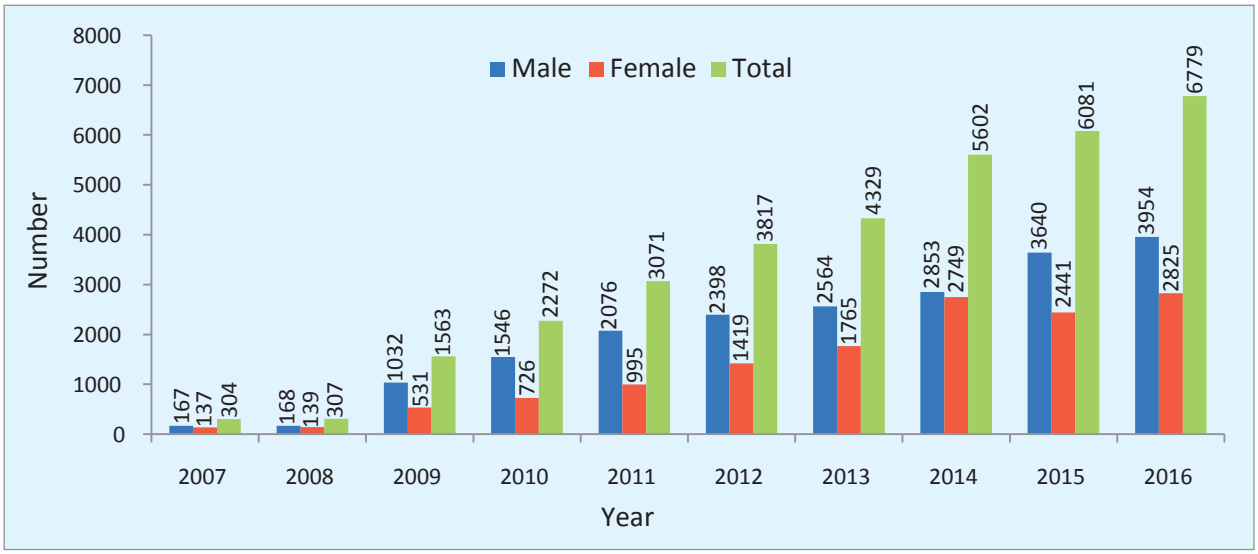
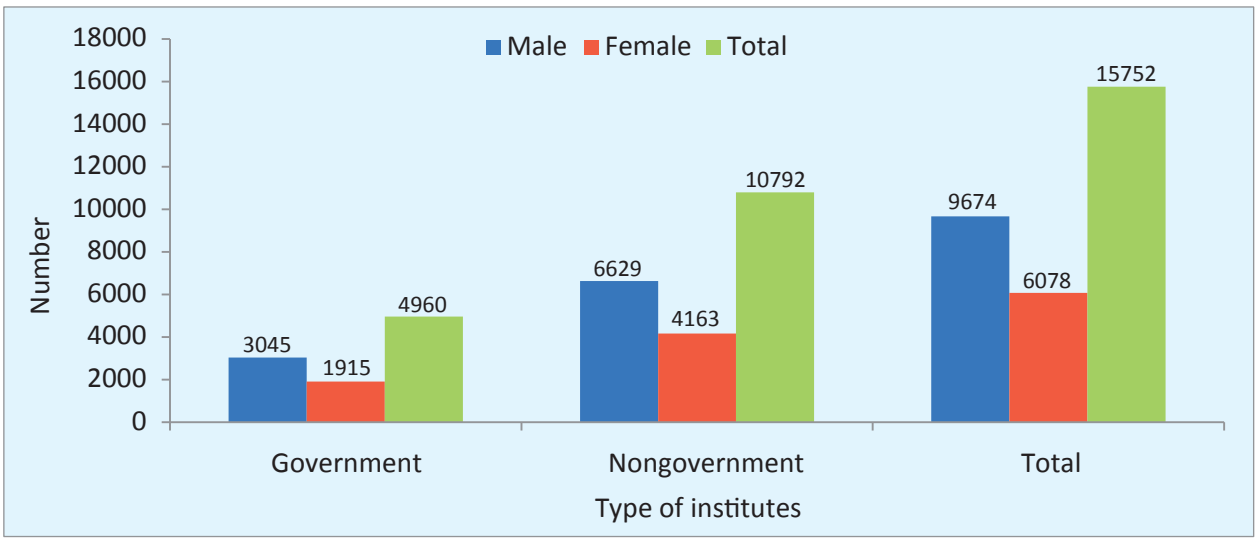


Figure 76 indicates a gradual increase in students admitted to MATS during 2007–2016. Student admissions increased more than 20 times from only 304 students in 2007 to 6779 in 2016.

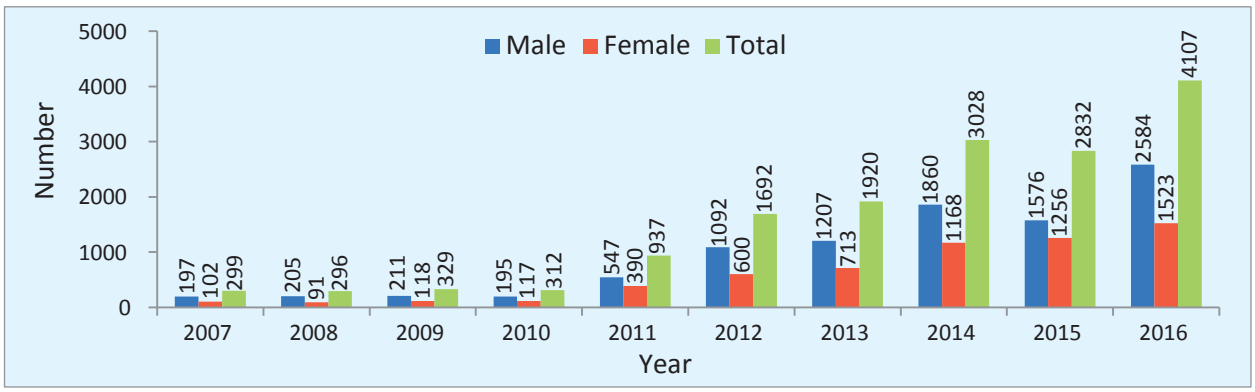
Number of students who completed DMF

Figure 77: Total number of students who graduated DMF during 2007–2016



Of the 15,752 students who graduated the DMF course, approximately 39% were female; approximately 69% were from nongovernment institutes and 31% from government institutions (Figure 77).

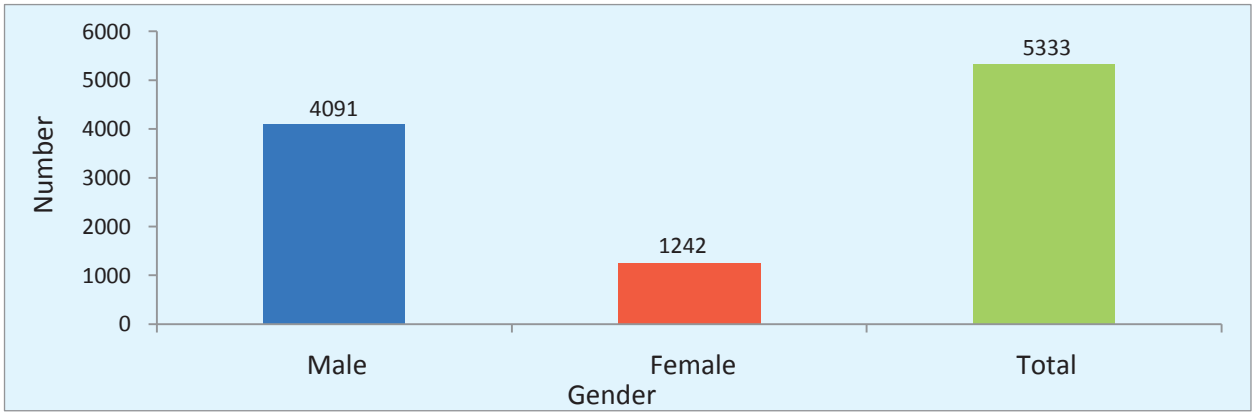
Figure 78: Year-wise distribution of students who graduated DMF during 2007–2016



There has been a gradual increase in the number of students passing DMF in 10 years (2007–2016): from 299 students in 2007 to 4107 in 2016 (Figure 78).

Number of DMF professionals registered/licensed with Bangladesh Medical and Dental Council (BMDC)

Figure 79: Total number of DMF professionals registered during 2007–2016



BMDC data show that 5333 DMF professionals were registered/licensed for professional practice during 2007–2016, of whom about 77% were male.

Figure 80: Total number of DMF professionals registered during 2007–2016

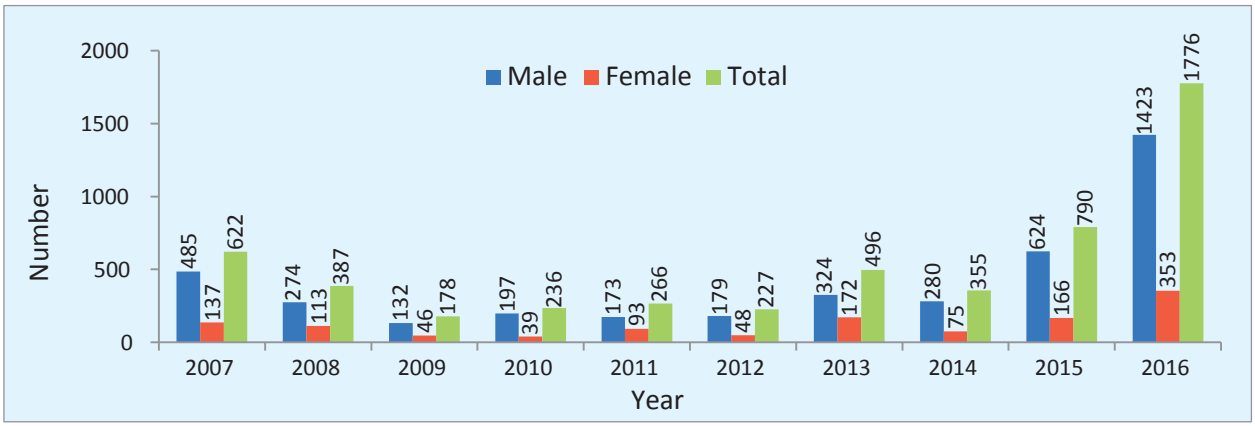


Figure 80 indicates that on an average 533 DMA professionals received registration/license annually from the BMDC.

Figure 81: A comparison of the total number of admitted, graduated and registered/licensed medical assistant professionals up to December 2016

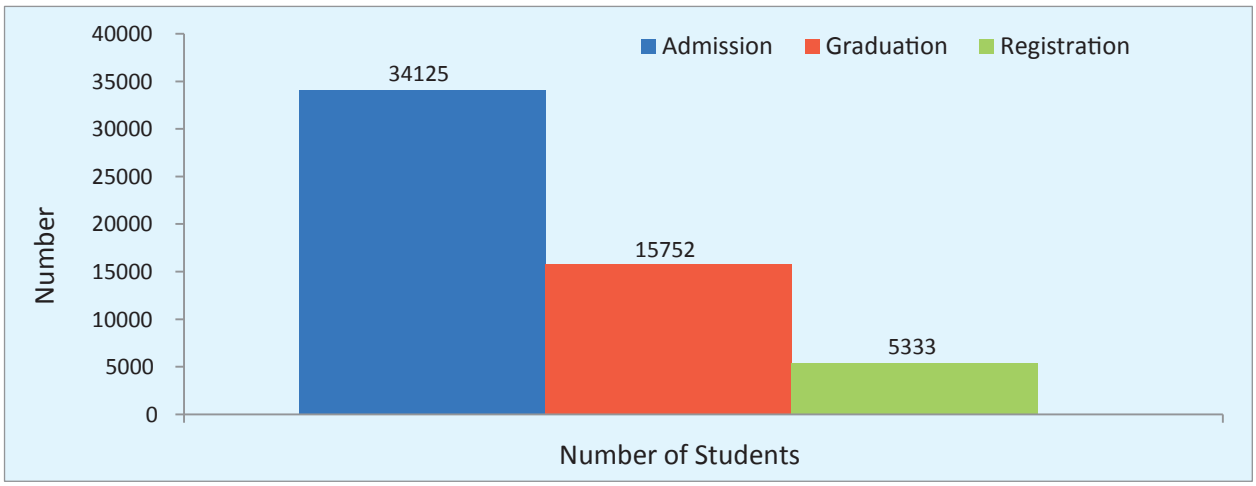


Figure 81 shows that of the 34,125 students admitted into the DMF course, 15,752 students graduated. However, only 5333 (34%) medical assistant professionals registered with the BMDC for professional practice up to December 2016.

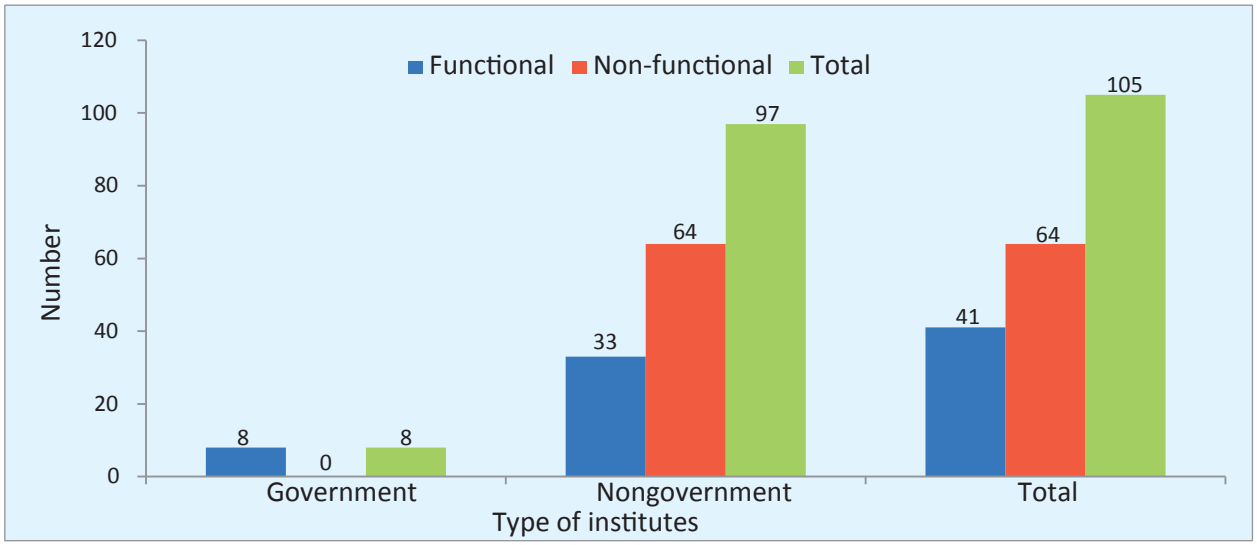
Refer to Annex 5 regarding year-wise admission and graduated DMF students with male–female distribution in public and private sector MATS.

Institute of Health Technology (IHT)

General Information

There were 105 IHTs providing 11 Diploma in Medical Technology (DMT) courses; of which only about 4% belonged to the government sector, but all were active and functioning.

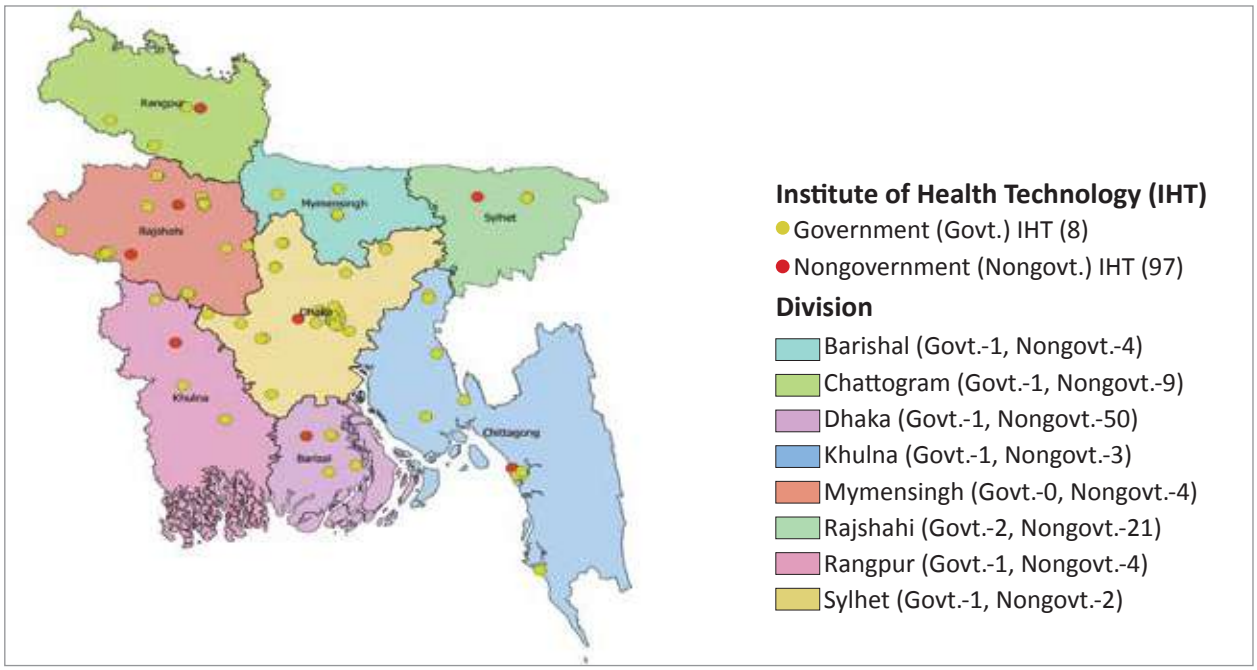
Figure 82: Number of IHTs offering Diploma in Medical Technology by 2016



While the nongovernment sector had more than 92% of total IHTs, only 34% (33) were active and operational. The remaining 66% (64) have either ceased enrolling students or have not started admission of students.

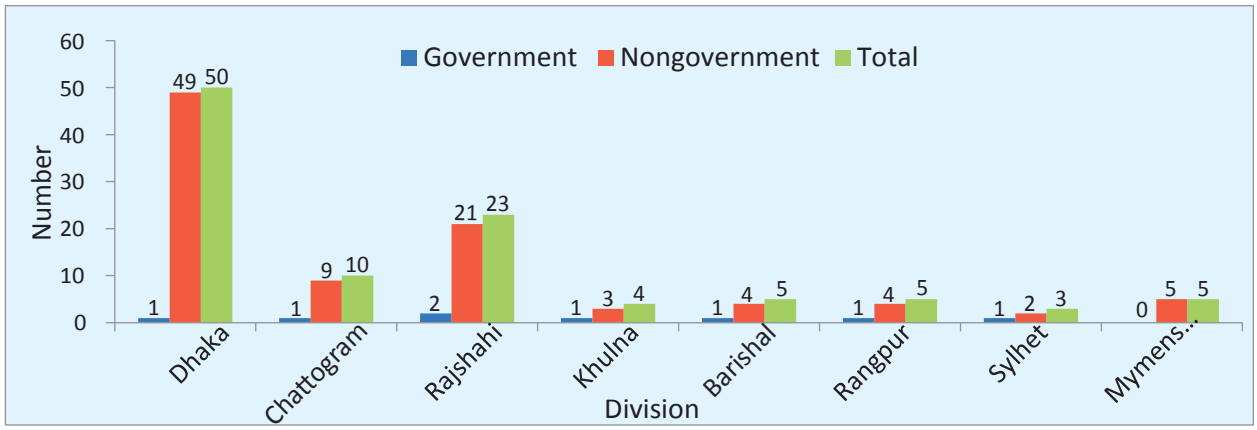
Map 8 presents the geographical distribution of IHTs in Bangladesh based on the administrative divisions.

Map 8: Geographical distribution of IHTs in Bangladesh



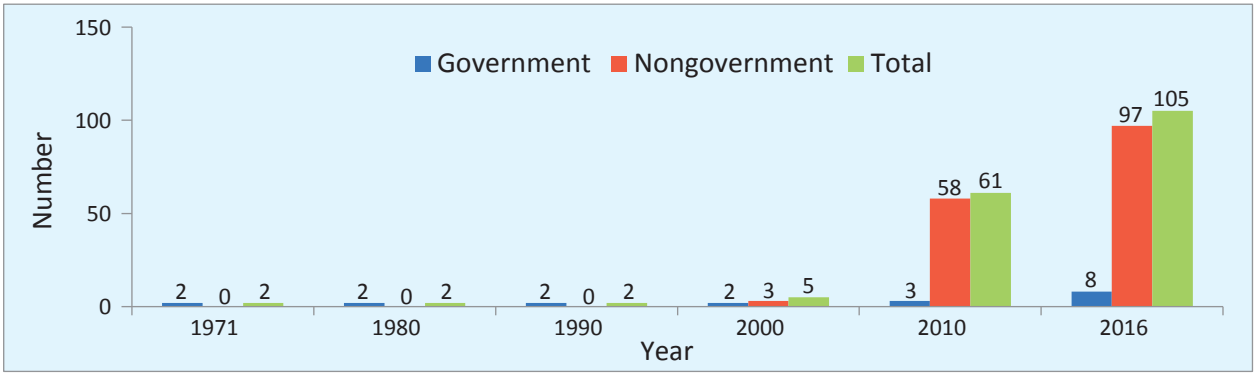
Of the total 105 IHTs only eight were government-owned, which is only about 8% of the total IHTs; the remaining 97 IHTs were nongovernment-owned, accounting to about 92% of the total.

Figure 83: Distribution of IHTs in various divisions of Bangladesh



Like other categories of health professional educational institutions, most IHTs (nearly 48%) were located in the Dhaka Division; followed by 22% in Rajshahi Division. Sylhet Division had only three institutes, which accounted for less than 3% of the institutes. Mymensingh and Barishal Divisions had only five institutes each, and Khulna and Chattogram had four and 10 IHTs, respectively.

Figure 84: Number of IHTs established since 1971 by interval of time



Only two IHTs were established between 1971 and 1990, and both of them were in the government sector (Figure 84). After 1990, only three IHTs were established in the nongovernment sector; totaling five until 2000. However, there was a sharp rise in IHTs between 2000 and 2010 in the nongovernment sector. Of the 56 new IHTs established one was in the government sector and 55 in the nongovernment sector. After 2010, the numbers continued to increase from 61 to 105 (approximately 72%).

Figure 85: Total number of students who were admitted and completed DMT in the 11 disciplines during 2007–2016

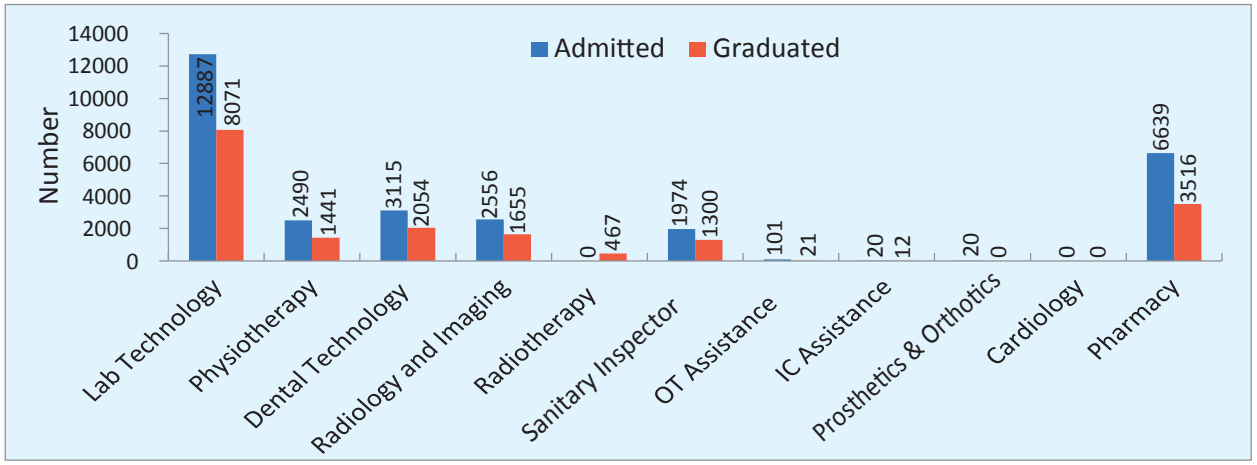


Figure 85 indicates that of the total number of DMT students in 11 different disciplines, the maximum number were admitted and graduated from the discipline of laboratory technology.

Diploma in Medical Technology in Lab Technology

Admission

Figure 86: Number of IHTs offering DMT in Lab Technology

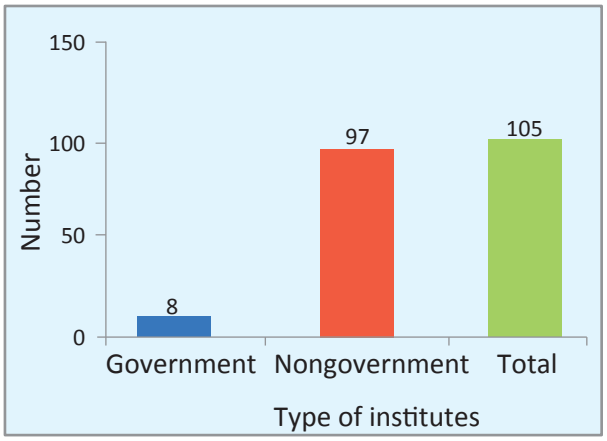
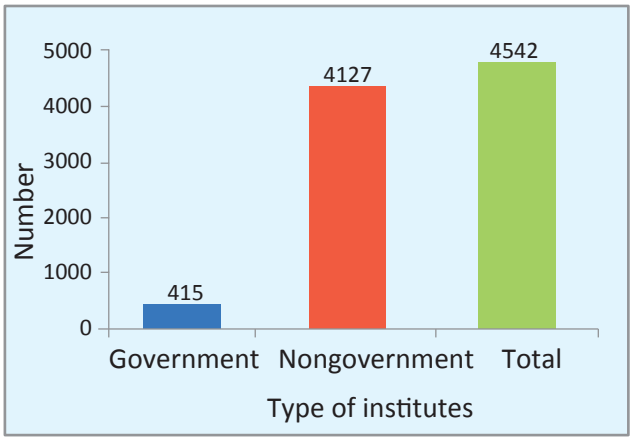
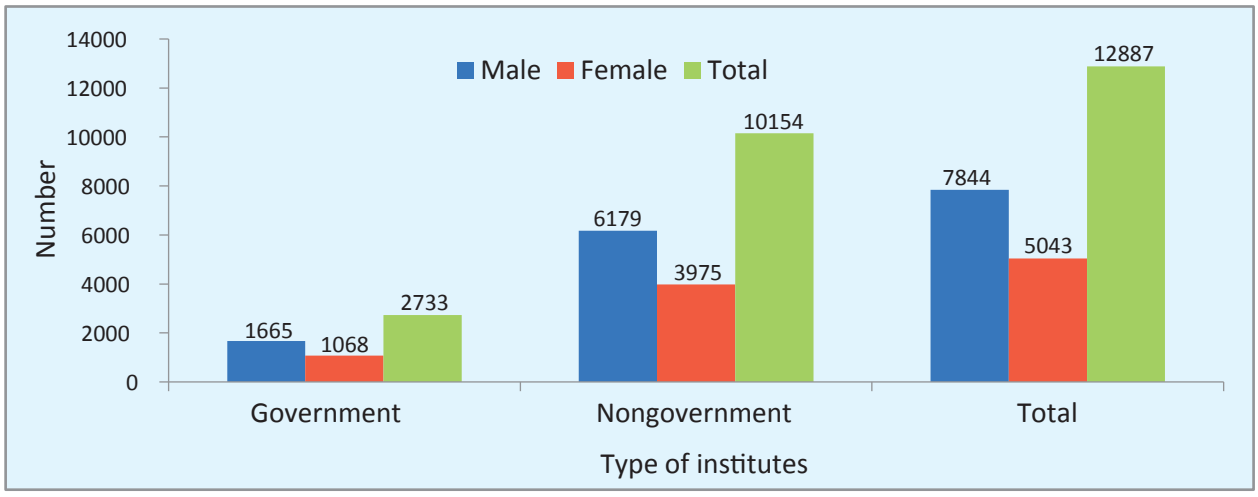


Figure 87: Number of available seats (by 2016)



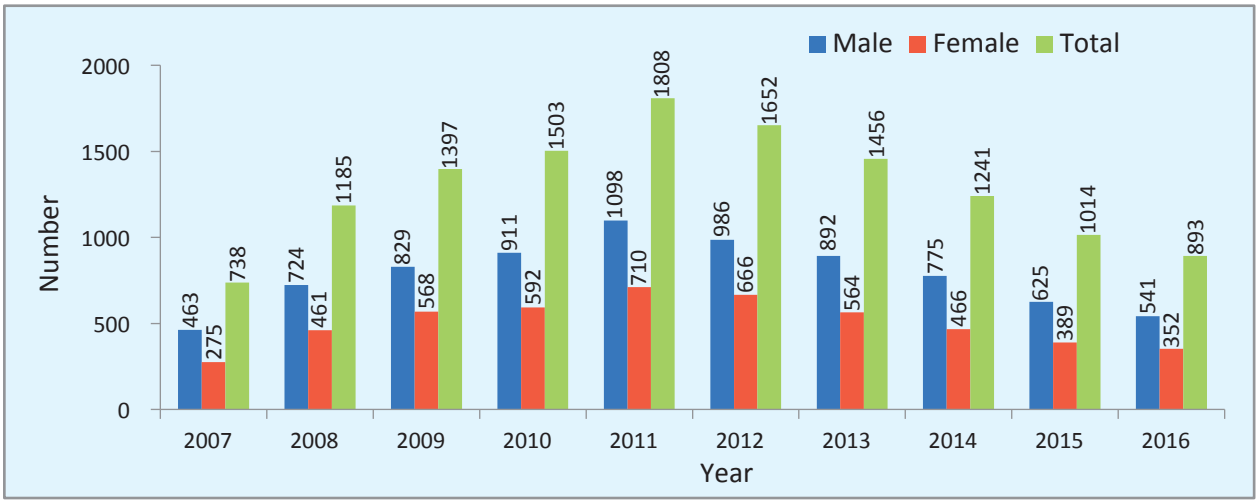
Figures 86 and 87 show that 105 IHTs offered DMT in Lab Technology with 4542 approved seats. Of these, all eight (about 8% of total IHTs) were government IHTs accounting for 9% of total available seats; while the nongovernment IHTs accounted for 89% of institutes and 91% of available seats.

Figure 88: Total number of students admitted into DMT in Lab Technology during 2007–2016



Of the 12,887 students admitted to DMT in Lab Technology, the majority (about 61%) were male; 21% were admitted to government IHTs and the remaining in the nongovernment institutions (Figure 88).

Figure 89: Year-wise distribution of students admitted into DMT in Lab Technology during 2007–2016



Since 2007, the number of students admitted to DMT in Lab Technology increased gradually until 2011, and then decreased gradually. Throughout the decade on an average 1289 students were admitted per year and male–female ratio of total admitted students per year was 785:504 (1:0.64).

Number of students who passed DMT in Lab Technology

Figure 90: Number of students who graduated DMT in Lab Technology during 2007–2016

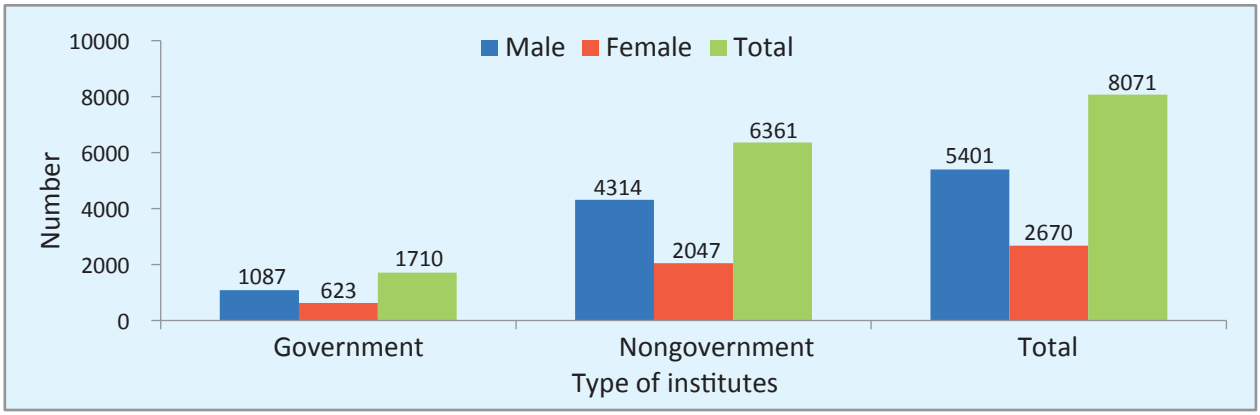
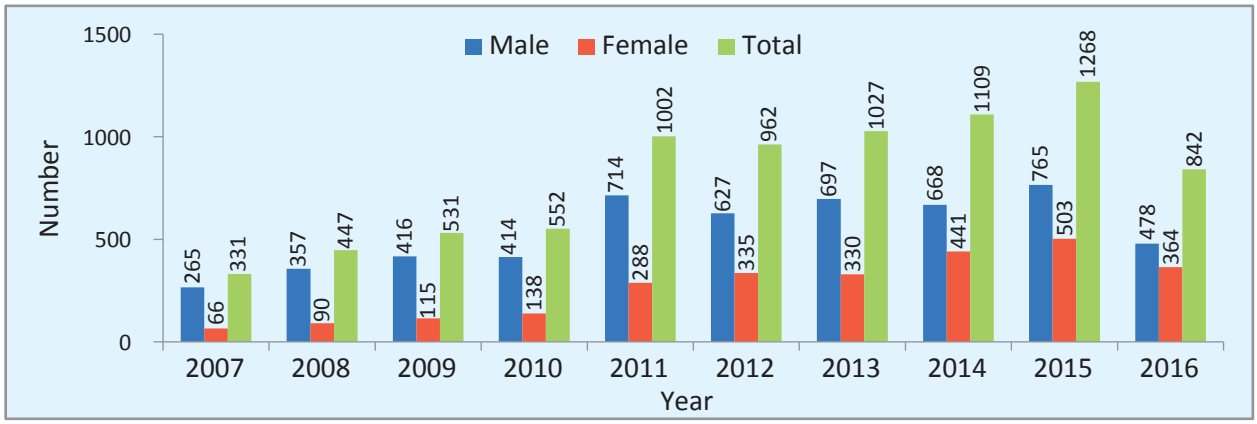


Figure 90 shows that of the 8071 students who successfully completed DMT in Lab Technology, 21% completed it from government IHTs, and of the total graduated students 33% were female.

Figure 91: Year wise distribution of total number of students who acquired DMT in Lab Technology during 2007–2016



There was a gradual increase in the number of students who acquired DMT in Lab Technology during 2007–2016, except for 2012; there was a sharp fall in 2016. On an average 807 students successfully completed the course per year during the period.

Refer to Annex 5 regarding year-wise admission and pass out of DMT in Lab Technology students with male–female distribution in the public and private sector IHTs.

Diploma in Medical Technology in Physiotherapy

Admission

Figures 92 and 93 indicate that 38 IHTs offered DMT in Physiotherapy with 1320 approved seats.

Figure 92: Number of IHTs offering DMT in Physiotherapy

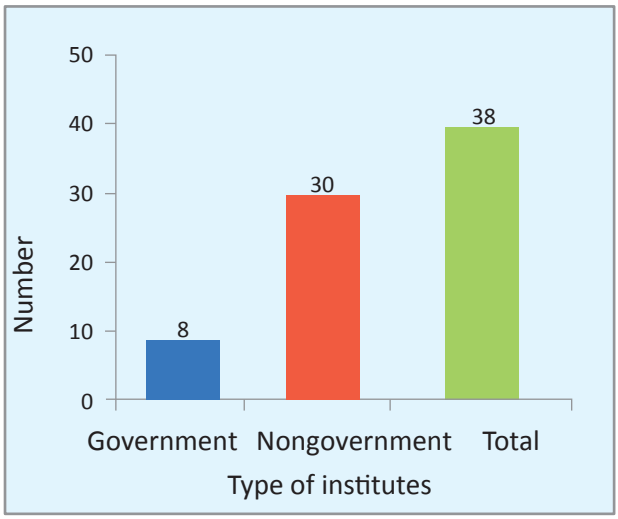
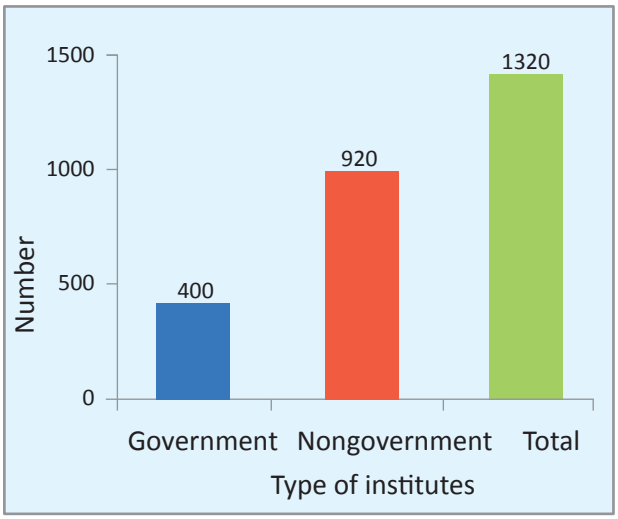


Figure 93: Number of available seats (by 2016)



Of the 38 IHTs, eight (about 21% of total IHTs that offered DMT in Physiotherapy) government IHTs accounted for about 30% of total number of available seats, while the nongovernment sector accounted for 81% of institutes and 70% of available seats.

Figure 94: Total number of students admitted into DMT in Physiotherapy during 2007–2016

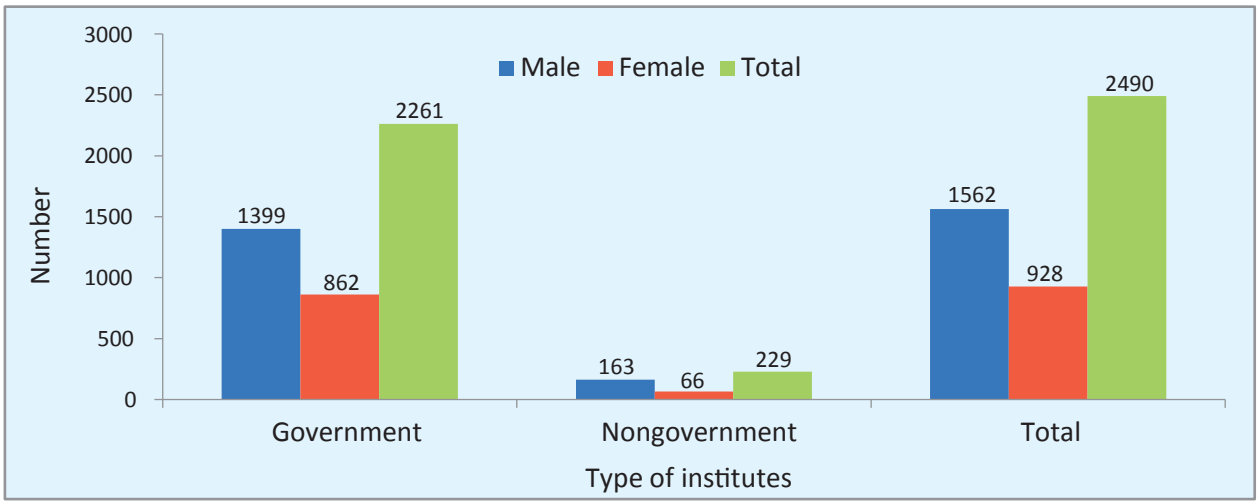
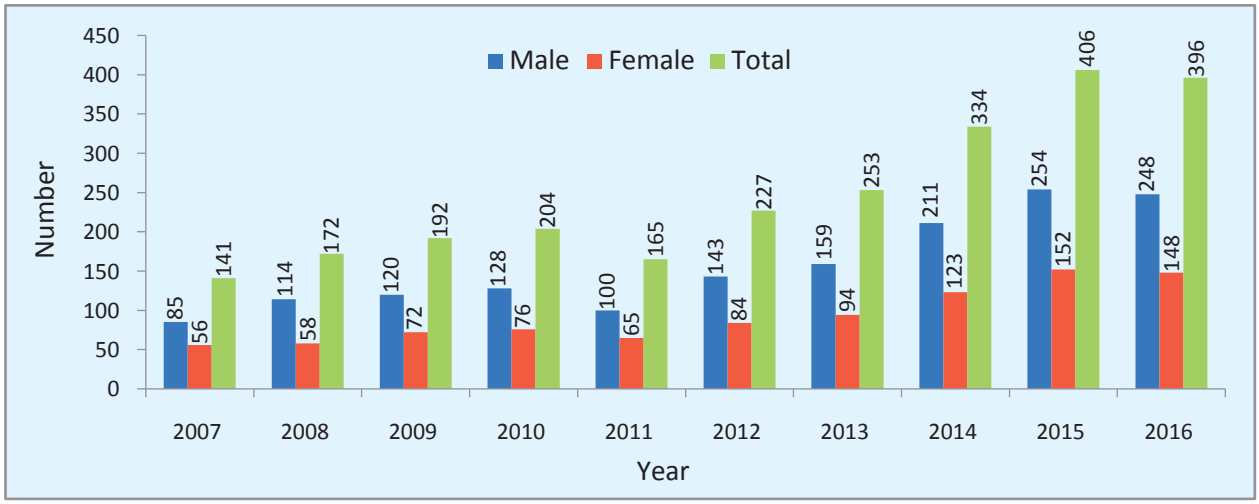


Figure 94 shows that 2490 students were admitted into DMT in Physiotherapy; the majority (about 63%) were male. Of the admitted students 91% were admitted to government IHTs, and remaining to nongovernment institutions.

Figure 95: Year-wise distribution of total students admitted into DMT in Physiotherapy during 2007–2016



Since 2007 DMT in Physiotherapy students increased gradually with a slight fall in 2011 and 2016 (Figure 95). Throughout the decade on an average 249 students were admitted per year; the male–female ratio of total admitted students per year was 156:93.

Number of students who completed DMT in Physiotherapy

Figure 96: Number of students who completed DMT in Physiotherapy during 2007–2016

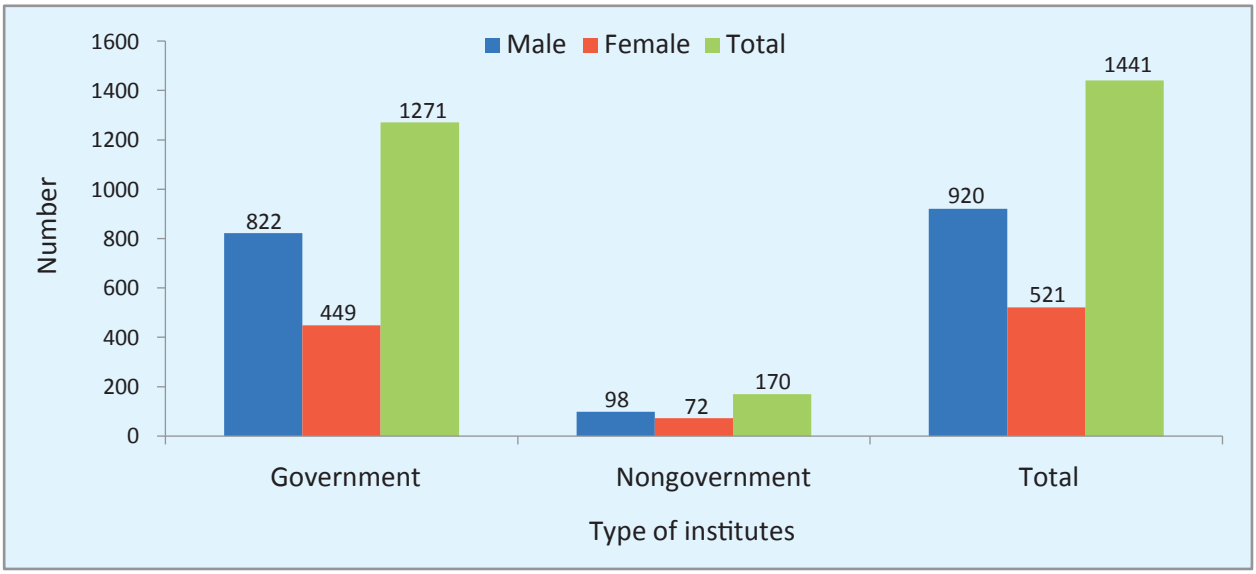
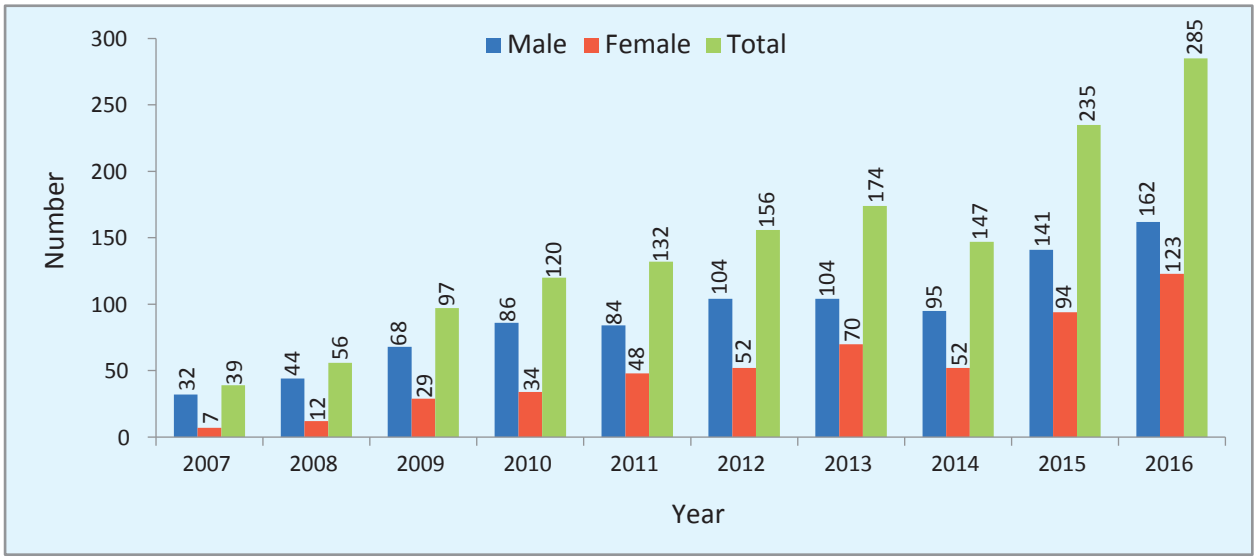


Figure 96 shows that 1441 students successfully completed the DMT in Physiotherapy; the majority (88%) from government IHTs. Of the total students who completed the diploma, 36% were female.

Figure 97: Year-wise distribution of total number of students who completed DMT in Physiotherapy during 2007–2016



There was a gradual increase in the number of students who achieved DMT in Physiotherapy during 2007–2016, except in 2014. On an average 144 students successfully completed the diploma per year; among them 64% were male and 36% were female.

Refer to Annex 5 regarding year-wise students admissions and pass outs of DMT in Physiotherapy with male–female distribution in public and private sector IHTs.

Diploma in Medical Technology in Dental Technology

Admission

Figures 98 and 99 show that 74 IHTs offered DMT in Dental Technology with 2528 approved seats.

Figure 98: Number of IHTs offering DMT in Dental Technology

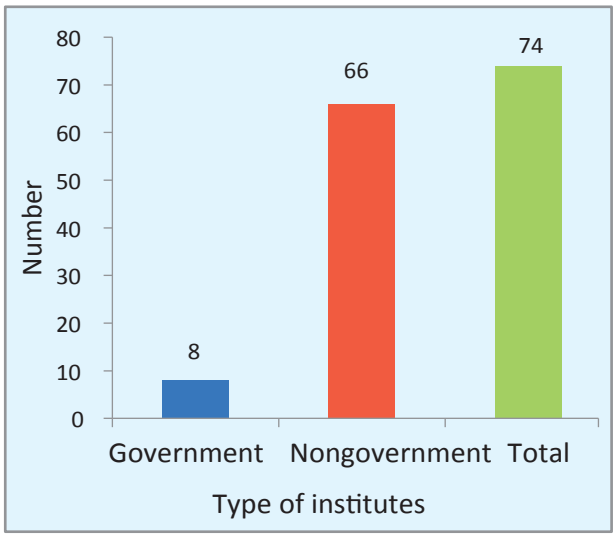
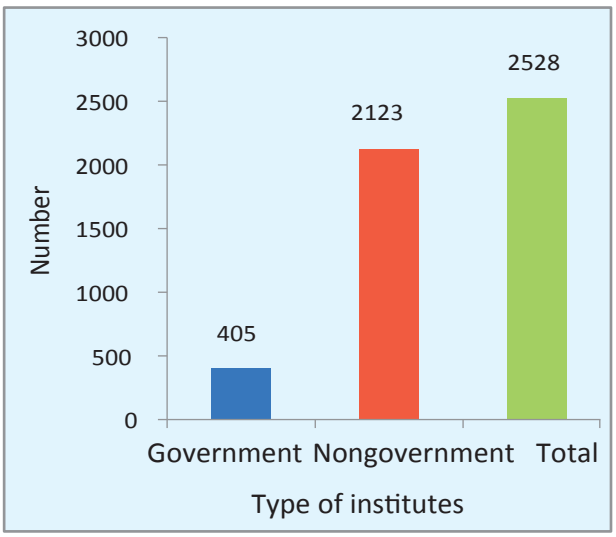
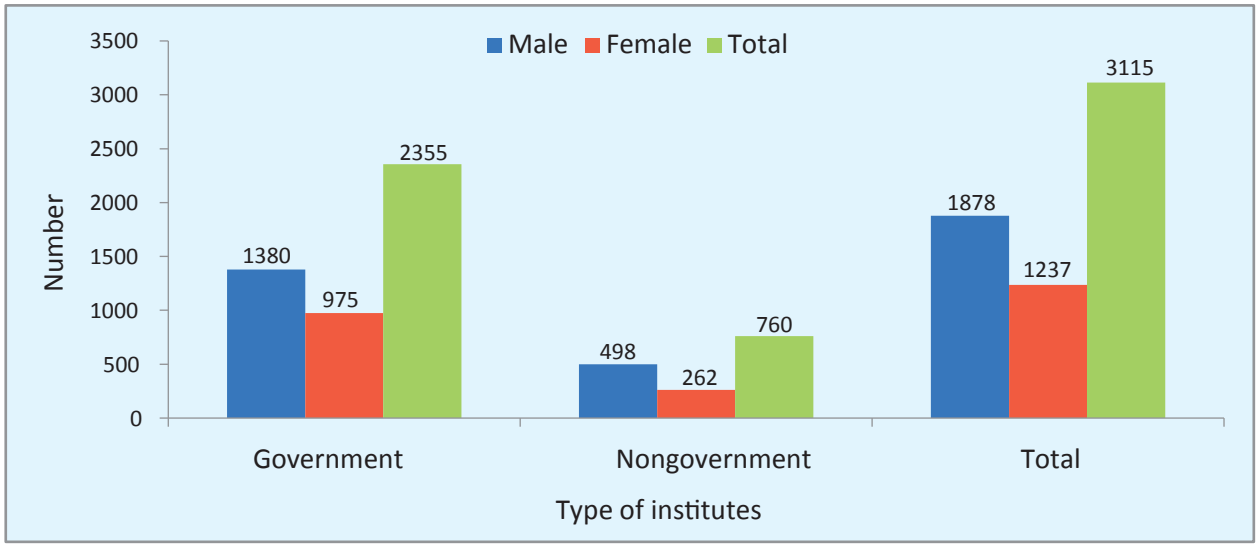


Figure 99: Number of available seats (by 2016)



Of the 74 IHTs, eight (about 11% of total IHTs that offered DMT in Dental Technology) government IHTs that provided the diploma accounted for 16% of total number of available seats; the nongovernment sector accounted for 89% of institutes and 84% of available seats.

Figure 100: Total number of students admitted into DMT in Dental Technology during 2007–2016



A total of 3115 students were admitted into DMT in Dental Technology (the majority (about 60%) were male) (Figure 100); 76% got admitted into government IHTs and remaining into nongovernment institutions.

Figure 101: Year-wise distribution of total students admitted into DMT in Dental Technology during 2007–2016

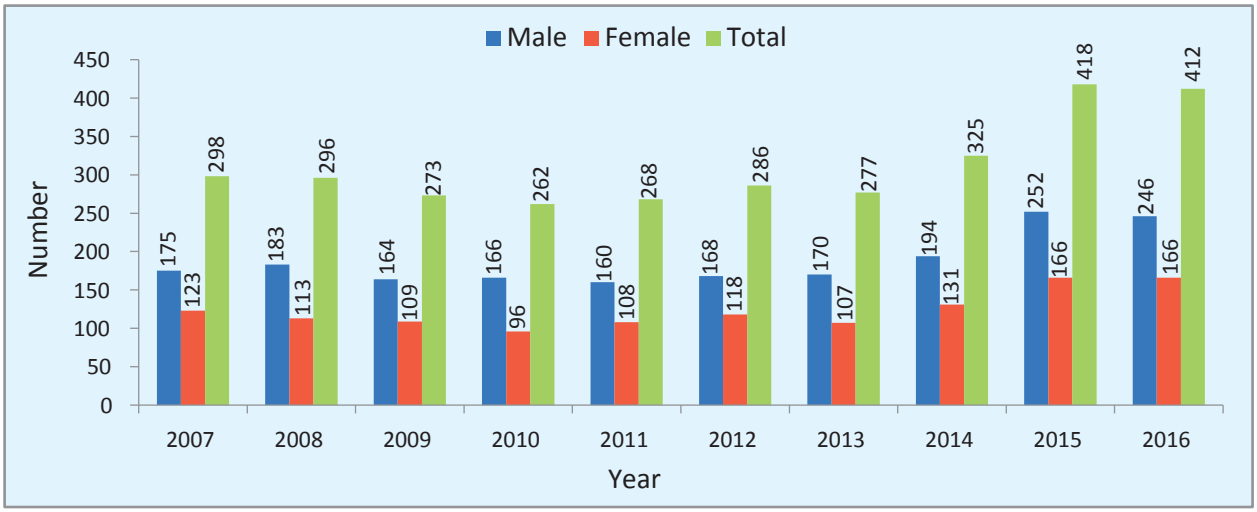


Figure 101 showed that on an average 312 students were admitted into DMT in Dental Technology per year (2007–2016); among them about 40% are female.

Number of students who completed the Diploma in Dental Technology

Figure 102: Number of students who acquired DMT in Dental Technology during 2007–2016

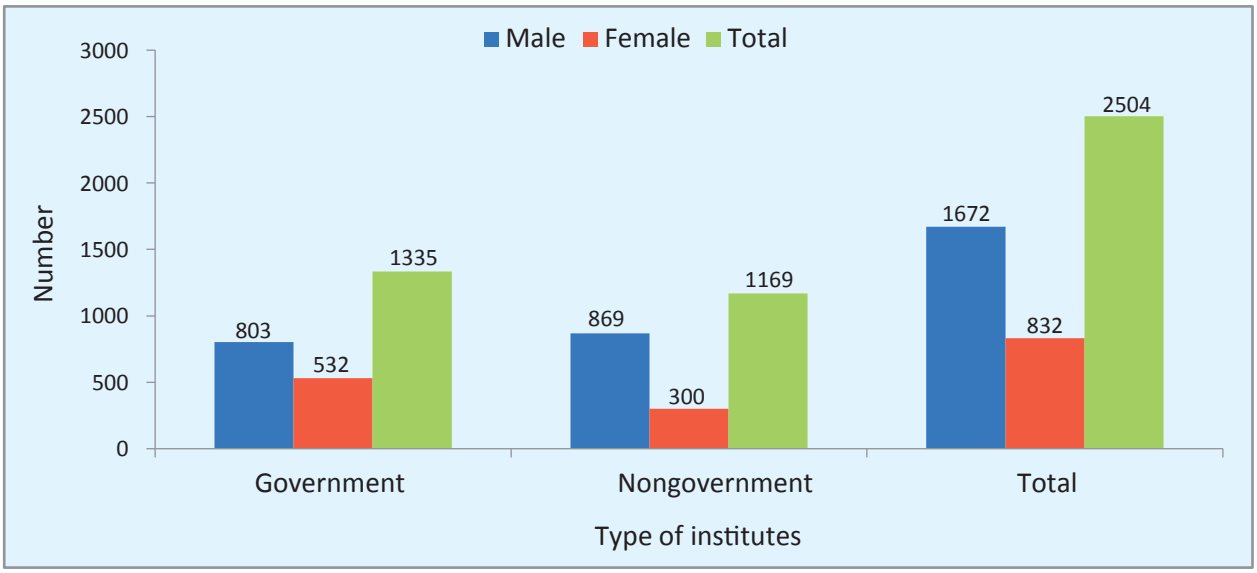
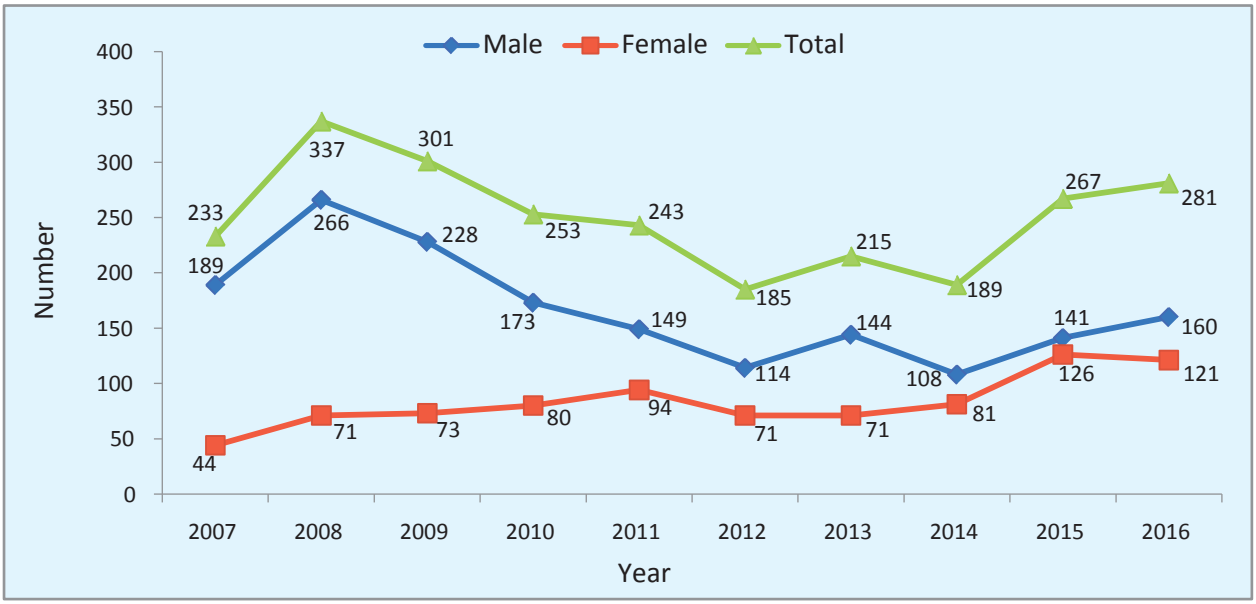


Figure 102 shows that 2504 students successfully completed the DMT in Dental Technology; and the majority of (53%) were from government IHTs. Of the total graduated students, 33% were female.

Figure 103: Year-wise distribution of students who acquired DMT in Dental Technology during 2007–2016



There was an uneven trend in the number of students who completed DMT in Dental Technology during 2007–2016 (Figure 103). In 2008, 337 students completed the diploma, which was 45% higher than the previous year and highest in the decade. However the number continued to fall gradually from 2008 to 2012. Since 2013 the number of students who completed the diploma has been increasing gradually again with a slight fall in 2014. On an average 250 students successfully completed the diploma per year; among them 67% were male and 33% were female.

Refer to Annex 5 regarding year-wise admissions and pass-outs of DMT in Dental Technology with male–female distributions in public and private sector IHTs.

Diploma in Medical Technology in Radiology and Imaging

Admission

Figure 104: Number of IHTs offering DMT in Radiology and Imaging

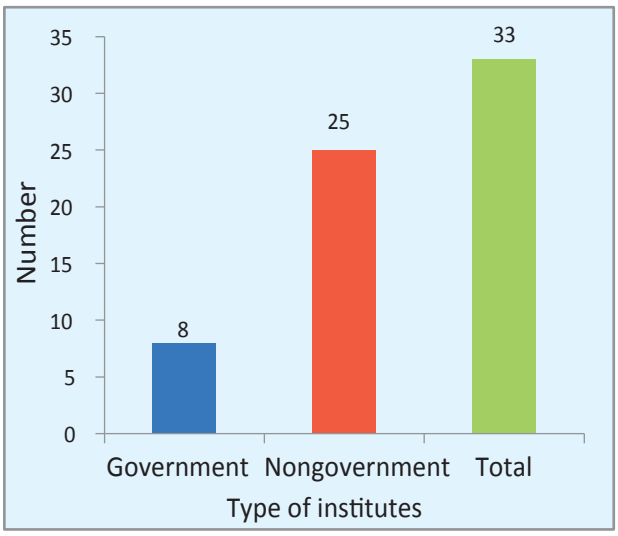
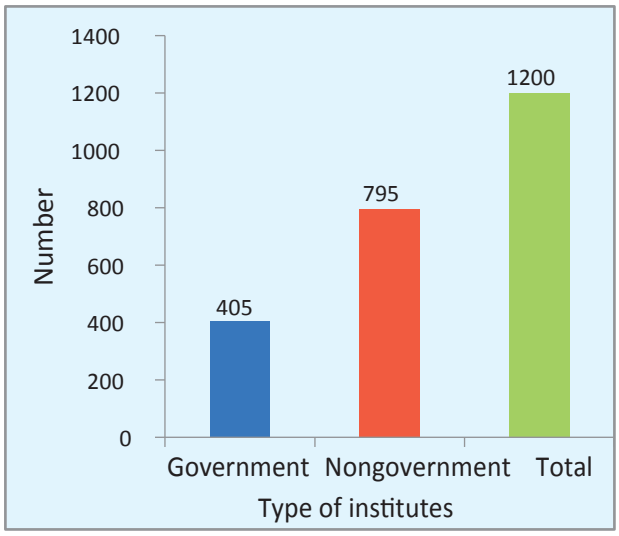


Figure 105: Number of available seats (by 2016)



Figures 104 and 105 indicate that 33 IHTs offered DMT in Radiology and Imaging with 1200 approved seats. Of the IHTs, eight (about 24% of total IHTs that offered DMT in Radiology and Imaging) were in the government sector and accounted for about 34% of total number of available seats; the nongovernment sector accounted for 76% of institutes and 66% of available seats.

Figure 106: Total number of students admitted into DMT in Radiology and Imaging during 2007–2016

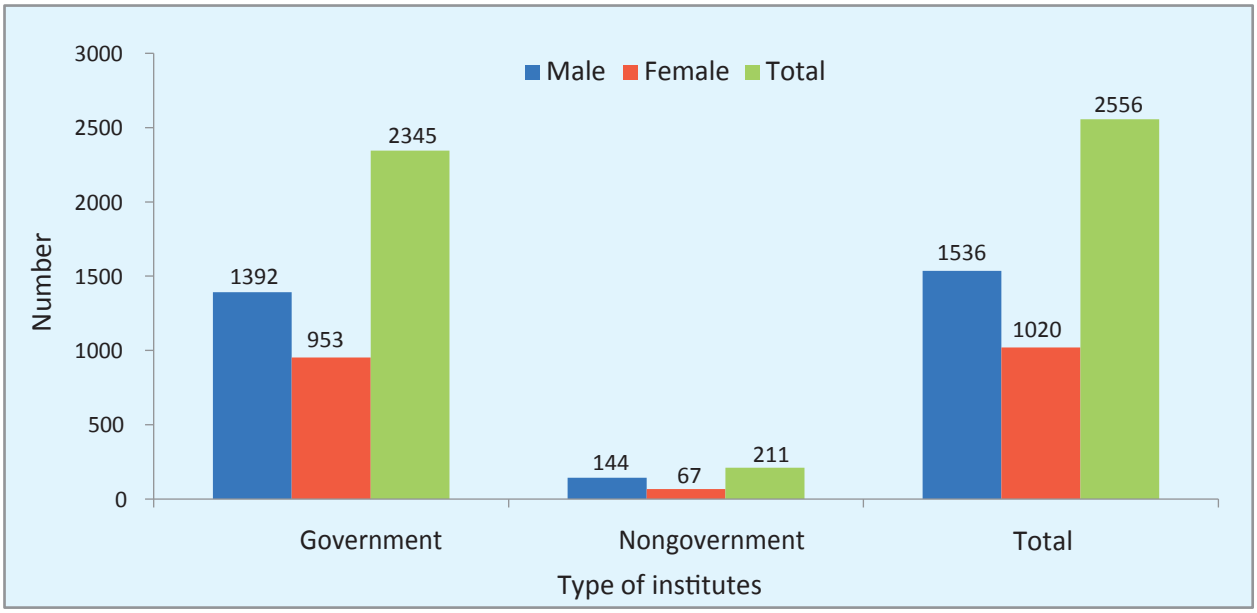
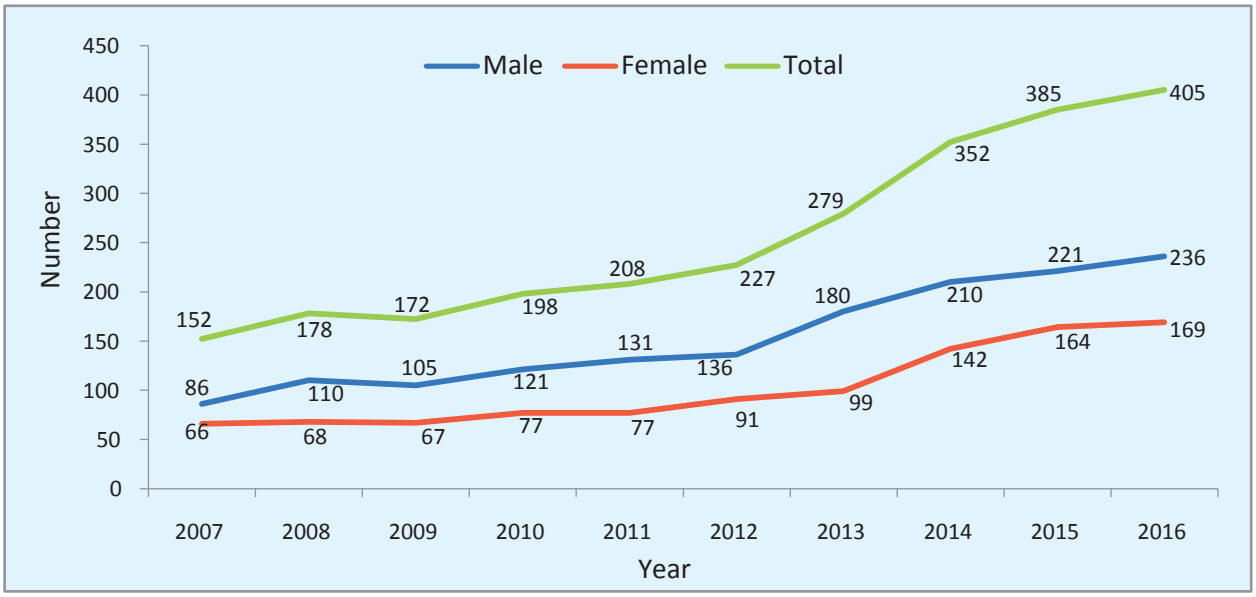


Figure 106 shows that 2556 students were admitted into DMT in Radiology and Imaging; 92% were admitted to government IHTs and the remaining were admitted to nongovernment institutions even though the nongovernment sector accounted for higher number of institutes and available seats.

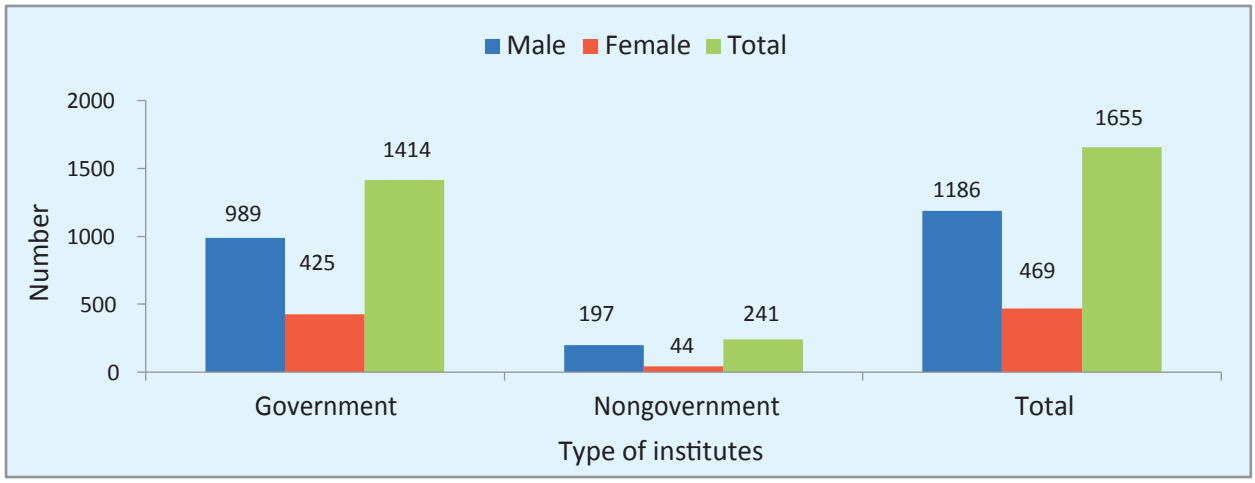
Figure 107: Year-wise distribution of total students admitted into DMT in Radiology and Imaging during 2007–2016



During 2007–2016, on an average 256 students were admitted into DMT in Radiology and Imaging per year of which about 40% were female (Figure 107).

Number of students who completed DMT in Radiology and Imaging

Figure 108: Number of students who completed DMT in Radiology and Imaging during 2007–2016



A total of 1655 students successfully completed DMT in Radiology and Imaging; more than 85% completed the diploma from government IHTs and about 28% of these were female (Figure 108).

Figure 109: Year-wise distribution of total students who acquired DMT in Radiology and Imaging during 2007–2016

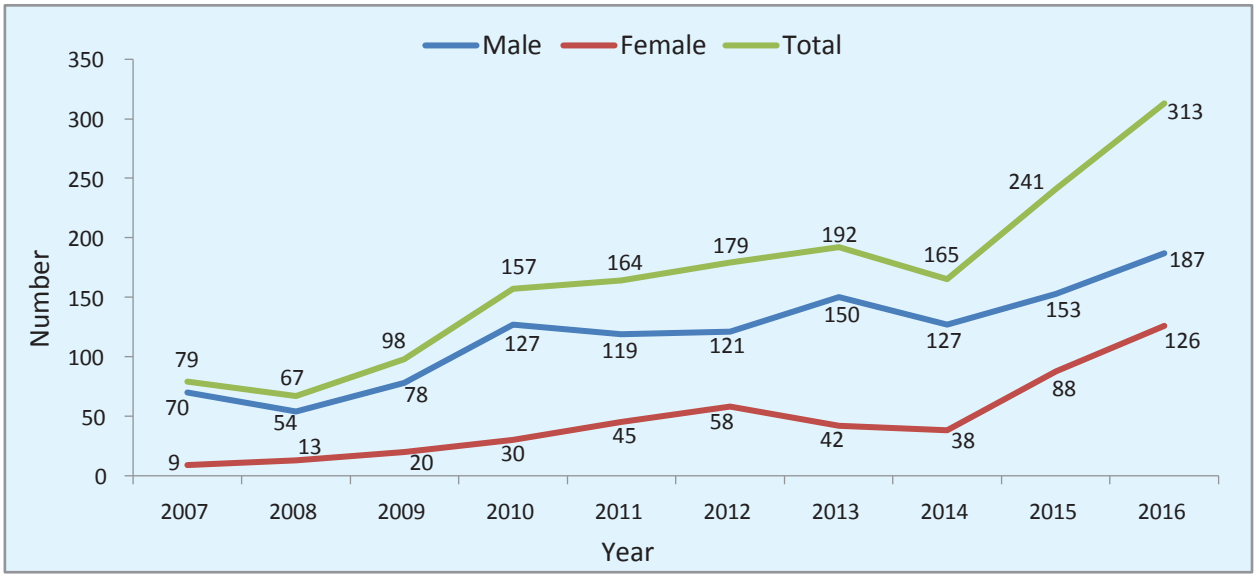


Figure 109 indicates an uneven trend in the number of students who completed DMT in Radiology and Imaging during 2007–2016. On an average 166 students successfully completed the diploma per year; among them 28% were female and 72% were male.

Refer to Annex 5 regarding year-wise admission and completion of DMT in Radiology and Imaging with male–female distribution in public and private sector IHTs.

Diploma in Medical Technology in Radiotherapy

Admission

Figure 110: Number of IHTs offering DMT in Radiotherapy and number of available seats (by 2016)

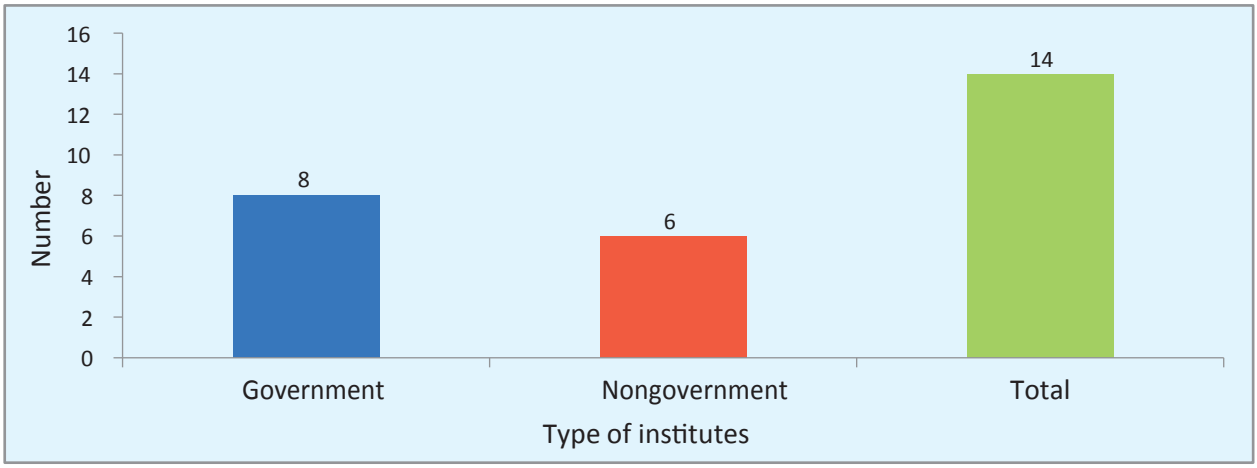
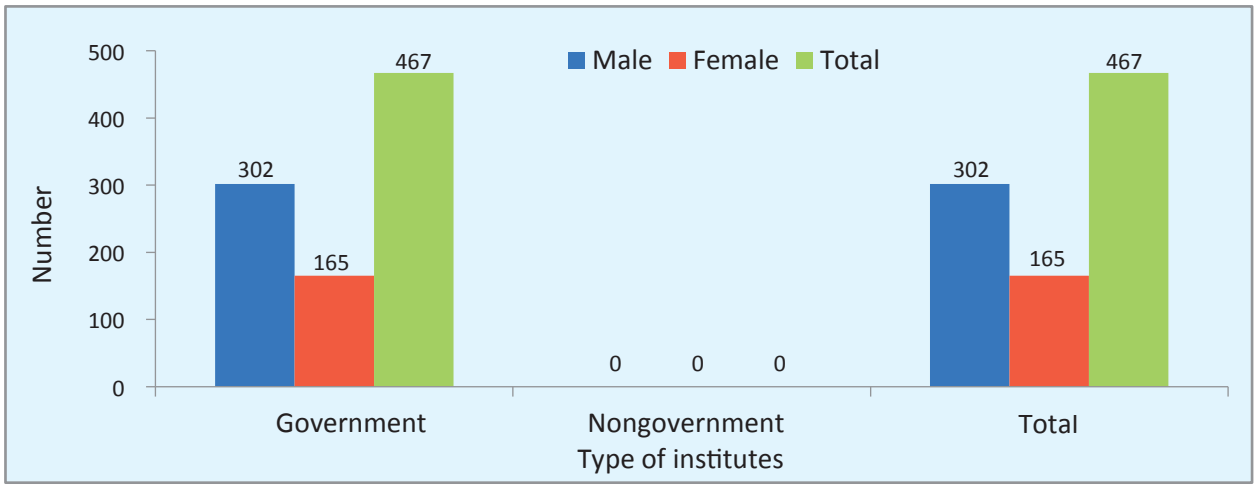


Figure 110 shows that of the 14 IHTs that offered DMT in Radiotherapy, eight were in the government sector and six were in the nongovernment sector.

Data on the number of seats and admissions were not available.

Number of students who completed DMT in Radiotherapy

Figure 111: Number of students who acquired DMT in Radiotherapy during 2007–2016



A total of 467 students completed the DMT in Radiotherapy successfully during 2007-2016; all from government IHTs and about 35% of them were female (Figure 111).

Figure 112: Number of students who acquired DMT in Radiotherapy during 2007–2016

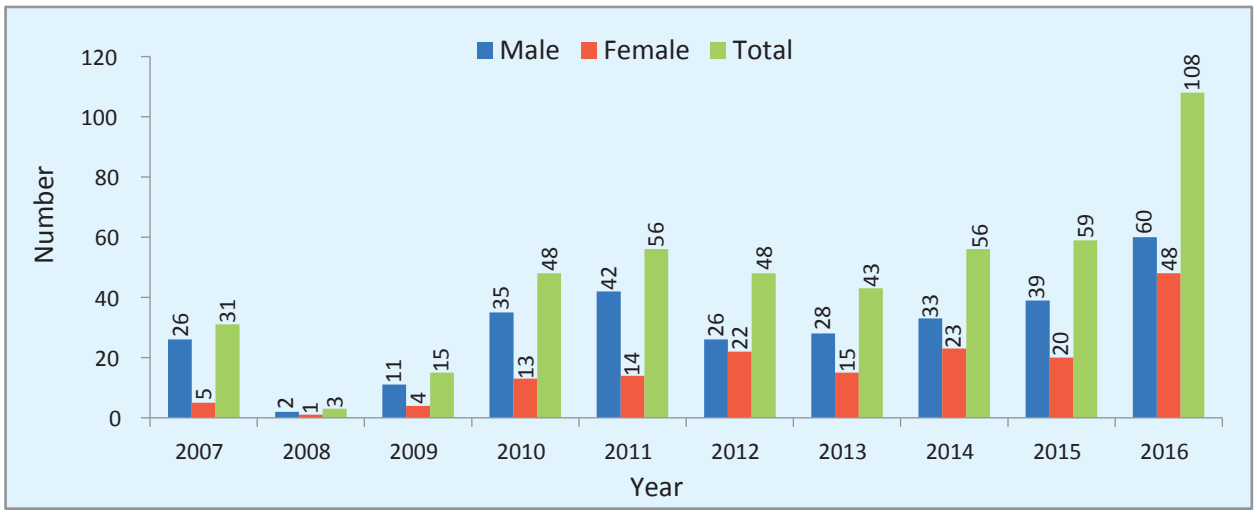


Figure 112 shows students who completed DMT in Radiotherapy only from government IHTs as there were no students who graduated the diploma from nongovernment institutions. During 2007–2016, on average 48 students graduated the diploma per year from these institutes; male–female ratio was 31:17.

Diploma in Medical Technology in Sanitary Inspector Training

Admission

Figure 113: Number of IHTs offering DMT in Sanitary Inspector Training

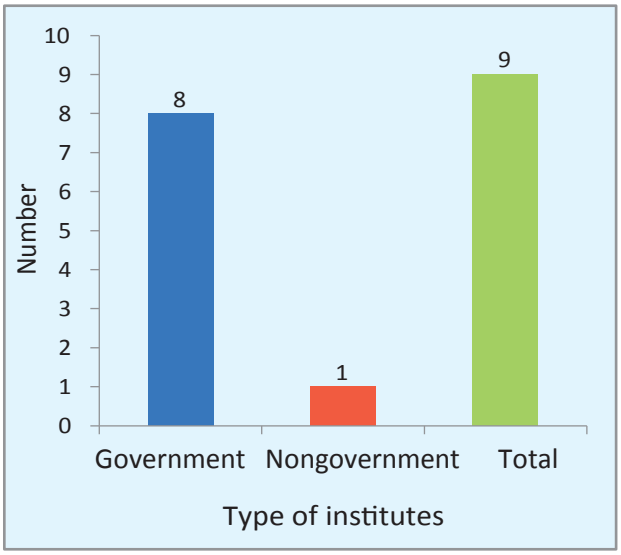
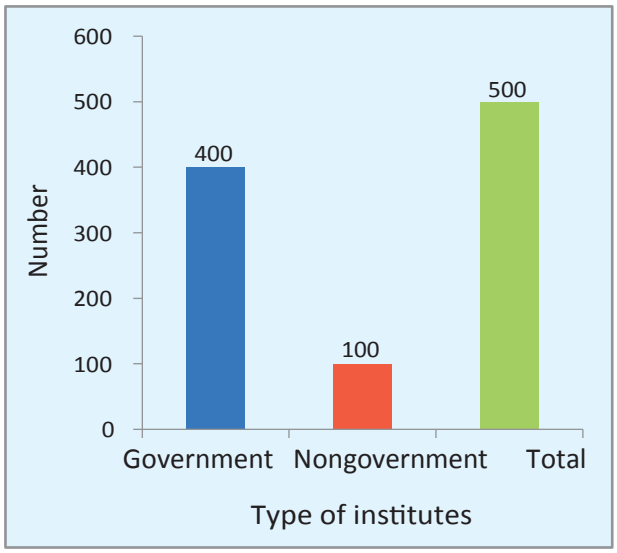
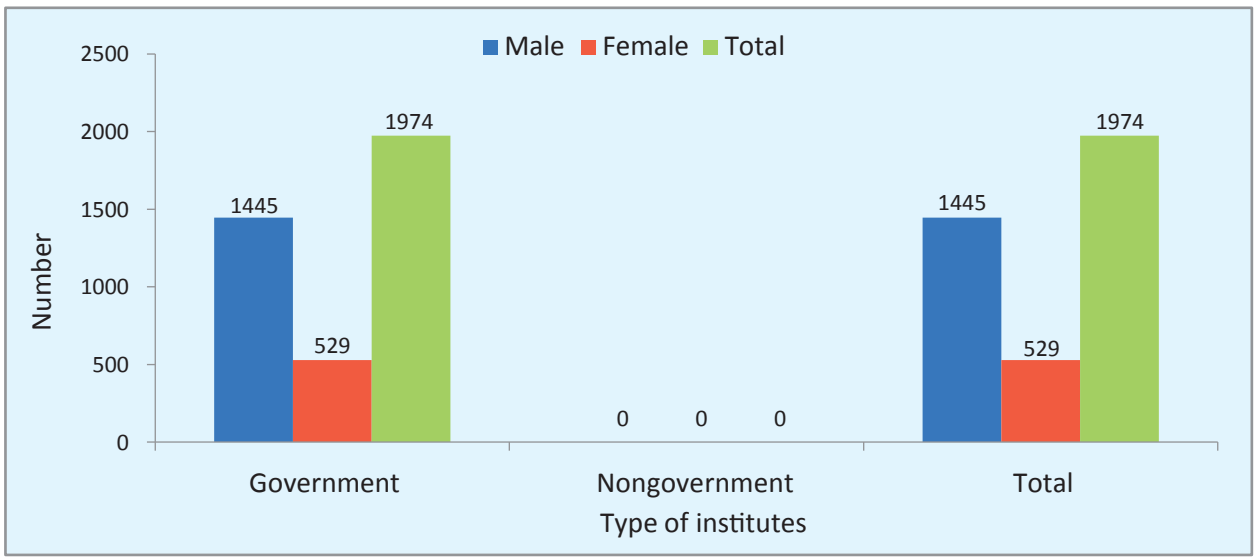


Figure 114: Number of available seats



Figures 113 and 114 showed that nine IHTs (eight government and one nongovernment) offered DMT in Sanitary Inspector Training with 500 approved seats. The government sector accounted for 80% of the total number of available seats while nongovernment sector accounted for 20%.

Figure 115: Total number of students admitted into DMT in Sanitary Inspector Training during 2007–2016



A total of 1974 students were admitted into DMT in Sanitary Inspector Training course in government institutions; among them 27% were female (Figure 115).

Figure 116: Year-wise distribution of total students admitted into DMT in Sanitary Inspector Training during 2007–2016

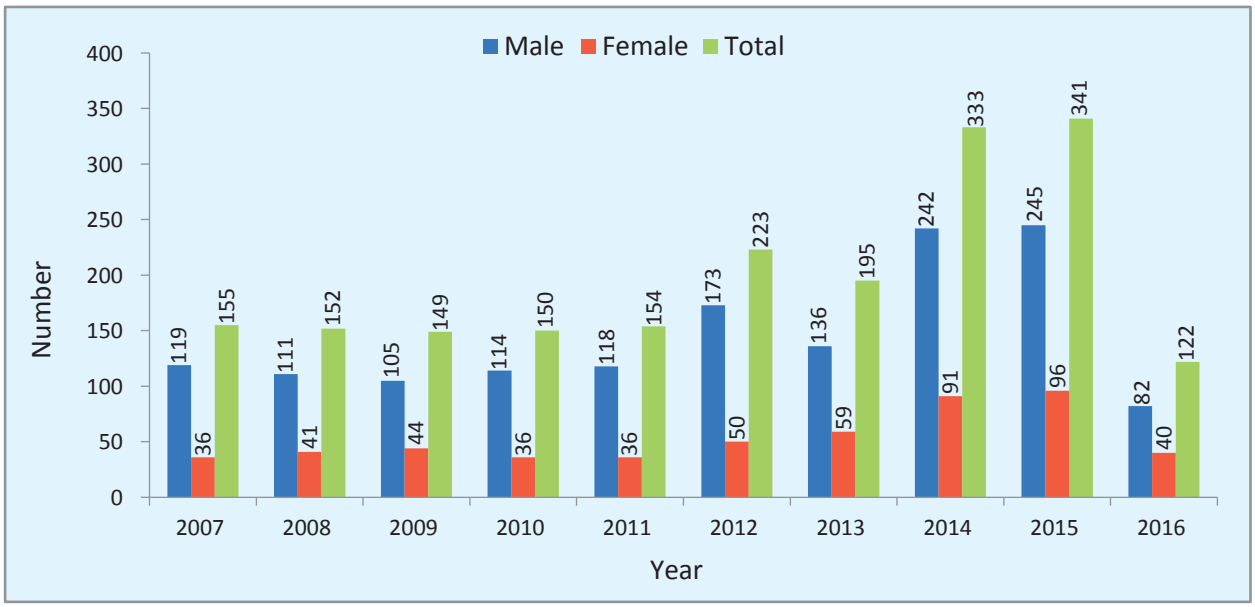


Figure 116 shows that every year on an average 197 students graduated the DMT in Sanitary Inspector Training during 2007-2016. Most of the years the number of admissions remained stable between 120 and 195; except in 2012, 2014 and 2015 when the number of admitted students were 223, 333 and 341, respectively.

Number of students who completed DMT in Sanitary Inspector Training

Figure 117: Total number of students who acquired DMT in Sanitary Inspector Training during 2007–2016

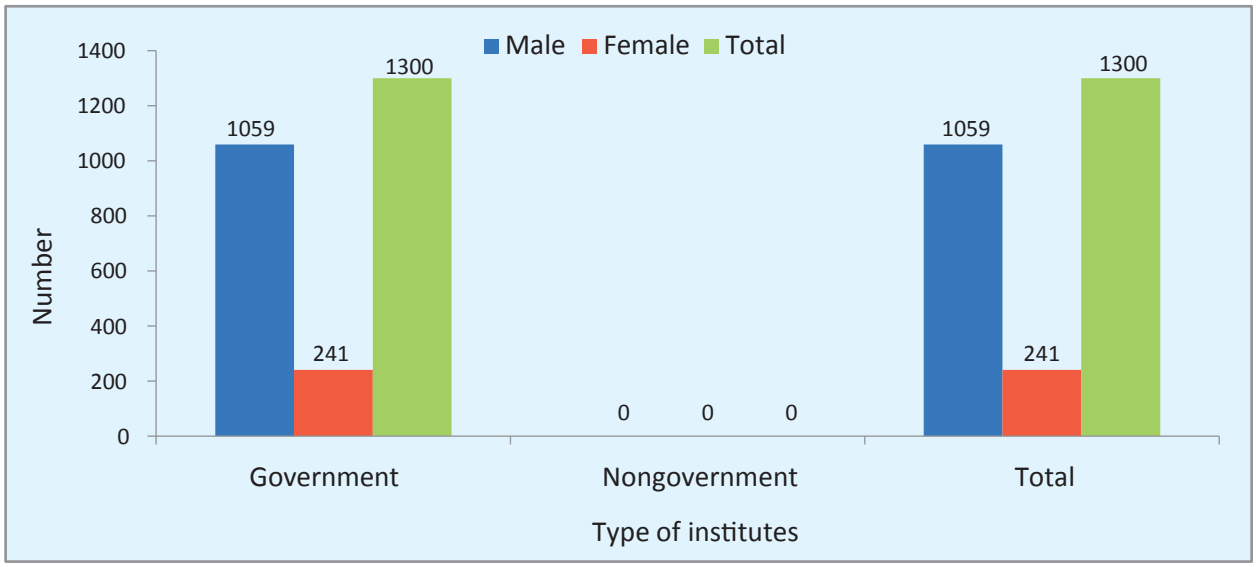


Figure 117 shows that during 2007–2016, 1300 students completed the DMT in Sanitary Inspector Training course; all from government IHTs; more than 81% were male and 19% were female.

Figure 118: Year-wise distribution of students who acquired DMT in Sanitary Inspector Training during 2007–2016

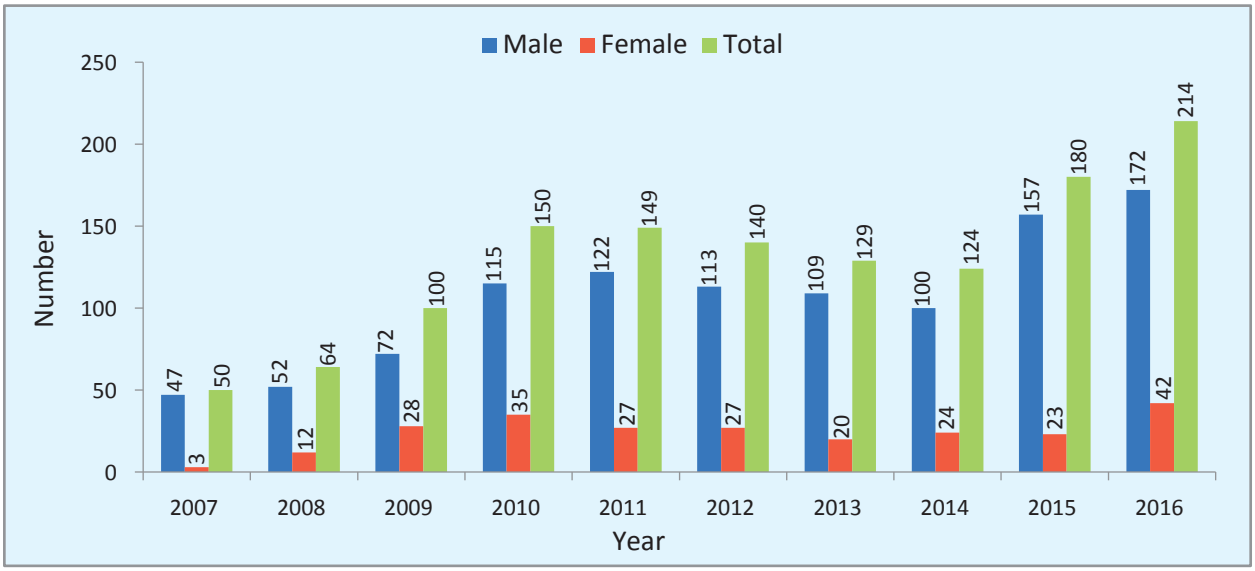


Figure 118 shows an uneven trend in the number of students who completed DMT in Sanitary Inspector Training during 2007–2016 (government IHTs only as no students were admitted to nongovernment institutes). The numbers increased gradually from 2007 to 2010, however from 2011 to 2014 the trend was opposite, and then the numbers continued to increase again from 2015 and the highest number of students graduated the diploma in 2016.

Diploma in Medical Technology in Operation Theatre Assistance

Admission

Figure 119: Number of IHTs offering DMT in Operation Theatre Assistance

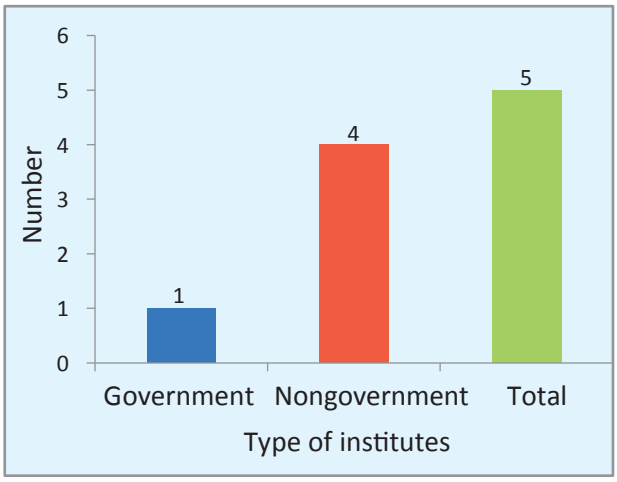
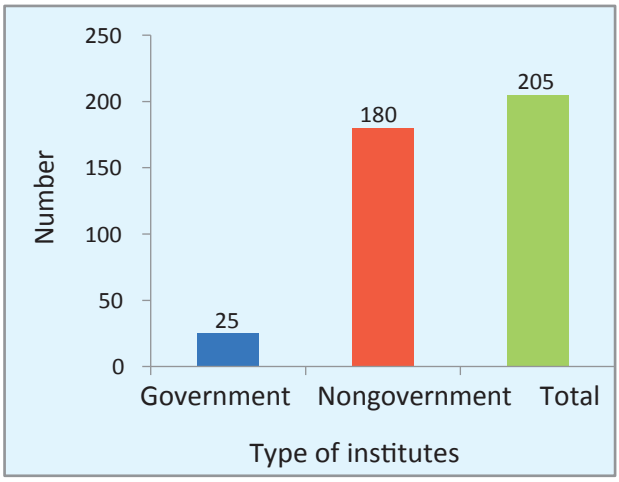
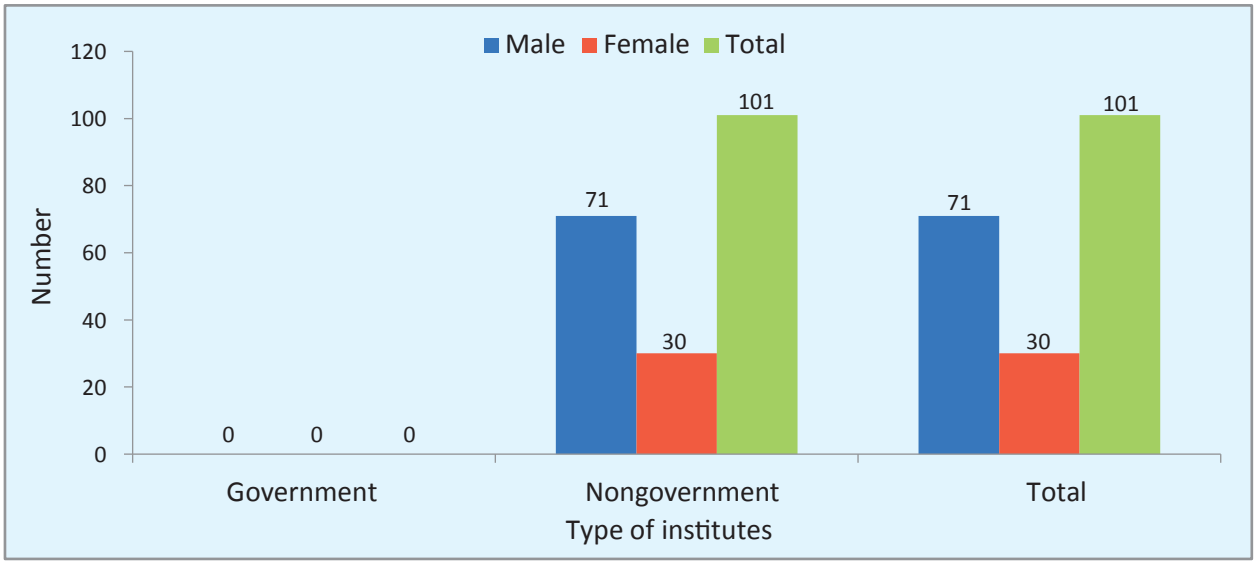


Figure 120: Number of available seats



Figures 119 and 120 show that five (one government and four nongovernment) IHTs offered DMT in Operation Theatre Assistance with 29 approved seats. Of the available seats, the government sector accounted for about 12% and nongovernment sector the remaining 88%.

Figure 121: Total number of students admitted into DMT in Operation Theatre Assistance during 2007–2016



A total of 101 students were admitted into the DMT in Operation Theatre Assistance course, all in nongovernment institutions. Of all the admitted students, about 30% of were female (Figure 121).

Figure 122: Year-wise distribution of students admitted into DMT in Operation Theatre Assistance during 2007–2016

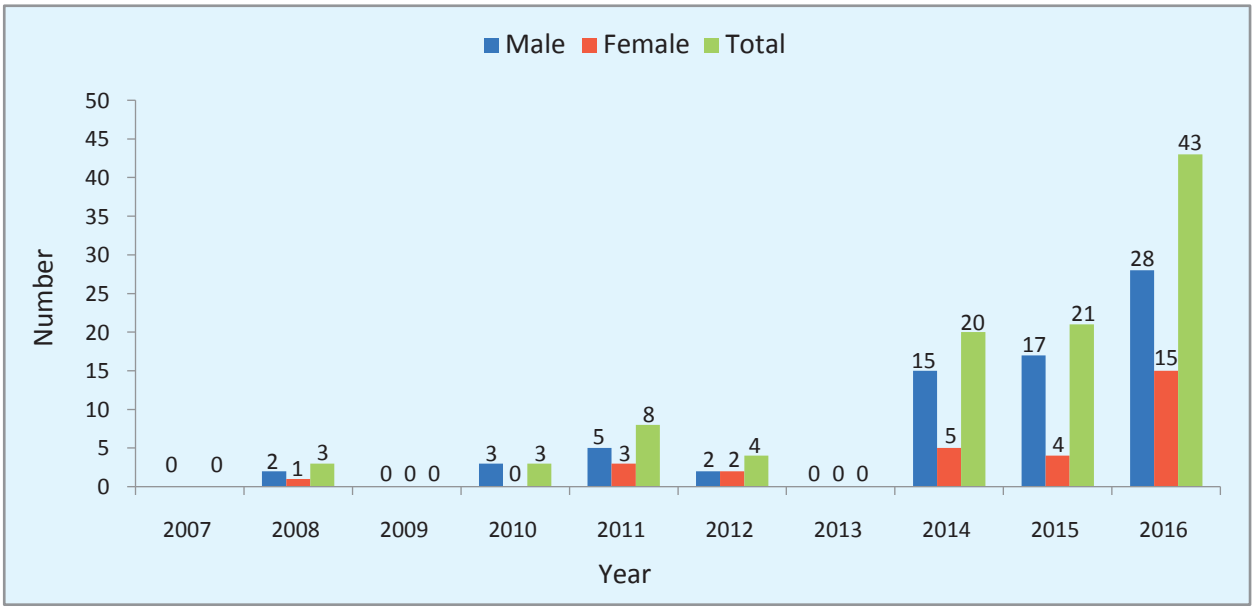
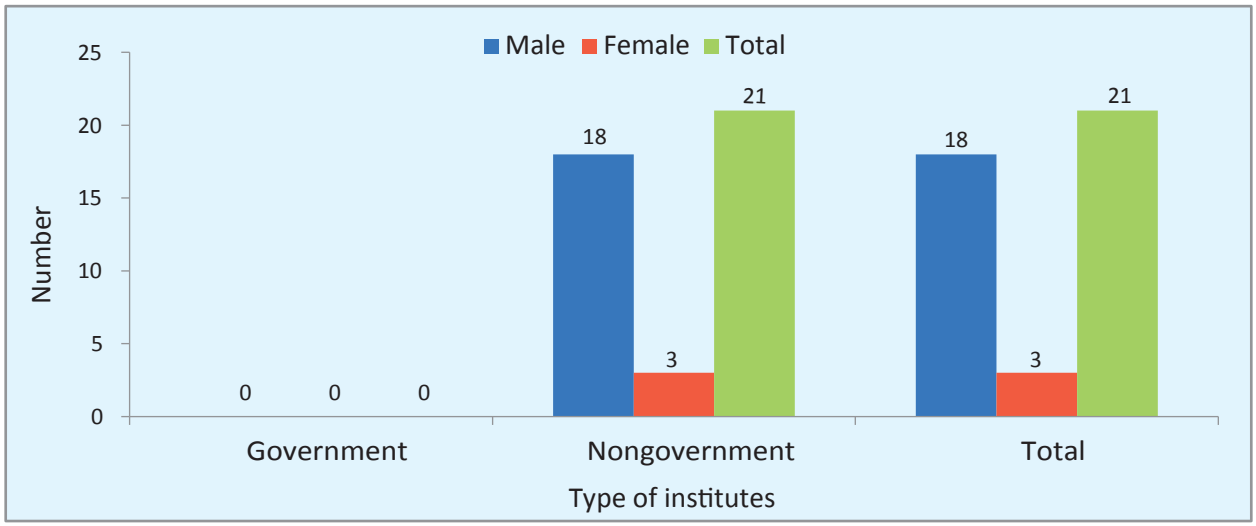


Figure 122 shows that students were admitted to the course only in the nongovernment sector (as there was no student admitted in government sector). During 2007, 2009 and 2013, no students were admitted to the course. Before 2014 only a few students were admitted, but since then the number has been increasing gradually; from 2014 to 2016, on an average 42 students were admitted into the course.

Number of students who acquired DMT in Operation Theatre Assistance

Figure 123: Number of students who acquired DMT in Operation Theatre Assistance during 2007–2016



Only 21 students completed the DMT in Operation Theatre Assistance, of which only three were female (Figure 123).

Figure 124: Year-wise distribution of students who acquired DMT in Operation Theatre Assistance during 2007–2016

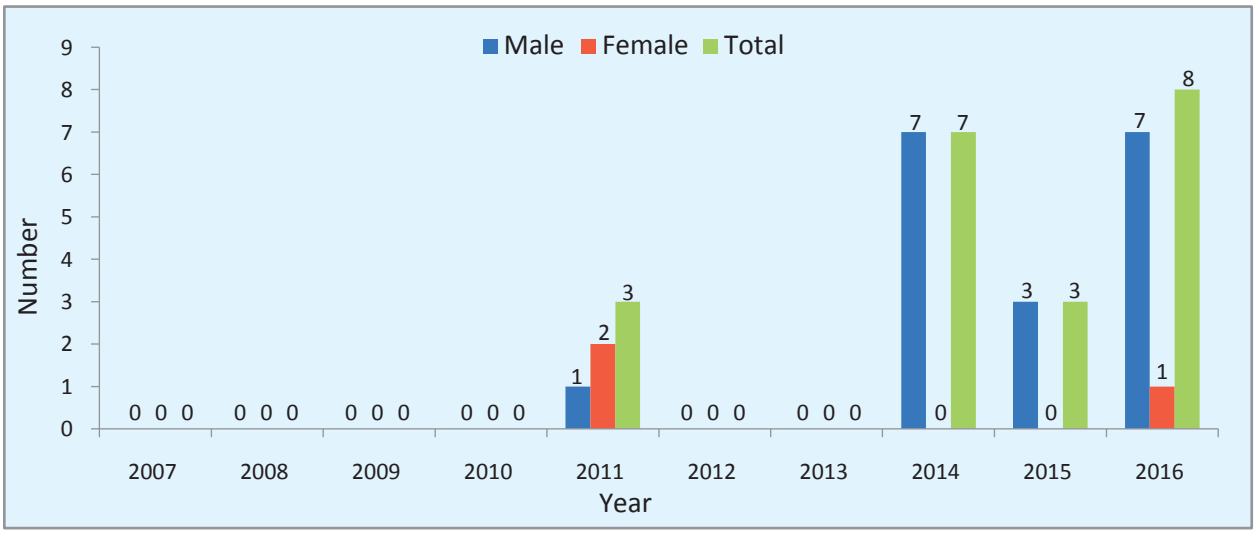


Figure 124 indicates that of the 2007–2016 period, students only graduated the DMT in Operation Theatre Assistance course during four years (2011, 2014–2016); there were no diplomas awarded for six years. The lowest number of students (three) graduated the diploma in 2011, while the highest number of students (eight) completed the diploma successfully in 2016.

Diploma in Medical Technology in Intensive Care Assistance

Admission

Figure 125: Number of IHTs offering DMT in Intensive Care Assistance

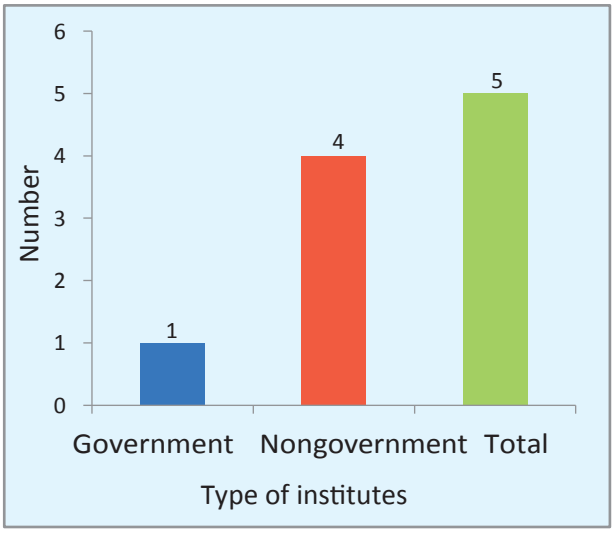
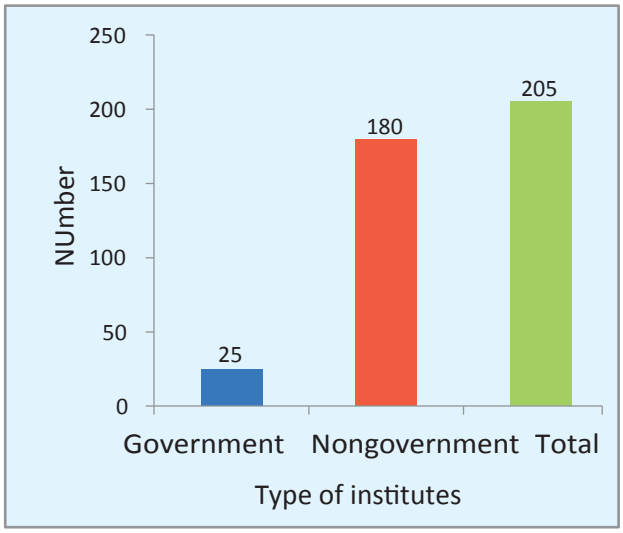
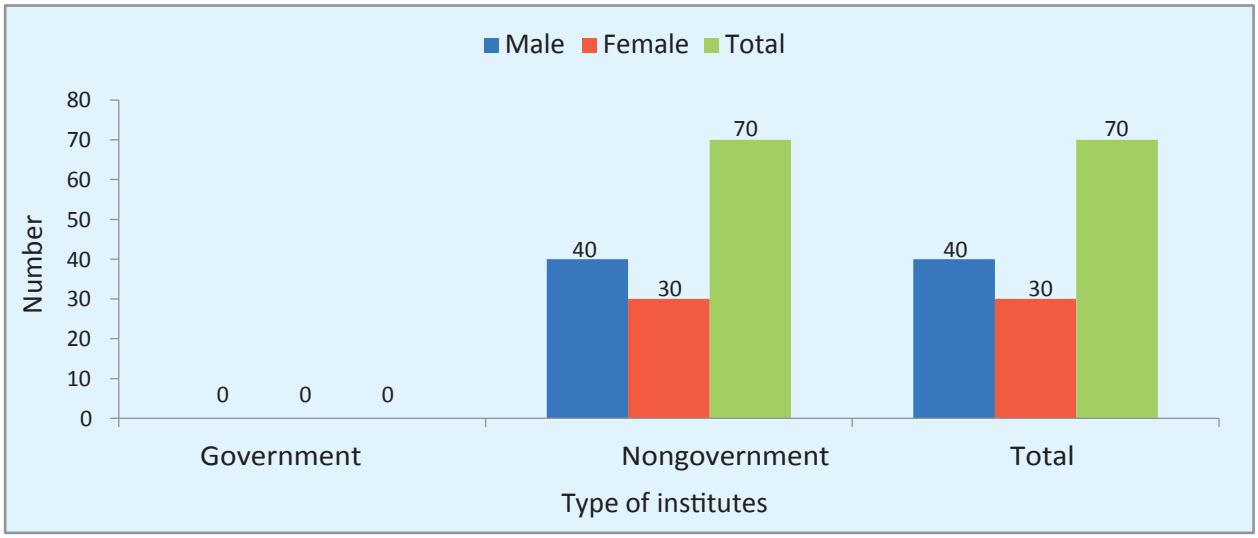


Figure 126: Number of available seats



Figures 125 and 126 indicate that five (one government and four nongovernment) IHTs offered DMT in Intensive Care Assistance with 205 approved seats. The government sector accounted for about 12% and nongovernment sector for about 88% of the seats.

Figure 127: Total number of students admitted into DMT in Intensive Care Assistance during 2011–2016



During 2011–2016, all 70 students admitted into DMT in Intensive Care Assistance were in nongovernment institutions; and among them about 43% were female (Figure 127).

Figure 128: Year-wise distribution of students admitted into DMT in Intensive Care Assistance during 2007–2016

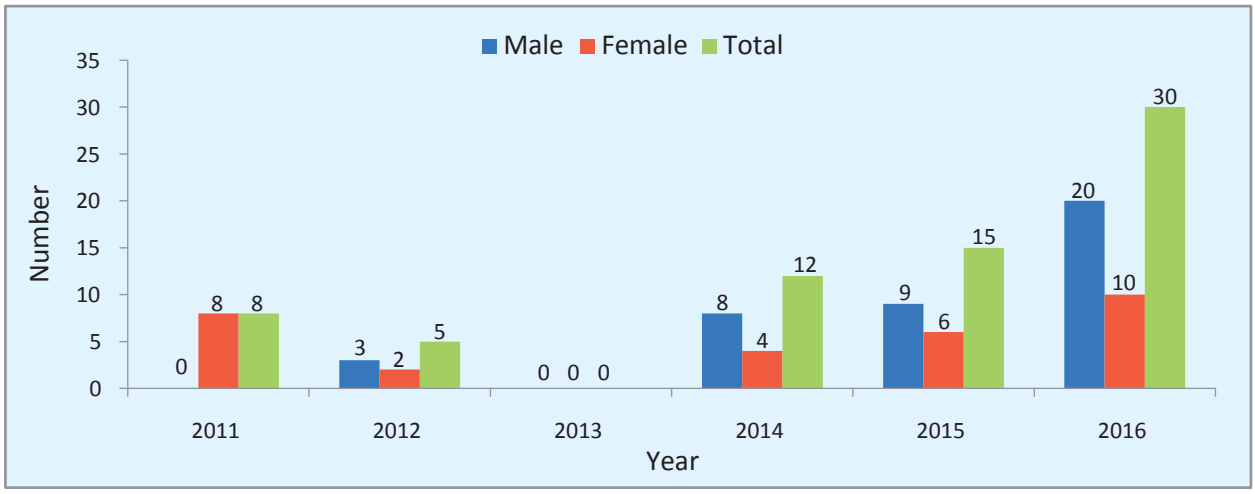


Figure 128 indicates that eight students were admitted as the first batch in 2011, and all were female. Only five students were admitted in 2012, while in 2013 no student was admitted to the diploma course. In 2014, 12 students were admitted and the number continued to increase with 15 admissions in 2015 which doubled to 30 students in 2016.

Number of students who acquired DMT in Intensive Care Assistance

Figure 129: Number of students who acquired DMT in Intensive Care Assistance during 2007–2016

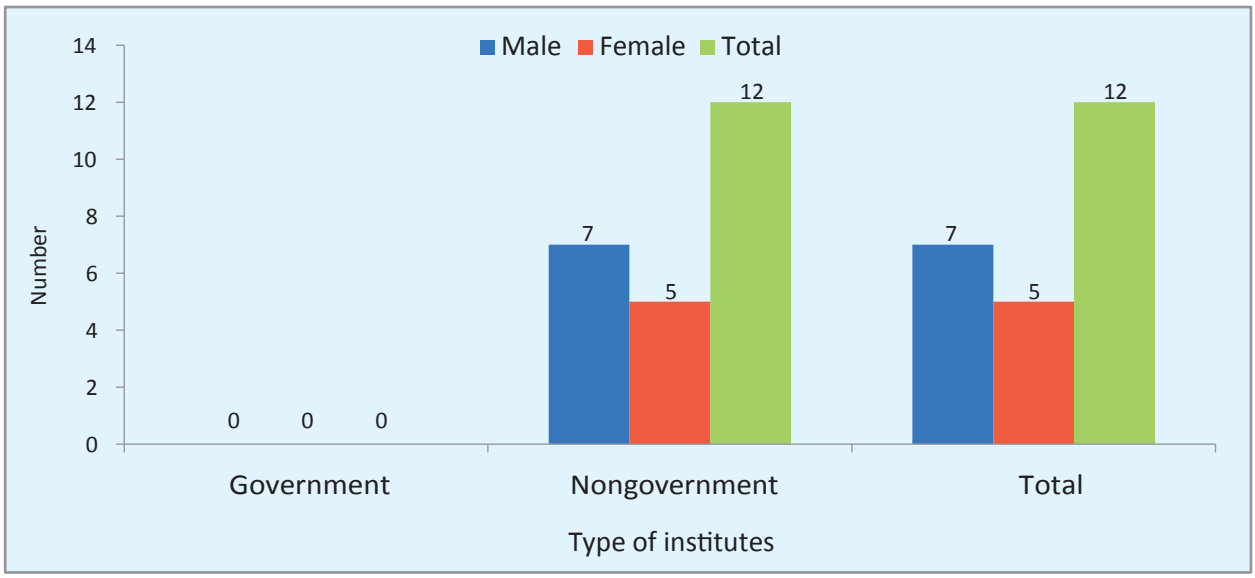


Figure 129 shows that during 2014-2016 (first batch of students graduated in 2014) only 12 students completed the DMT in Intensive Care Assistance, of which only five were female.

Figure 130: Year-wise distribution of students who acquired DMT in Intensive Care Assistance during 2007–2016

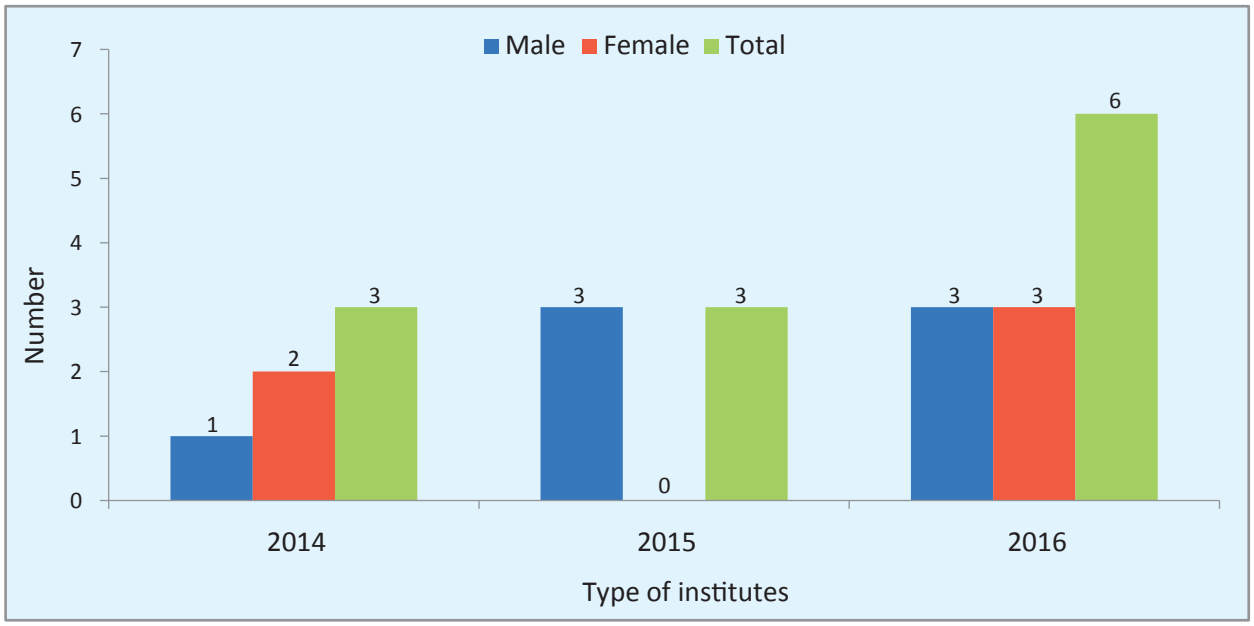


Figure 130 shows that during 2014–2016, on an average only four students graduated the diploma, while the total number of female students who graduated the diploma was five.

Diploma in Medical Technology in Prosthetics and Orthotics

Figure 131: Number of IHTs offering DMT in Prosthetics and Orthotics

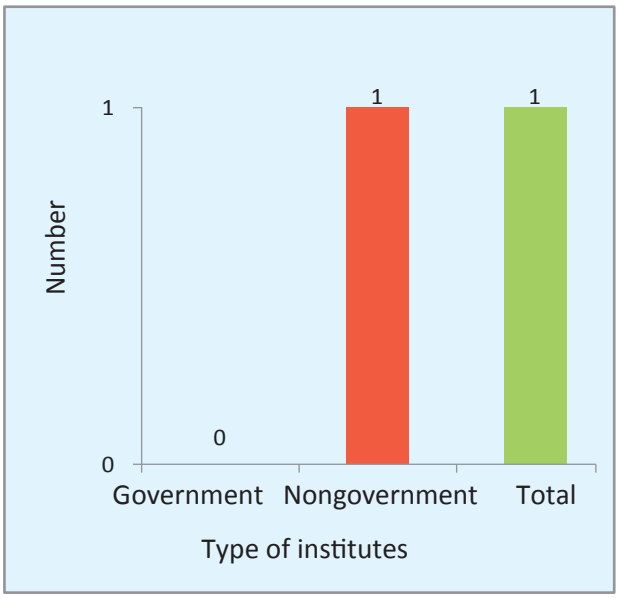
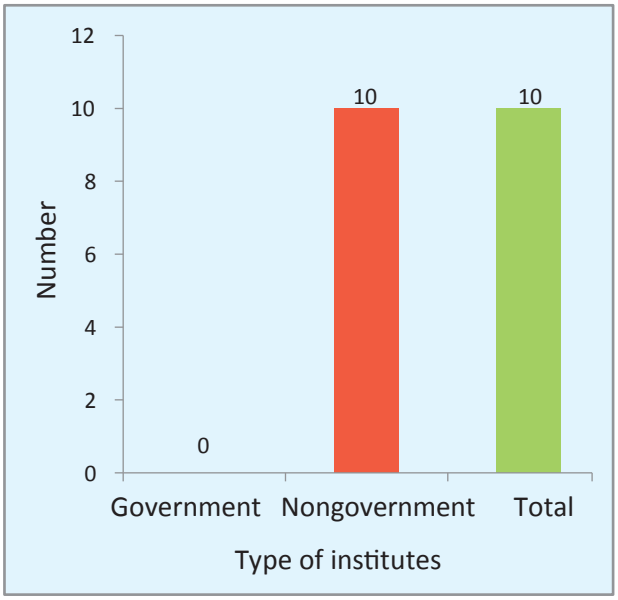
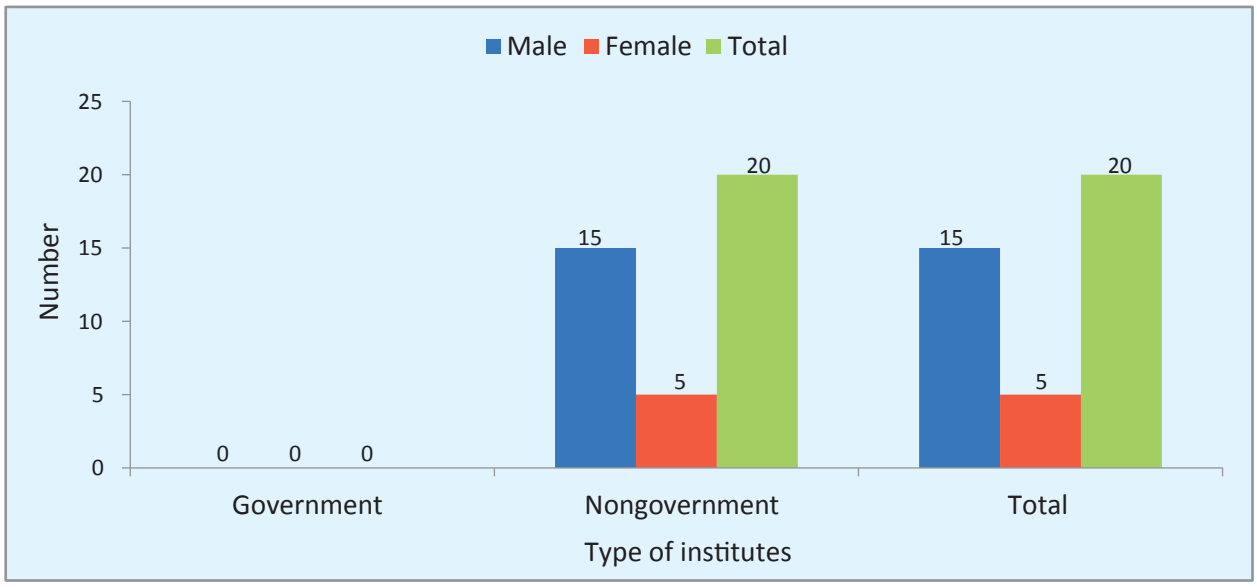


Figure 132: Total number of available seats



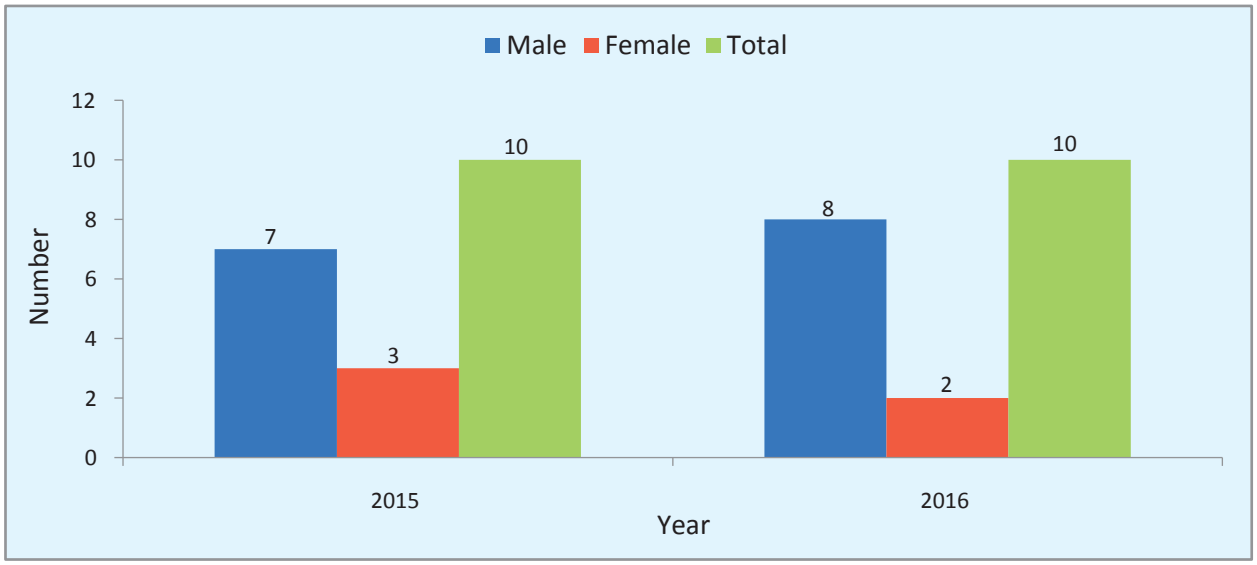
Figures 131 and 132 indicate that only one IHT (nongovernment sector) offered Diploma in Medical Technology (Prosthetics and Orthotics) with 10 available seats. No government IHTs offered this diploma.

Figure 133: Total number of students admitted into DMT in Prosthetics and Orthotics during 2015–2016



A total of 20 students completed DMT in Prosthetics and Orthotics during 2015 and 2016 (the diploma course was started in 2015), and only 25% of them were female (Figure 133).

Figure 134: Year-wise distribution of students admitted into DMT in Prosthetics and Orthotics during 2007–2016



In 2015 and 2016, on an average 10 (100% of total number of available seats) students were admitted into the DMT in Prosthetics and Orthotics (Figure 134) course. Since the diploma started in 2015, no student has completed the programme yet.

Diploma in Medical Technology in Cardiology

Admission

Table 10: Number of IHTs offeringDMT in Cardiology and available seats

Type of IHT	Number of IHT	Number of available Seats
Government	0	0
Nongovernment	1	5
Total	1	5

Table 10 shows that only one institute (in the nongovernment sector) offered DMT in Cardiology and had five available seats. No government IHTs offered the diploma.

Even though one more IHT had approval to offer the diploma, it had not started offering the course.

Diploma in Medical Technology in Pharmacy

Admission

Figure 135: Number of IHTs offering DMT in Pharmacy

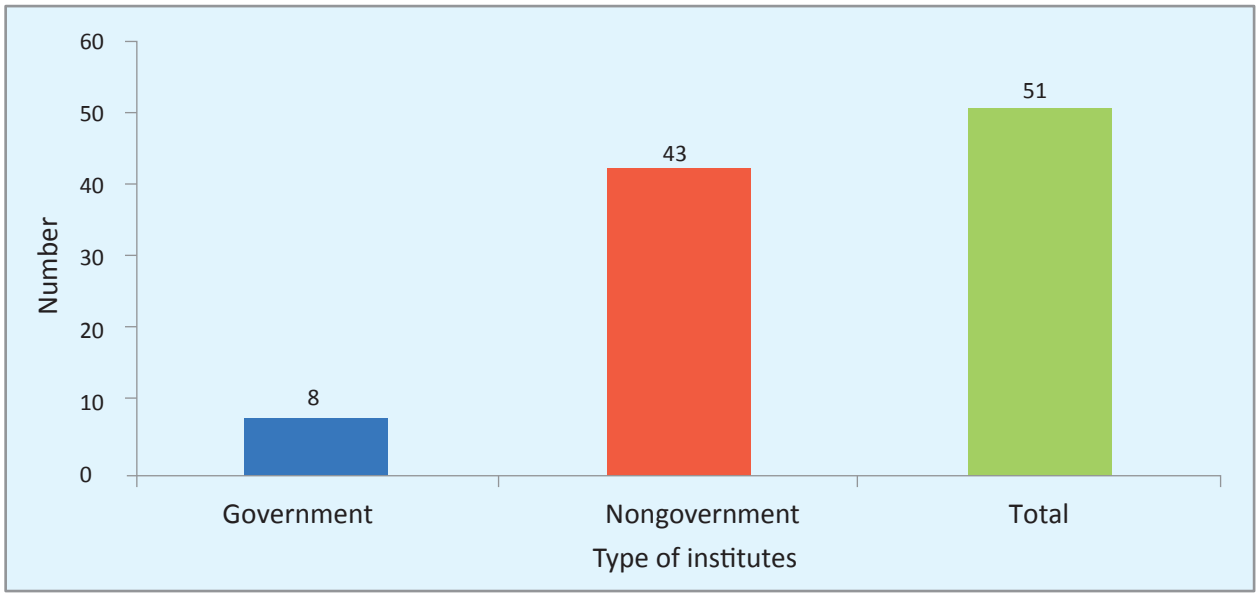
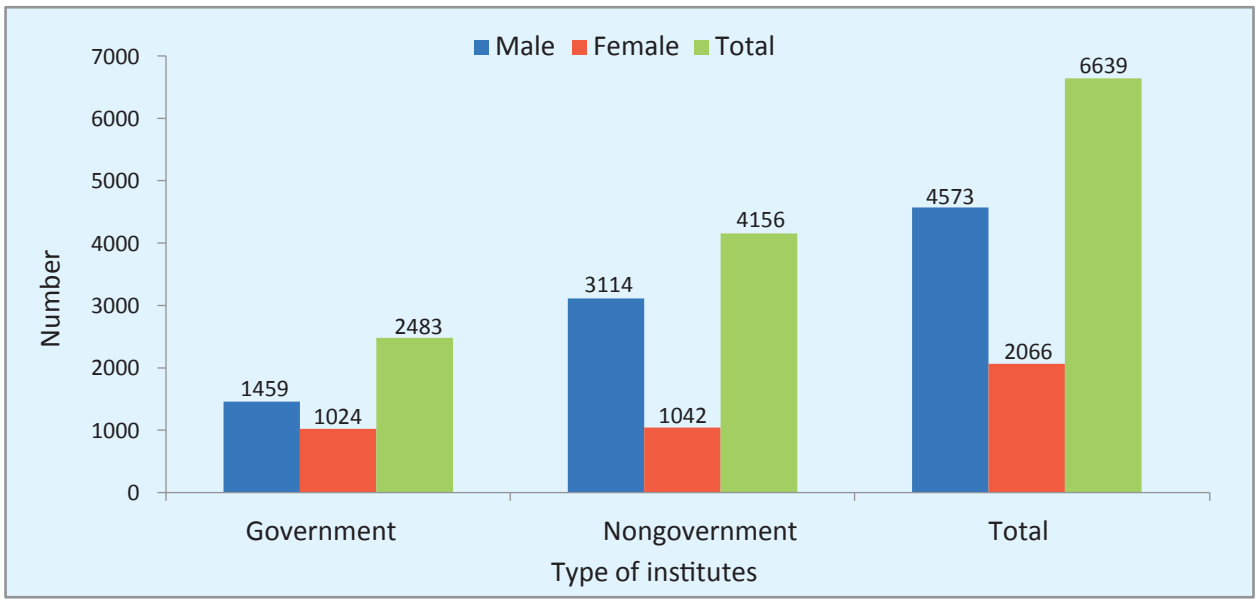


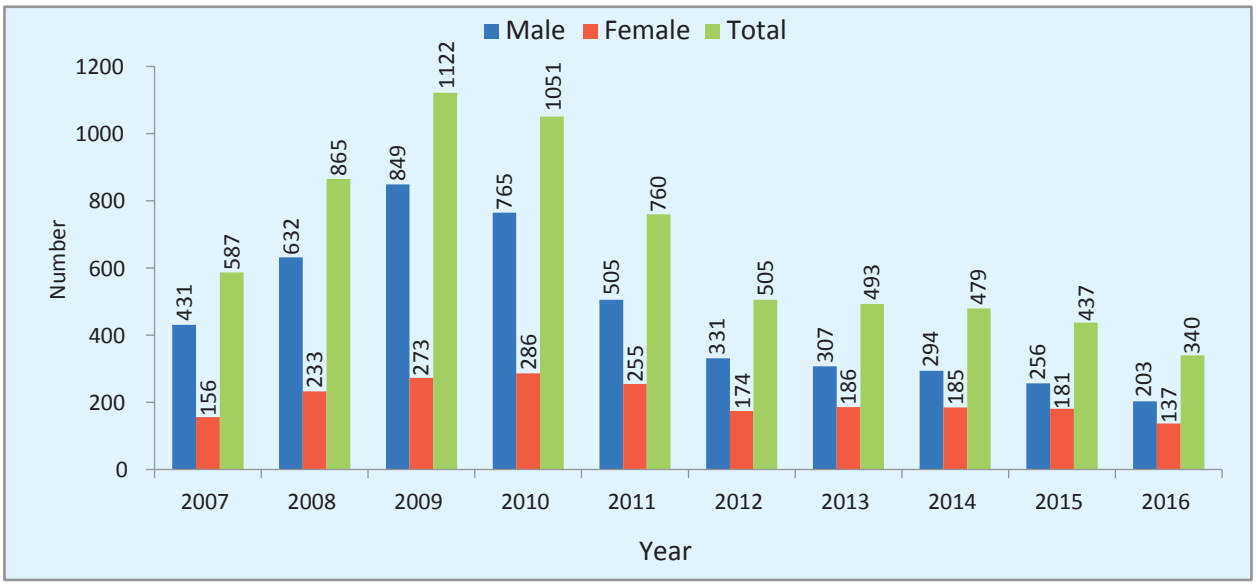
Figure 135 indicates that 51 IHTs offered DMT in Pharmacy, of which 16% were government IHTs and the remaining 84% were in the nongovernment sector.

Figure 136: Total number of students admitted into DMT in Pharmacy during 2007–2016



Of the 6639 students admitted into DMT in Pharmacy, 37% were in government IHTs and remaining 63% were in nongovernment institutions (Figure 136). Of the total students about 31% were female.

Figure 137: Year-wise distribution of students admitted into DMT in Pharmacy during 2007–2016



Since 2007 the number of students admitted into DMT in Pharmacy increased gradually until 2009; however, after that the number decreased gradually. In 2009, 1122 were admitted, however, at the end of the study period (2016) the number decreased by more than 70% (340). During 2007–2016 on an average 664 students were admitted per year and the male–female ratio of total students per year was 457:207.

Number of students who acquired DMT in Pharmacy

Figure 138: Total number of students who acquired DMT in Pharmacy during 2007–2016

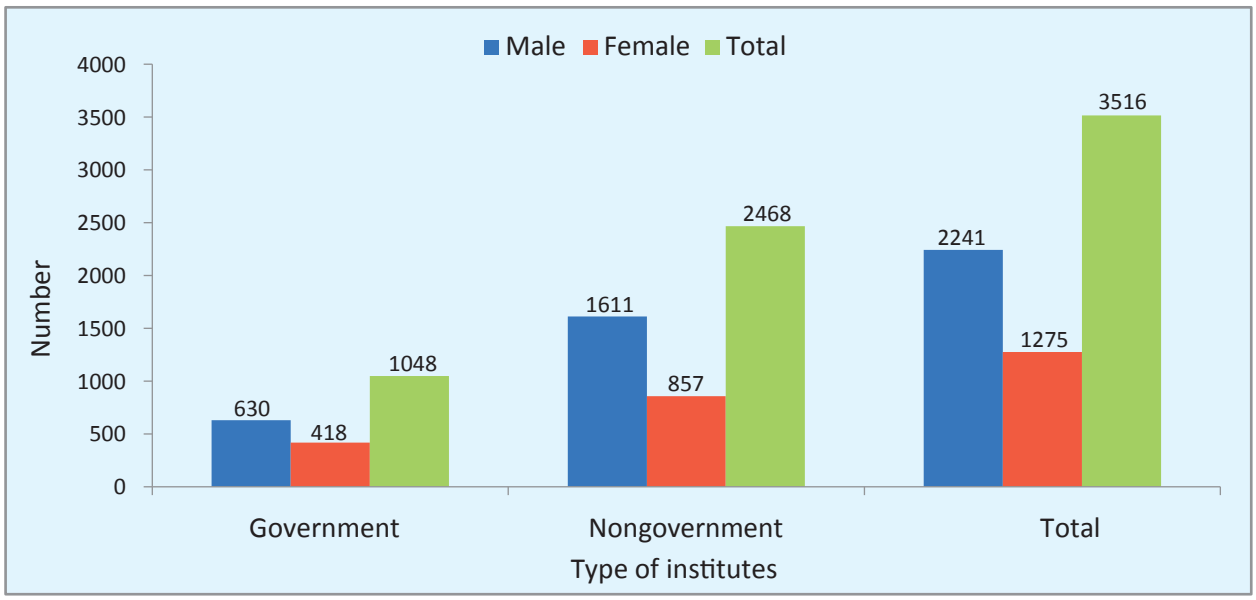
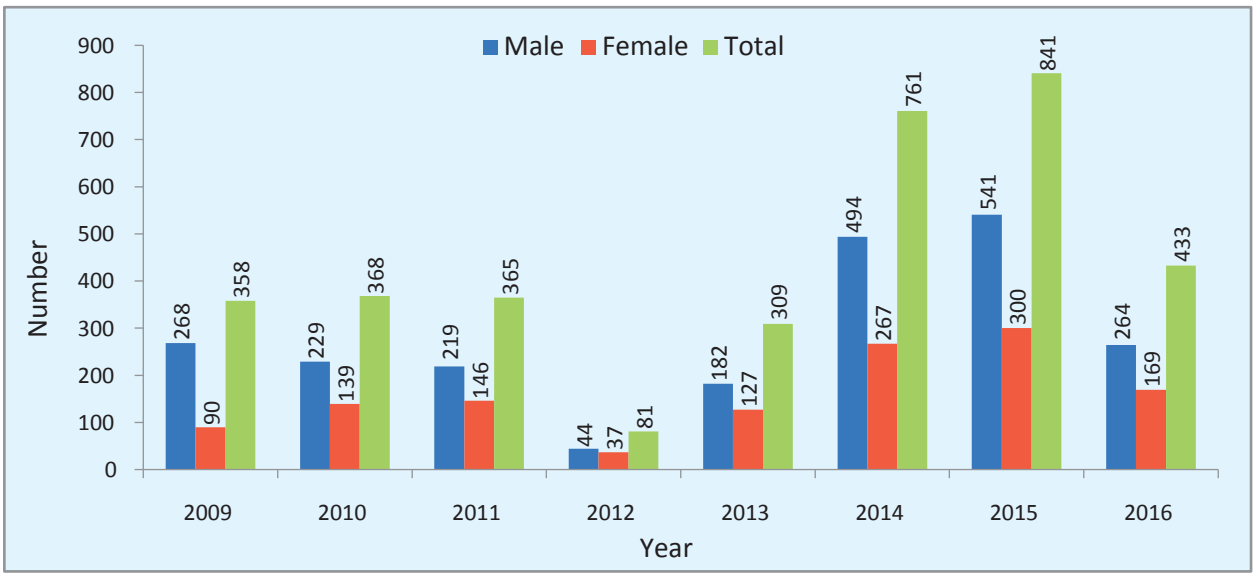


Figure 138 shows that 3516 students successfully completed DMT in Pharmacy; about 30% completed from the government IHTs, while the remaining 70% completed from nongovernment IHTs. Of the total pass-outs 36% were female.

Figure 139: Year-wise distribution of students who acquired DMT in Pharmacy during eight years (2009–2016)



The highest number of students (841) graduated DMT in Pharmacy in 2015, while the lowest number of students (81) completed the diploma in 2012. During 2007–2016, on an average 352 students successfully completed the course per year.

Refer to Annex 5 regarding year-wise admission and completion of DMT in Pharmacy students with male–female distribution in public and private sector IHTs.

Summary findings

MBBS education

- Entry to the MBBS course was highly competitive, as approximately nine applicants competed for a seat in 2016.
- MoHFW recognized 105 medical colleges in 2016, of which 29% belonged to the government/public sector, 66% belonged to the nongovernment/private sector and the remaining 5% belonged to the armed forces.
- In terms of geographical distribution, of the 105 medical college, 51% were concentrated in Dhaka Division, followed by 14% in Chottogram Division.
- In terms of distribution of private sector/nongovernment medical colleges, 62% were concentrated in Dhaka Division, followed by 13% in Chattogram Division.
- A total of 9809 seats were available in all medical colleges until 2016. Of the total seats, about 33% (3234 seats) were in public sector medical colleges, 63% in private sector medical colleges and the remaining 4% belonged to the armed forces medical colleges.
- Medical colleges increased from only 62 in 2010 to 105 in 2016 (a 69% increment). The number of private sector medical colleges increased by 60% and public sector medical colleges by 67% during the same period of time.
- Between 2000 and 2016, the total number of medical colleges (from both public and private sectors) increased by 262% (131% and 360% for public and private sectors, respectively).
- During 2007–2016, 73481 MBBS students (about 55% female and 45% male) were admitted to all medical colleges. Approximately, 59% of all students (57% female) were admitted into private sector medical colleges. Approximately, 38% of all students (52% female) were admitted into the public sector medical colleges.
- An increasing trend in the number of female students was observed from 2007 to 2016. In 2007, the difference between the number of male and female students was only 2% but it went up to 23% by 2016.
- During 2007–2016, 7476 foreign students were admitted into the MBBS course in Bangladesh, which is 10% of the total (73481). However, an increasing trend in the number of foreign admissions was observed: from 514 foreign students in 2007 to 1412 in 2016. The same trend was observed in the number of foreign graduates.
- A total of 42,597 MBBS students graduated during 2007–2016. Approximately, 48% graduated from public sector medical colleges and 50% graduated from private sector medical colleges. The remaining 2% graduated from armed forces medical colleges.
- Overall 7% of the total number of available MBBS seats remained unutilized or vacant in 2016.
- A total of 5454 students graduated in 2016, of which 45% (2461) graduated from public sector medical colleges and 53% (2895) graduated from private sector medical colleges.

BDS education

- MoHFW recognized 35 dental colleges/units with 1932 seats until 2016. Nine dental colleges/units with 532 seats belonged to the public sector, and the remaining 26 dental colleges with 1400 seats belonged to the private sector.
- About 63% of the total number of BDS colleges/units were concentrated in the Dhaka Division, whereas Khulna Division did not have any dental college/unit in 2016.
- Approximately 31% of the total number of available seats for BDS study remained vacant in 2016.
- Dental colleges/units increased from only 17 in 2010 to 35 in 2016 – a 106% increment. In the private sector, the increment was about 94% and in the public sector it was about 300%.
- During 2007-2016, 10,313 BDS students (68% female and 32% male) were admitted to all dental colleges/units. Approximately 68% (72% female) went to private sector dental colleges and about 5% of the total admitted students were foreign nationals.

- Of the 1337 students admitted into the BDS course in 2016, 71% were female.
- Of the 6647 BDS students who graduated during 2007–2016, 76% were from the private sector/non-government dental colleges, and 66% of the graduates were female.
- An increasing trend in the number of female graduates was observed. In 2007, the difference between the number of male and female graduates was only 18%, but in 2016, it increased to 39% of the total.
- During 2007–2016, 4699 BDS graduates were licensed from BMDC.

Basic BScN education

- Until 2016, 221 nursing colleges and institutes were recognized by the MoHFW, of which 72% were in the private sector. A total of 59 nursing colleges provided basic BScN degree; 183 institutions (37 colleges and 146 institutes) provided DNSM; and 54 institutions (10 colleges and 44 institutes) provided DM course.
- During 2007–2016, of the 7639 BScN students admitted, 3280 graduated and 2436 graduates received licenses.
- Of the 221 nursing college and institutes, 35% were concentrated in the Dhaka Division and 20% in the Rajshahi Division.
- Nursing colleges and institutes increased from only 87 in 2010 to 221 in 2016, i.e. a 154% increment.
- A total of 59 BScN colleges were recognized by the MoHFW and 3220 BScN seats were available in 2016. About 24% of the seats were in the public sector and 76% were in the private sector.
- Of the total number of BScN institutions, 49% were concentrated in the Dhaka Division.
- Of the 7639 students admitted into the BScN course during 2007–2016, 69% were in public sector institutions and remaining in private sector institutions.
- Students admitted into the BScN course increased from 478 in 2010 to 1390 in 2016.
- During 2007–2016, of the 3280 BScN students who graduated, 89% were female and 11% were male; and 2436 BScN graduates received licenses from the BNMC.
- Approximately, 80% of the total graduates were from public sector nursing colleges.

Diploma in Nursing Science and Midwifery education

- The MoHFW recognized 183 institutes with 9615 seats all-together until 2016; of these the private sector accounted for 77% with 7035 seats and the remaining belonged to the public sector.
- In 2016, approximately 34% of the total seats remained unutilized or vacant; and most of them were in private sector institutions.
- Regarding geographical distribution, approximately 34% of the total institutes that offered the DNSM course were concentrated in the Dhaka Division followed by 22% in the Rajshahi Division.
- During 2007–2016, of the 30,599 students admitted into all DNSM institutes, 92% were female; about 48% were admitted into private sector institutes and 52% into public sector institutes.
- During 2007–2016, 18,944 students acquired or graduated the DNSM course, of which approximately 61% graduated from the public/government sector institutes.
- During 2007–2016, 18,309 DNSM graduates received licenses from the BNMC; 95% of them were female.
- In 2007, while the 506 students who graduated the DNSM course were all female, the 4148 students who graduated in 2016 had 8% male students.

Diploma in Midwifery education

- The DM course was introduced in academic year 2012–2013.
- Until 2016, MoHFW recognized 54 institutions with 1535 seats, which offered the DM course. Of these, 38 were in the public sector (with 975 seats) and 16 in the private sector (with 560 seats).
- As for other professional institutes, the Dhaka Division had the maximum number of DM institutions (13).

- Of the 1535 available seats, only 1159 seats were filled up, indicating that about 24% seats remained vacant or unutilized. More than half of the private sector seats remained vacant.
- Until 2016, 1190 students had graduated the DM course, of which 84% were from public sector institutions.
- During 2007–2016, 1187 DM graduates acquired licenses from the BNMC.

Diploma in Medical Faculty education

- All Medical Assistant Training Schools (MATS) offered a three-year course and a certificate titled "Diploma in Medical Faculty" (DMF).
- Until 2016, the MoHFW recognized 208 MATS with 14246 enrolment capacity. Of these, only eight with 716 seats were in the public sector and the remaining 200 schools with 10870 seats were in the private sector.
- Of the private sector MATS, 26 (13%) with 2660 seats were identified as nonfunctional or inactive, thus rendering only 11586 active seats in both public and private sectors.
- Of the 208 MATS, about 37% (76) were based in the Dhaka Division followed by 25% in the Rajshahi Division.
- There were no public sector or government-owned MATS in four divisions – Barishal, Mymensigh, Rangpur and Sylhet – until 2016.
- There was no private sector MATS until 2000; but by 2010, 40 MATS were established, which increased to 200 by 2016, i.e. a 400% increment from 2010.
- During 2007–2016, 34,125 students were admitted (approximately 40% female and 60% male) and 15,752 students graduated the DMF course. About 69% of the graduated students were from the private sector and the remaining 31% were from public sector institutions. A total of 5333 DMF graduates received registration from BMDC. A significant gap was observed among the total number of admitted students, graduates and registered/licensed graduates.
- A year-wise increasing trend of the total number of admitted DMF students was observed.
- Of the total admitted students, 82% (40% were female) got admission into private sector institutions.
- In 2016, only 6779 students were admitted in all MATS in both public and private sectors against the total available seats, i.e. 11,586. This indicates that about 41% of the total number of seats remained vacant, and most of these were in private sector institutions.

Diploma in Medical Technology (DMT) education

- The MoHFW recognized 105 IHTs of which only 41 (39%) were functional or active, or were engaged in human resources development during 2007–2016. MoHFW recognized 97 private sector IHTs, of which 65% (64) were nonfunctional or inactive. Only eight IHTs belonged to the public sector and all of them were functional or active.
- Regarding distribution of the eight public sector IHTs, there was none IHT in Mymensingh Division. Of the private sector IHTs (97), 54% (irrespective of them being functional and non-functional) were concentrated in the Dhaka Division.
- Number of IHTs increased from only five in 2007, to 61 in 2010, to 105 in 2016. Increment rate from 2010 to 2016 was about 72%.
- IHTs offered 11 disciplines/specialties during 2007–2016; however, not all IHTs offered all 11 disciplines.

DMT in Lab Technology

- All 105 IHTs offered DMT in Laboratory Technology (Lab Technology) with enrolment capacity of 4542. All eight IHTs offered DMT in Lab Technology with a total of 415 seats. In the private sector IHTs, 4127 seats were available (including both functional and nonfunctional).

- During 2007–2016, 12,887 (39% female) students were admitted into all IHTs for Lab Technology, of which 79% got admission into private sector IHTs and the remaining 21% were admitted into public sector IHTs.
- During 2007–2016, 8071 students graduated DMT in Lab Technology; 21% from public sector institutions and 79% from private sector institutions.
- Though there were 4542 seats in 2016, only 896 students got admission into the DMT Lab technology course.

DMT in Physiotherapy

- A total of 38 IHTs offered the DMT in Physiotherapy course with 1320 approved seats.
- All eight public sector IHTs offered DMT in Physiotherapy with enrolment capacity of 400; only 30 private sector IHTs offered this course in 2016 with enrolment capacity of 920.
- A total of 2490 students (majority were male (about 63%)) were admitted into the DMT in Physiotherapy course during 2007–2016.
- Though the total enrolment capacity of all IHTs was 1320, only 396 students were admitted into the course in 2016. The number of admitted students in private sector institutions was nominal, only 28.
- During 2007–2016, 1041 students graduated the DMT in Physiotherapy course from both public (approximately 88%) and private sector institutions; about 36% of the graduates were female.

DMT in Dental Technology

- A total of 74 IHTs offered the DMT in Dental Technology course with 2528 approved seats in all IHTs.
- All eight public sector IHTs offered DMT in Dental Technology with enrolment capacity of 405; 66 private sector IHTs offered this course in 2016 with enrolment capacity of 2123.
- A total of 3115 students (40% were female) were admitted into the DMT in Dental Technology course during 2007–2016. Approximately 76% of the total admitted students were from public sector institutions.
- Though the total enrolment capacity in all IHTs was 2528, only 412 students were admitted into the course in 2016. Only 48 students were admitted into the course in the private sector institutions.
- During 2007–2016, 2504 students graduated the DMT in Dental Technology course from both public (approximately 53%) and private sector institutions; about 33% of the graduates were female.

DMT in Radiology and Imaging

- A total of 33 IHTs offered the DMT in Radiology and Imaging course with 1200 approved seats.
- All eight public sector IHTs offered the DMT in Radiology and Imaging course with enrolment capacity of 405; 25 private sector IHTs offered this course in 2016 with enrolment capacity of 795.
- A total of 2556 students (40% were female) were admitted into the MT in Radiology and Imaging course during 2007–2016. Approximately 92% of the total students were admitted into public sector institutions.
- Though the total enrolment capacity in all IHTs was 1200, only 405 students were admitted into the course in 2016. The number of students admitted into private sector institutions was nominal, only 33.
- During 2007–2016, 1655 students graduated the DMT in Radiology and Imaging course from both public (approximately 85%) and private sector institutions; about 28% of the graduates were female.

DMT in Radiotherapy

- Fourteen IHTs offered the DMT in Radiotherapy course: eight in the public sector and six in the private sector.
- During 2007–2016, 467 students graduated the DMT in Radiotherapy course from public sector institutions. No student graduated from the private sector. About 35% of the graduates were female.

DMT in Sanitary Inspectorship

- Nine IHTs offered the DMT in Sanitary Inspectorship course with 500 approved seats.
- All eight public sector IHTs offered DMT in Sanitary Inspectorship with enrolment capacity of 400 and only one private sector IHT offered this course in 2016 with enrolment capacity of 100.
- A total of 1974 students (27% were female) were admitted into the DMT in Sanitary Inspectorship course during 2007-2016. All of the admitted students were from public sector institutions.
- Though the total enrolment capacity of all IHTs was 500, only 122 students were admitted into the course in 2016. No student was admitted into private sector institutions.
- During 2007–2016, 1300 students graduated the DMT in Sanitary Inspectorship course from public sector institutions. No student graduated from the private sector. About 19% of the graduates were female.

DMT in Operation Theatre Assistance

- Five IHTs offered DMT in Operation Theatre Assistance course with 205 approved seats.
- Only one public sector IHT offered this course with enrolment capacity of 25; in the private sector, four IHTs offered this course in 2016 with enrolment capacity of 180.
- A total of 101 students (30% were female) were admitted into the DMT in Operation Theatre Assistance course during 2007–2016. All of the admitted students were from private sector institutions.
- Though the total enrolment capacity in all IHTs was 101, only 43 students were admitted into the course in 2016. No student was admitted into public sector institutions.
- During 2007–2016, 21 students graduated the DMT in Operation Theatre Assistance course from private sector institutions. No student graduated from the public sector.

DMT in Intensive Care Assistance

- Five IHTs offered the DMT in Intensive Care Assistance course with 205 approved seats.
- Only one public sector IHT offered the course with enrolment capacity of 25; in the private sector, four IHTs offered this course in 2016 with enrolment capacity of 180.
- A total of 70 students (40% were female) were admitted into DMT in Intensive Care Assistance course during 2011–2016. All of the admitted students were from private sector institutions.
- Though the total enrolment capacity in all IHTs was 101, only 30 students were admitted into the course in 2016. No student was admitted into public sector institutions.

DMT in Prosthetics and Orthotics

- Until 2016, there was only one institute in the private sector with 10 seats. No institute was found in the public sector. This course was introduced in 2015.
- Twenty students (25% female) were admitted into the DMT in Prosthetics and Orthotics course during 2015–2016. All students were admitted to private sector institutions.

DMT in Cardiology

- One private sector IHT received approval from the SMFB with enrolment capacity of five students in 2015 to commence this course. No further information was available.

DMT in Pharmacy

- A total of 51 IHTs offered the DMT in Pharmacy course and with 500 approved seats.
- All eight public sector IHTs offered DMT in Pharmacy with enrolment capacity of 405; 43 IHTs in the private sector offered this course until 2016. Private sector institutes were not able to provide the exact enrolment capacity.
- A total of 6639 students (31% females) were admitted into the DMT in Pharmacy course during 2007–2016; 63% enrolled in private sector institutions and the remaining 37% enrolled in public sector institutions.
- In 2016, of the 340 students who enrolled in the DMT in Pharmacy course 79% enrolled in public sector institutions and 21% in private sector institutions.
- During 2007–2016, 3516 students graduated the DMT in Pharmacy course. About 70% graduated from private sector institutions and the remaining 30% from public sector institutions. About 36% of the graduates were female.

7.4 Education management information systems

The GoB is committed to a "Digital Bangladesh by 2021", and has adopted the National Information and Communication Technology (ICT) Policy 2015. This policy provides due attention to harnessing the power of ICT for the better health forthe population. Recognizing the critical role of human resources in health-care delivery, there is an imperative need fortimely and reliable production of human resource data and information for decision making, policy and planning purposes. But, in Bangladesh, human resource data are not collected and collated at one central location or place. The HRIS remains fragmented with various agencies or departments under MoHFW.

Policy guidelines for health professional education and ICT

Since ICT is a powerful and reliable tool, it is recommended in many policy documents so that health professional education institutions can use it for production of quality, competent and responsive health workforce, and to meet health workforce related challenges towards UHC.

The resolution of the Fifty-ninth World Health Assembly (WHA59.23) in 2006 on "Rapid scaling up of health workforce production" urged Member States to use novel approaches to teach with state-of-the art materials through the innovative use of ICT.

The Global Independent Commission's article[21] on health professional education provides 10 recommendations for reform in existing educational systems worldwide. One recommendation was about exploiting the power of ICT for learning. This implies the need tomake necessary adjustments for harnessing new forms of transformative learning made possible by the revolution of information technology.

The Sixty-sixth World Health Assembly (WHA66.23) in 2013 urged Member States to provide adequate resources and political support for implementation of policies and strategies that are appropriate for the strengthening and transformation of health workforce education in support of UHC, and to share best practices and experiences on health workforce education.

The Global strategy on human resources for health: Workforce 2030 endorses capitalization of ICT to build competencies among health workers for better alignment of education with healthcare delivery. The United Nation's High-Level Commission report[22] of 2016 recommended providing special emphasis on ICT. It urged to harness the power of cost-effective ICTs for enhancement of health education, people-centered health services and health information systems.

In Bangladesh, ICT is a major priority area of the government with "Digital Bangladesh by 2021" announced in 2008. In December 2017, about half the population of Bangladesh (approximately 79.7 million) was able to use the internet.[23] Digitalizing healthcare delivery, including education and research, has been made a priority intervention as reflected in the National ICT Policy[24] in 2009 and its revised version in 2015.

[21]Frank J, Chan L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an independent world. Lancet 2010;376:1923-58. doi: 10.1016/S0140-6736(10)61854-5. Epub 2010 Nov 26. p. 54.

[22]Working for health and growth: investing in the health workforce. Report of the High-Level Commission on Health Employment and Economic Growth. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/10665/250047/1/9789241511308-eng.pdf, accessed on 9 December 2018).

[23]Digital Bangladesh initiative halfway to completion. Dhaka Tribune. 9 December 2017 (http://www.dhakatribune.com/bangladesh/2017/12/09/digital-bangladesh-initiative-halfway-completion/ (accessed 9 December 2018).

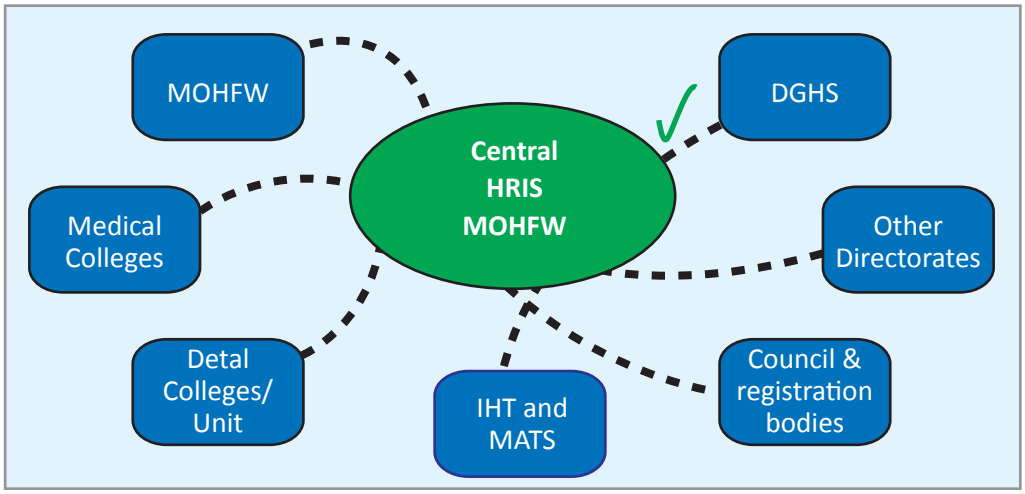
[24]National ICT Policy 2009. Ministry of Science and Information & Communication Technology. Dhaka: Government of Bangladesh; 2009 (http://www.bcs.org.bd/img/upload/page/11.pdf, accessed 9 December 2018).

The 7th Five Year Plan (2016–2020) of the GoB[25] envisions uplifting the country into a higher middle-income country by 2021. Therefore the use of innovative technologies, such as ICT, has been given priority. In line with this, the 4th sector programme[26] (2017–2022) of the MoHFW has created provisions for making health services accessible to all through eHealth and MIS strategies. Thus, there are ample policy directions on the use of ICT as an instrument to facilitate and transform health professional educationin Bangladesh.

MIS at DGHS

The central HRIS was established asan initiative by the Human Resource Management Unit, MoHFW (now called the Human Resources Branch at Health Services Division) with support from a development partner, Department for International Development, Government of the United Kingdom. The main idea was to connect every department or agency under the purview of MoHFW and to ensure regular updates of human resources data into the system. But the initiative was not very successful in meeting the main purpose and now only the central HRIS with DGHS is in use.

Box 5: Connectivity of central HRIS with various organizations under MoHFW for health professional education data



DGHS has been able to establish inter-operability within its different organizations across the country. However, the central HRIS mainly focuses on service sector data. It has very limited space and scope for the education sector and does not cover data of students and graduates; therefore, these are not easily accessible for planning and management purposes.

Until 2017, medical education data were not collected through an online-based system. An ICT-based Education Management Information System (EMIS) is yet to be properly established with the central Medical Education Unit, called “Medical Education and Health Manpower Development” under the DGHS. Paper-based data collection is still in practice. Inter-institutional connectivity or linkages have not yet been properly established and inter-operability appears remote.

A total of 463 undergraduate educational institutions from both public and private sectors were identified under the purview of DGHS’s ME&HMD department under MoHFW. This department assists the MoHFW to implement relevant policies and strategies formulated for administration in various education institutions. It conducts admission tests for courses such as MBBS, BDS and DMF and DHT. It regularly inspects the various institutions and monitors compliance, and hence ensures active functioning of policies related to educational institutions.

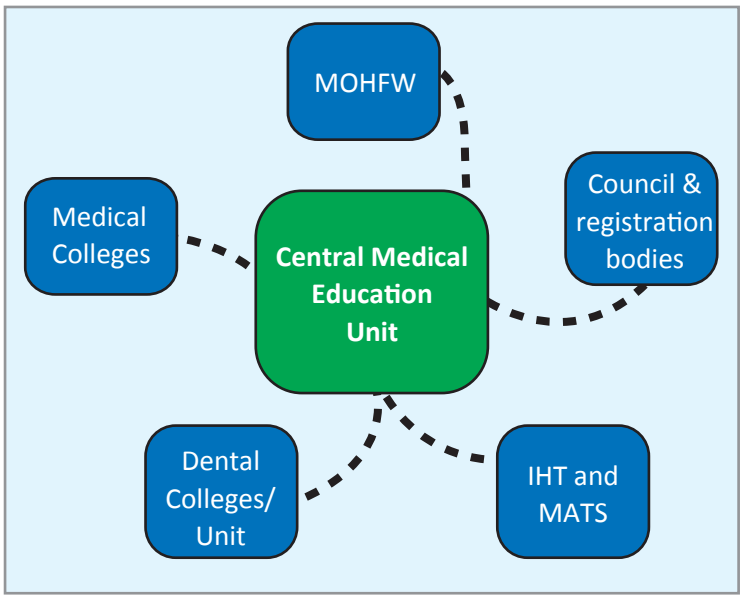
[25]Seventh Five Year Plan FY2016–FY2020. Accelerating growth, empowering citizens. General Economic Division, Bangladesh Planning Commission. Dhaka: Government of Bangladesh; 2015 (http://www.lged.gov.bd/UploadedDocument/UnitPublication/1/361/7th_FYP_18_02_2016.pdf, accessed 9 December 2018).

[26]Programme Implementation Plan (PIP). 4th Health, population and Nutrition Sector Programme (HPNSP) January 2017–June 2022. Planning Wing. Ministry of Health and Family Welfare. Dhaka: Government of Bangladesh; 2017

Some important features regarding the current state of MIS at the Medical Education Unit at DGHS are listed below.

- No dedicated policy or strategy for digitalization of medical and allied education was found during the study period. Though the government is committed towards a "Digital Bangladesh by 2021", little or no effort was found for digitalization of medical education in Bangladesh. The current MIS was mostly focused on service sector data, while data from the production side or education side were minimal.
- Key organizations, such as BMDC, SMFB and PCB, were maintaining registration and licensing data on paper. Year-wise data regarding male–female distribution, public–private distribution, Bangladesh–non-Bangladeshi distribution and several others could not be easily collected.
- There was no specific or definite location, where all medical education data and information covering MBBS, BDS, Diploma in Medical Assistance and Diploma in Health Technology professionals were easily available. They were scattered among the various directorates or agencies.

Box 6: Inter-agency connectedness with the central medical education unit



- For up-to-date and comprehensive data at national level, written communications through official letter had to be sent to every institution, which was time consuming.
- Regular updation of education data (such as yearly production disaggregated at national and subnational levels, with male–female distribution, public–private contribution) would be required for proper planning and management of the health workforce.
- A well-planned EMIS would be required for ensuring timely, accurate and appropriate medical education data and information for future decision making as revealed in a stakeholders meeting connected to this study.

Opportunities

There are ample opportunities to strengthen existing education data management systems at ME&HMD, DGHS.

- DGHS MIS is well developed and a foundation is built for central HRIS, therefore, its capacity strengthening would be instrumental in line with fulfilling the need of data updating and collation.
- Since the need for digitalization is there, formulation and granting a dedicated digitalization policy for medical education along with the development of a roadmap is assumed to be instrumental.
- The ongoing effort of organizational reform of DGHS should be taken into account for the establishment of the ICT department/section with adequate and appropriate human resources.
- Connect all educational institutions with the Director ME&HMD and establish interoperability for timely and reliable data collection, reporting and use of data.
- Development of Training Management Information System has been selected as a priority activity in the 4th HNPSP 2017–2022, which could help can facilitate and accelerate the development

Future development plan

- Strengthening and development of medical education website through the MIS department.
- Advocacy and 'buy-in' of various stakeholders through consultation for a well-structured EMIS in place.
- Since stakeholders are diverse, a dedicated policy for digitalization of medical education would be instrumental. Undertaking a scoping study for the development of a comprehensive ICT-based EMIS can support this.
- Improving the system for timely and reliable reporting from both public and private sector institutions.
- Profile development and management of individual Institutions.
- Inventory and store management.
- Strengthening monitoring and evaluation system.
- Introducing e-filing system at the office.

Challenges

- Lack of ICT experts in the office and resource limitations.
- Capacity strengthening of ME&HMD staff (through training).
- Capacity strengthening of academic/institutional level staff (through training).
- Regular monitoring and evaluation of updated data.

MIS with nursing and midwifery education institutions

This assessment focused on BNMC for collection of necessary data and information during the study period. BNMC is a regulatory body and guided by the Bangladesh Nursing and Midwifery Council Act 2016. Digitalization of its education management information system was started with support from the Human Resources for Health Project funded by Department of Foreign Affairs, Trade and Development of the Government of Canada in 2012. Before that WHO Bangladesh provided technical support. The Council was able to establish an online database called Bangladesh Nurses, Midwives & Allied Professional Database (BNMCDB). In 2013, BNMCDB was designed as three registration databases: student, RNM and allied.

In 2014, BNMC established WiFi with corporate broadband connection for smooth operations of BNMCDB. In 2015, the student registration database was decentralized in all public and private nursing institutes and colleges. In 2016, the digital registration card was introduced incorporated with Quick Response (QR) code. In 2017, BNMC introduced a comprehensive and final examination system in BNMCDB. As a result, approximately 50000 student registration data were entered into the database as of 31 Jan 2018.[27] Registration data of approximately 60,000 nurse-midwives and allied professionals were entered into the database as of 31 Jan 2018.

Box 7: Sample registration card for a nurse-midwife practitioner

[27]Registrar, Bangladesh Nursing and Midwifery Council, Bijoynagar, Dhaka (16 May 2017)

The digital card is automatically generated by the system of BNMCDB. This card is designed in three colors: green for the nurse-midwife practitioner, pink for the midwifery practitioner, and blue for BSc nursing practitioners. The back of this digital card has the QR code that helps identify the registration status. It can be verified any where in country using a QR code scanner.

The DGNM carried out the admission of new students for DNSM, DM and BScN courses with the help of its Training and Education Unit, which looks after education related issues. But the MIS of DGNM mostly focused on service sector data and less on education-related data. For education related data, it relied on BNMC.

Opportunities and challenges for strengthening existing MIS at BNMC

The study team made several consultations with BNMC officials and presented the following progressive issues, which can be regarded as opportunities to strengthen BNMC's education management information system.

- BNMC already has an established web-based database – BNMCDB – which is active and in use.
- BNMC has its own website where it can upload summary reports making data easily accessible.
- BNMC has already connected with its affiliated institutions through BNMCDB and each of them has their own ID to log in, which can be further strengthened for a robust database required for evidenced based decision making.
- Interoperability is taking place, with some exceptions due to limited Internet access in remote areas.
- BNMC is updating the system periodically.
- BNMC is bringing organizational reform for its capacity strengthening, where provision of recruiting more information technology experts is considered.
- BNMC has good professional relations with government systems, development partners and other key stakeholders that can be capitalized for a functional and online management information system.
- BNMC has highly committed staff.

Challenges

The prominent challenges prevailing with the BNMC regarding establishing a digital education management information system are listed below.

- BNMCDB needs revision as per the requirement of the data/indicator of this mapping study in order to update data on a periodic basis.
- Limited resources, both financial and logistical.
- Shortage of ICT experts.
- Strengthening the capacity of BNMC for a fully operational online based MIS with interoperability within affiliated institutions.
- Strengthening of academic institutional staff (through training) at all levels, including both public and private sectors.
- Regular monitoring and evaluation of updated data.

Activities planned by the BNMC for the next five years

- Establish a Virtual Private Server in collaboration with ICT related ministry.
- Regularly update the existing BNMC website.
- Design and publish a semi-annual report "BNMC Bulletin" for better use of data from BNMCDB.
- Strengthen existing database movement system for historical data.
- Improve the system for timely and reliable reporting to support evidence-based decision making.
- Manage the profile of individual Institutions affiliated with BNMC.
- Establish Training Cell at BNMC.
- Develop the training module based on BNMCDB to make it more user friendly.
- Conduct training of trainers for development of trainers on BNMCBD.

- Create and establish a computer-based inventory and store management.
- Strengthen the monitoring and evaluation system.
- Introduce online accounts and financial management system at BNMC.
- Introduce and pilot an e-filing system.
- Introduce aSmart Card for registered nurses and midwives for up-to-date data and information.
- Introduce biometrics for staff attendance and visitor log management system.

Summary findings

- No dedicated policy or strategy for digitalization of medical and allied health professional education exists.
- Regulatory bodies, such as BMDC, SMFB and PCB, are maintaining registration and licensing data in paper form. It requires time and effort to collect year-wise registration data on male–female distribution, public–private distribution, Bangladesh–non-Bangladeshi distribution and several others from these organizations.
- BNMC was on track to develop an online database including basic registration information of students and graduates, and was able to establish a fair interoperability among all nursing and midwifery institutes and colleges, with some limitations related to the private sector institutions.
- No specific or definite location for easy access to all medical education data and information, covering MBBS, BDS, DMF and DMT professionals. Data are scattered among various directorates or agencies and are paper based.
- Regular updating of not easily accessible education data (such as yearly production number disaggregated at national and sub-national levels with male–female distribution, public–private contribution, among others) is required for proper planning and management of the health workforce.
- The concept of EMIS has not been established for timely generation of education data and information.
- The MIS was attached to various directorates (such as DGHS and DGNM) and mostly focused on service sector data. There was little or no attention to education related data (such as yearly production with male–female distribution, public and private distribution, nationality distribution) that are needed for conducting health labour market analysis and evidence-based planning and projection.

8. Limitations of the assessment

- Only the health professional education institutions recognized by MoHFW and MoD were covered. The assessment did not cover educational institutions that offered courses related to alternative medical care such as Bachelor of Homeopathy Medicine and Surgery.
- Institutions under the authority of Ministry of Education (MoE), specifically the BTEB that recognizes a number of educational institutions offering courses related to healthcare, such as the four-year diploma-course in patient care and three year diploma course in health technology, were not covered.
- The study team had to disseminate the data prepared and forwarded by the heads of the respective institutions from both public and private sectors. Cross-checking or data verification could not be ensured on time at all health professional education institutions, though data quality checks were conducted on a limited number of institutions.
- During the study period, a significant number of MATS and IHTs were found to be nonfunctional. Few in consistencies were found in the exact enrolment capacity and actual enrolment, especially for medical colleges, IHTs and MATS in the private sector.
- At the initial stage, the study team planned to collect all faculty data from all institutions but due to low response from private sector institutions, this step was dropped. Therefore, faculty data are not presented in this report though faculty data from public or government institutions were collected.

9. Conclusion and recommendations

Bangladesh is committed to accelerate progress towards SDGs including UHC. However, to achieve SDGs and UHC, the country needs adequate number of health workforce with the right skills and motivation, and properly distributed for satisfactory delivery of health services (such as essential health services). Since Bangladesh has a history of shortage of a formally trained health workforce, this study would have implications on annual production of category-wise health workforce vis-à-vis inflows to the health labour market. Therefore, it bridges the interface between the health system and the education system.

This study is a supply-side mapping of all health professional education institutions under MoHFW and probably the first assessment of its kind in the country undertaken by the DGHS. The assessment describes the governance structure of health professional education institutions from key policy documents adopted by the government. The study later focused on geographical mapping of institutions and supply-side information during 2007–2016, covering statistics of students, graduates and registered professionals, i.e. numbers, male–female distribution and nationality. This helped to create a data platform to meet relevant data requirements of the ministry and other stakeholders for informed decision making. This is the production side input for future health professionals and therefore could assist policy makers and educationalists to formulate a national level health workforce production plan. This report is expected to add value to the knowledge base and thereby inspire future research and development in health professional education. However, the following recommendations are made to make the best use of the findings or results.

Recommendations related to health professional education governance and MIS

Recommendation 1: Formulate a health professional education digitalization strategy in response to the "Digital Bangladesh by 2021" commitment and the National ICT Policy 2015.

Recommendation 2: Strengthen the regulatory or legal status of the State Medical Faculty of Bangladesh through formulation of a proper Act/Law as there is none in favour of institutions developed since the independence of Bangladesh.

Recommendation 3: Undertake steps to regularly update (ideally on a yearly basis) mapping data (as it changes every year) through establishment of an observatory cell at the respective implementing agencies (such as DGHS and DGNM). In this regard, the master Excel sheet developed during data entry and compilation could be used until a computer-based online platform is created for ME&HMD, DGHS.

Recommendation 4: Strengthen existing MIS of DGHS and DGNM by incorporating the key indicators of this mapping report, such as public and private distribution, nationality distribution of students and graduates, male and female distribution, divisional/regional distribution and others.

Recommendation 5: Develop a computer-based database (preferably online based with interoperability in place) linked to mapping databases at BMDC, BNMC, SMFB and PCB so that key health professional education data and information (such as public and private distribution, nationality distribution of students and graduates, male and female distribution, divisional/regional distribution and others) could be available with minimum effort.

Recommendation 6: Undertake steps to align curricula developed or updated during the MDG period (such as that of MBBS, basic BScN, DNSM, DMF, DMT) with changing health needs in Bangladesh by incorporating key concepts of SDGs and covering all six major disciplines (i.e. laboratory medicine, radiology and imaging, radiotherapy, physiotherapy, dentistry and pharmacy).

Recommendation 7: Conduct health labour market analysis to assess and determine category-wise health workforce supply against the demand in the job market so that balanced production is ensured.

Recommendation 8: Formulate a national health workforce production plan in line with the national health workforce plan to ensure balance between supply and demand of the health workforce, as well as to avoid over- and under-production of a certain category of workforce.

Recommendation 9: Undertake special measures to report on the number of functional and non-functional education institutions, especially among MATS and IHTs, to avoid over-/underreporting on health professional education institutions in the country.

Recommendation 10: Regularly publish the progress of key indicators of this report such as the number of yearly admissions, pass-outs/graduates and registered/licensed major health professionals (i.e. physician, dental surgeon, nurse, midwife, medical assistant and technologist) with their male–female distribution, public–private distribution, nationality and geographical distribution in the annual health bulletin of the DGHS and the HRH country profile/HRH data sheet.

Recommendations related to geographical mapping of health professional education institutions

Recommendation 11: Discourage the establishment of any new health professional education institution in the Dhaka Division (because 41% of the total health professional education institutions (674) are concentrated in the Dhaka Division), and encourage their establishment in other divisions to ensure regional balance and equity in accessibility.

Recommendation 12: Explore why Khulna division did not have any dental college or unit.

Recommendations related to health professional production and supply

Recommendation 13: Strengthen the monitoring, supervision and quality assurance mechanisms of government sector institutions at all levels to ensure quality education and protect public interest, since a significant number of students are getting admitted into (on an average 59% MBBS students and 48% DNSM students) and graduating from private sector institutions (50% MBBS graduates and 39% DNSM graduates) every year.

Recommendation 14: Undertake an assessment or survey of foreign students (since approximately 10% of total admitted MBBS students were foreign nationals and their numbers showed an increasing trend) regarding their choices and preferences in Bangladesh, in order to attract more students in future.

Recommendation 15: Take steps to investigate why there were significant differences among the total number of admitted students, graduated students and registered/licensed professionals of MBBS, BDS, DMF, DNSM and BScN with the respective professional councils.

Recommendation 16: Undertake a similar assessment for institutions related to alternative medical care professionals and also for institutions under the MoE.

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Annexures

Annex 1: Composition and ToR of the Technical Advisory Committee (TAC)

Government of People's Republic of Bangladesh
Directorate General of Health Services
Mohakhali, Dhaka
www.dghs.gov.bd

Memo No.WHO/MapHPE/2016-17/292(1) Date: 13/02/2017

Notice

The Undersigned is directed to inform you that the following Technical Advisory Committee (TAC) is hereby constituted with immediate effect in order to complete "Mapping of Health Professional Education Institutions in Bangladesh". The composition and Terms of Reference (ToR) of the committee is as follows:

Composition (Not According to Seniority)

1.	Professor Dr MA Rashid, Director, Medical Education & Health Manpower Development, DGHS, Mohakhali, Dhaka	**Chairperson**
2.	Registrar, Bangabandhu Sheikh Mujib Medical University, Shahbagh, Dhaka	Member
3.	Registrar, Bangladesh Medical and Dental Council, Bijoy Nagar, Dhaka	Member
4.	Director (Admin), Directorate General of Health Services, Mohakhali, Dhaka	Member
5.	Director (Planning), Directorate General of Health Services, Mohakhali, Dhaka	Member
6.	Director (MIS), Directorate General of Health Services, Mohakhali, Dhaka	Member
7.	Director (Dental), Directorate General of Health Services, Mohakhali, Dhaka	Member
8.	Director, Centre for Medical Education, Mohakhali, Dhaka	Member
9.	Member, Central Executive Committee, BMA, Topkhana Road, Dhaka (Attn. Dr Rokeya Sultana)	Member
10.	Secretary, Bangladesh College of Physicians and Surgeons, Mohakhali, Dhaka.	Member
11.	Deputy Secretary (Medical Education -1), MoHFW	Member
12.	Deputy Chief, Human Resources Management Unit, MoHFW	Member
13.	Deputy Director (Admin), Directorate General of Nursing and Midwifery Services, Sher-E-Bangla Nagar, Dhaka	Member
14.	Registrar, Bangladesh Nursing and Midwifery Council, Bijoy Nagar, Dhaka	Member
15.	Deputy Director, Medical Education, DGHS, Mohakhali, Dhaka	Member
16.	Secretary, State Medical Faculty of Bangladesh, Bijoy Nagar, Dhaka	Member
17.	Secretary, Pharmacy Council of Bangladesh, Banglamotor, Dhaka	Member
18.	National Professional Officer-HRH, World Health Organization, Gulshan 1, Dhaka	Member
19.	Assistant Director, Directorate of Medical Education & Health Manpower Development, DGHS, Mohakhali, Dhaka	Member Secretary

13.2.17

Professor Dr MA Rashid
Director
Medical Education & HMPD
DGHS, Mohakhali, Dhaka.

Terms of Reference (ToR)

1. Advise Technical Working Committee (TWC) on overall implementation of the mapping study on health professional education institutions in Bangladesh;
2. Review technical documents e.g. draft report produced by the TWC before final submission;
3. Periodically attend TAC meetings and provide inputs to the progresses made for implementation of the study;
4. Provide guidance for organizing national level stakeholder consultation as part of finalization of the draft report;
5. Can co-opt any member as and when necessary.

Annex 2: Composition and ToR of the Technical Working Group (TWG)

Government of People's Republic of Bangladesh
Directorate General of Health Services
Mohakhali, Dhaka
www.dghs.gov.bd

Memo No.DGHS/ME/WHO/MapHPE/2016-17/ Date: 01/03/2017

The Undersigned is directed to inform you that the following Technical Working Group (TWG) is hereby constituted with immediate effect in order to complete "Mapping of Health Professional Education Institutions in Bangladesh". The composition and Terms of Reference (ToR) of the group is as follows:

Technical Working group (TWG) (Not according to seniority):

1. Deputy Director (Medical Education), DGHS (Coordinator)
2. Deputy Director (Medical Assistance), DGHS
3. Representative of the Principal, IHT, Mohakhali, Dhaka
4. Assistant Director (Dental), DGHS
5. Deputy Programme Manager, Medical Education, DGHS
6. Representative of Dean, Medical Faculty of Dhaka University
7. Professor, Curriculum Development & Evaluation, CME
8. Assistant Director (HMPD), DGHS (Member Secretary)

Technical Assistance:

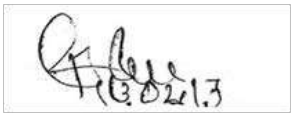
1. Md. Nuruzzaman, National Professional Officer-HRH, WHO Country Office Bangladesh
2. Joynul Islam, Executive Assistant-HRH, WHO Country Office Bangladesh

13.2.17

Professor Dr MA Rashid
Director
Medical Education & HMPD
DGHS, Mohakhali, Dhaka.

Terms of Reference (ToR)

1. Assist the Technical Advisory Committee (TAC) to carry out all components of the mapping study on health professional education institutions in Bangladesh as per the work plan and budgetary items.
2. Assist to organize TAC meetings and TWC meetings on regular and timely basis.
3. Develop the data collection tool and forms for collection of needed data for the study.
4. Finalize the data collection tool by taking inputs from the TAC and pre-testing.
5. Collect necessary data and information from the respective institutions as needed for successful completion of the study.
6. Communicate and coordinate the whole data collection process and different stakeholders involved with the study.
7. Compile the collected data and conduct preliminary analysis as part of production of the report.
8. Prepare draft report and collect inputs from the TAC members and also from other experts.
9. Assist to organize national level stakeholder consultation meeting on time.
10. Prepare meeting minutes, note for record, briefing etc. and circulate on timely basis.



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Annex 3: Tools for data collection

Generic format

Government of the People's Republic of Bangladesh
Directorate General of Health Services-DGHS
Medical Education & Health Manpower Development
Email:hmpd.dghs@gmail.com
Mohakhali, Dhaka

Table 01: General Information

1. Name of institution: .....

2. Year of establishment: .....

3. Ownership (put a tick mark):

☐ Public ☐ Private

4. Total enrollment capacity (current year):

4.a. Name of degree .....

4.b. Name of degree .....

4.c. Others (please Specify) .....

5. Name of the Principal: .....

Phone No.

Email:

6. Name of the Vice Principal: .....

7. Address: .....

..... District:.....

Division:.....

8. Phone No. (Office): .....

9. Fas: .....

10. Email: (Office): .....

11. Website: .....

This tool was developed for the assessment of "Mapping of Health Professional Education Institutions in Bangladesh" with technical aupport from WHO Country Office Bangladesh

Table 02: Total number of admitted students and graduated in last 10 years

Sl. No	Year (Last 10 years)	Name of the degree*											
		Bangladeshi						**Foreign (Non-Bangladeshi)**					
		Admitted (total Number of admission in first year)			Graduated (in the final examination in that year)			Admitted total number of admission in first year			Graduated (in the final examination in that year)		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
01	2007												
02	2008												
03	2009												
04	2010												
05	2011												
06	2012												
07	2013												
08	2014												
09	2015												
10	2016												

*Please add extra page according to the name of the degrees. Example: MBBS/BDS etc.

Annex 4: List of health professional education related policies

1. "বেসরকারী মেডিকেল কলেজ স্থাপন ও পরিচালনা নীতিমালা ২০১১ (সংশোধিত)"। চিকিৎসা শিক্ষা-২ শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ২২-০৬-২০১১, [স্বারক নংঃ স্বাপকম/চিশিজ-২/আইন ও বিধি-৩/(অংশ-২)/২০০৮/১৬২]। ("Private Medical Colleges Establishment and Operation Policy 2011 (Amended)". Medical Education -2, Ministry of Health and Family Welfare (MOHFW), (Date: 22-06-2011).
2. "বেসরকারী ডেন্টাল কলেজ স্থাপন ও পরিচালনা নীতিমালা ২০০৯"। চিকিৎসা শিক্ষা শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ১৫-১১-২০০৯ [স্বারক নংঃ স্বাপকম/চিশিজ/বেসমেক-২/২০০৯/৮৫৫] ("Private Dental College Establishment and Operation Policy 2009"; Medical Education Division, Ministry of Health and Family Welfare (MOHFW), Date: 15-11-2009).
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7. "মেডিকেল/ডেন্টাল কলেজে এমবিবিএস/বিডিএস কোর্সে ছাত্র/ছাত্রী ভর্তি নীতিমালা-২০১১"। চিকিৎসা শিক্ষা-২ শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ২৪-০৮-২০১১[স্বারক নংঃ স্বাপকম/চিশিজ-২/বেসমেক-২/২০০৯(অংশ-১)/২৮৪].
8. এমবিবিএস কোর্স উত্তীর্ণ হওয়ার পর ইন্টার্নশিপ প্রশিক্ষণ গ্রহণ প্রসঙ্গে। স্বারকলিপি, চিশিহা শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। ৮/৯/১৯৯০ [স্বারক নংঃ চিশিহা- ৩ এম ০৮/৮৭/৫৭৯ (২৫)].
9. বিদেশ হইতে ডিগ্রীপ্রাপ্ত বাংলাদেশী মেডিকেল ও ডেন্টাল গ্রাজুয়েটগনের দেশের মেডিকেল কলেজ সমূহে ইন্টার্নশিপ প্রশিক্ষণ প্রসঙ্গে। স্বাস্থ্য উইং, পার-৩ শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। ৬/৪/১৯৮৭ [স্বারক নংঃ পার- ৩ এ১-৩২/৮৬/১১৭].
10. প্রজ্ঞাপনঃ ২০১৪-১৫ শিক্ষা বর্ষ হতে বেসরকারি মেডিকেল/ডেন্টাল কলেজ সমূহে এমবিবিএস/বিডিএস কোর্সে প্রথম বর্ষে ছাত্র-ছাত্রী ভর্তি ফি। চিকিৎসা শিক্ষা-১ শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ২৬-১০-২০১৪, [স্বারক নংঃ স্বাপকম/চিশি-১/ছাত্র ভর্তি -০১/২০১১(অংশ)/৬২১].
11. "বেসরকারী পর্যায়ে মেডিকেল এ্যাসিসটেন্ট ট্রেনিং স্কুল স্থাপন ও পরিচালনা নীতিমালা ২০১০"। চিকিৎসা শিক্ষা শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ১৩-০১-২০১০, [স্বারক নংঃ স্বাপকম/চিশিজ/ বেসমেক-২/২০০৯/২৮] [Private Medical Assistant Training School Establishment and OperationPolicy 2010; prepared by Medical Education Division, Ministry of Health and Family Welfare (MOHFW), Date: 13-01-2010].
12. Curriculum for Medical Assistant Training Course, Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
13. "বেসরকারী ম্যাটস প্রতিষ্ঠানের জনবল সিডিউল। (প্রশাসনিক ও অন্যান্য জনবল)" [Manpower Schedule, Private Medical Assistant Training School – MATS (Administrative and Other Manpower].
14. "বেসরকারী খাতে মেডিকেল টেকনলজী স্থাপন ও পরিচালনা নীতিমালা ২০১০" চিকিৎসা শিক্ষা শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। স্বারক নংঃ স্বাপকম/চিশিজ/ বেসমেক-২/২০০৯/২৭। তারিখঃ ১৩-০১-২০১০ ["Private Institute of Health Technology (IHT) Establishment and Operation Policy 2010". Medical Education Division, Ministry of Health and Family Welfare (MOHFW), Date: 13-01-2010].
15. Curriculum for Health Technology (HT) in Lab Technology, Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
16. Curriculum for Health Technology (HT) in Sanitary Inspector Training, Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
17. Curriculum for Health Technology (HT) in Dental Technology,Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
18. Curriculum for Health Technology (HT) in Intensive Care Assistance (ICA), Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
19. Curriculum for Health Technology (HT) in Operation Theatre Assistance (OTA), Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).

20. Curriculum for Health Technology (HT) in Physiotherapy,Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
21. Curriculum for Health Technology (HT) in Radiology,Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
22. Curriculum for Health Technology (HT) in Radiotherapy, Compiled & Edited by: The State Medical Faculty of Bangladesh & Centre for Medical Education (CME).
23. ভর্তি বিজ্ঞপ্তিঃ ২০১৬-২০১৭ শিক্ষাবর্ষে ইনস্টিটিউট অব হেলথ টেকনোলজি ঢাকা, রাজশাহী ও জনস্বাস্থ্য ইনস্টিটিউটে বিএসসি ইন হেলথ টেকনোলজি কোর্স সমূহে ছাত্র-ছাত্রী ভর্তির বিজ্ঞপ্তি। স্বাস্থ্য অধিদপ্তর, স্বাপকম, [স্বারক নংঃ স্বাঃঅধিঃ/চি-শিজ/বিএসসি- ভর্তি/২০১৬-২০১৭/৮৮২ তারিখ ০৩/১১/২০১৬].
24. বাংলাদেশ নার্সিং ও মিডওয়াইফারি কাউন্সিল আইন-২০১৬। বাংলাদেশ জাতীয় সংসদ, ঢাকা, ০৮ পৌষ, ১৪২৩/২২ ডিসেম্বর ২০১৬ (Bangladesh Nursing & Midwifery Council Ordinance, 2016; Bangladesh Parliament, Dhaka, 22 December 2016).
25. "গণবিজ্ঞপ্তিঃ বাংলাদেশ নার্সিং ও মিডওয়াইফারি কাউন্সিলের অধিভূক্ত প্রতিষ্ঠানসমূহের হালনাগাদ তালিকা"বাংলাদেশ নার্সিং ও মিডওয়াইফারি কাউন্সিল, ১৪ ফেব্রুয়ারি ২০১৭। প্রকাশঃ দৈনিক ইত্তেফাক ১৪ জুন ২০১৭খ্রিঃ ও দি ডেইলি স্টার ১৫ জুন ২০১৭খ্রিঃ ("Public Advertisement: Updated list of registered institutions under Bangladesh Nursing and Midwifery Council"; Published on The Daily Ittefaq on 14 June 2017 and on Daily Star on 15 June 2017).
26. "বেসরকারী পর্যায়ে মিডওয়াফারি প্রতিষ্ঠান স্থাপন ও ডিপ্লোমা ইন মিডওয়াফারি কোর্স চালুকরণ নীতিমালা " নার্সিং শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ১৯-০৯-২০১৪, [স্বারক নংঃ ৪৫.১৫৮.১১১.০০.০০.০৪০. ২০১৩-৪৫৮] ["Private midwifery institutes establishment and midwifery course commencement policy"; Nursing Division, Ministry of Health and Family Welfare (MOHFW), Date: 19-09-2014]
27. Curriculum for B.Sc.in Nursing 2006.Approved by Bangladesh Nursing Council (BNMC) Dhaka, Supported by: Directorate General of Health Services (DGHS) & World Health Organization (WHO).
28. Diploma in Midwifery Curriculum Document 2012, Bangladesh Nursing Council.
29. "বিএসসি ইন নার্সিং ও বিএসসি ইন পাবলিক হেলথ নার্সিং(পোস্ট বেসিক) কোর্সে ছাত্র-ছাত্রী ভর্তির নীতিমালা"। নার্সিং শাখা, স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়। তারিখঃ ১৯-০৪-২০১১, স্বারক নংঃ স্বাপকম/নাসা/ প্রশিক্ষণ-৬/২০০২/১৬৩ ("B Sc. in Nursing and B Sc. in Public Health Nursing (Basic & Post Basic) Admission Policy"; Nursing Division, Ministry of Health and Family Welfare (MOHFW), Date: 19-04-2011).
30. Diploma in Midwifery Curriculum Document 2012, Bangladesh Nursing Council.
31. "নার্সিং কলেজ (সাবেক নার্সিং ইনস্টিটিউট), ঢাকা, ময়মনসিংহ, চট্রগ্রাম, রাজশাহী, সিলেট, বরিশাল ও রংপুর-এ (চার) ৪-বছর মেয়াদী ব্যাচেলর অব সায়েন্স ইন নার্সিং কোর্সে ভর্তির শর্তাবলীঃ" ("Admission criteria for 4-year Bachelor in of Science in Nursing for admission in Dhaka, Mymensingh, Chattogram, Rajshahi, Sylhet, Barishal and Rangpur Nursing Colleges") Source: Bangladesh Nursing and Midwifery Council Website (No date and reference available).
32. "ডিপ্লোমা ইন-নার্সিং সায়েন্স এন্ড মিডওয়াইফারী কোর্সে ভর্তির শর্তাবলীঃ" শিক্ষাবর্ষে ৪৩ টি নার্সিং ইনস্টিটিউটে ০৩ (তিন) বছর মেয়াদী ডিপ্লো মা-ইন-নার্সিং সায়েন্স এন্ড মিডওয়াইফারী কোর্সে ছাত্র/ছাত্রী ভর্তির শর্তাবলী.
33. Guidelines for Accreditation/ Recognition of Bachelor of Pharmacy (B. Pharm) Education in Public and Private Universities. Pharmacy Council of Bangladesh.

Annex 5: Additional graphs to 7.3

Medical college (MBBS)

Admission

Figure 1A: Year-wise distribution of total students admitted into MBBS during 2007–2016 in government medical colleges

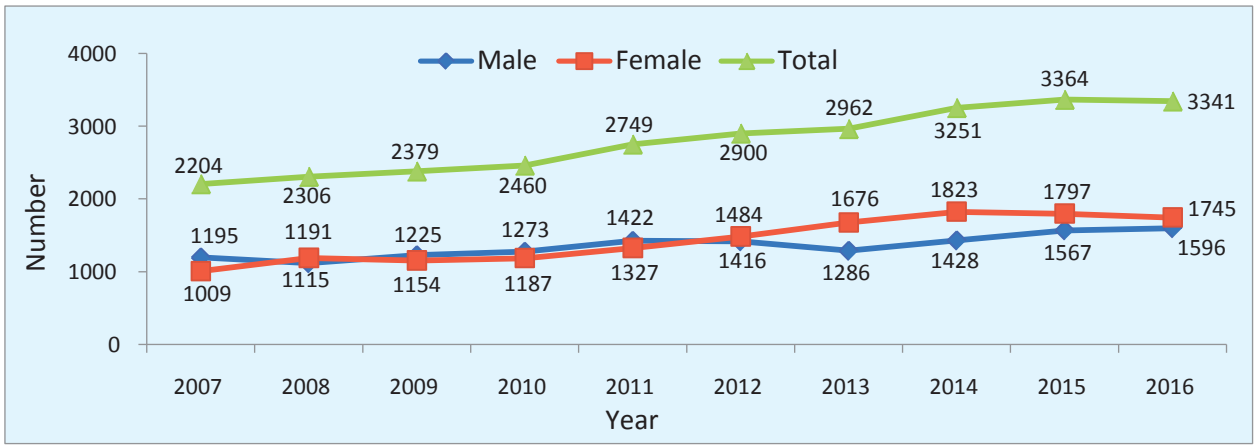


Figure 1A shows that the number of total admitted students has been increasing in government medical colleges. Before 2007/2008 there were more male students getting admitted than female. But after 2012, there was a sharp increase in the number of female students admitted into government medical colleges.

Figure 2A: Year-wise distribution of total students admitted into MBBS during 2007–2016 in armed forces/army medical colleges

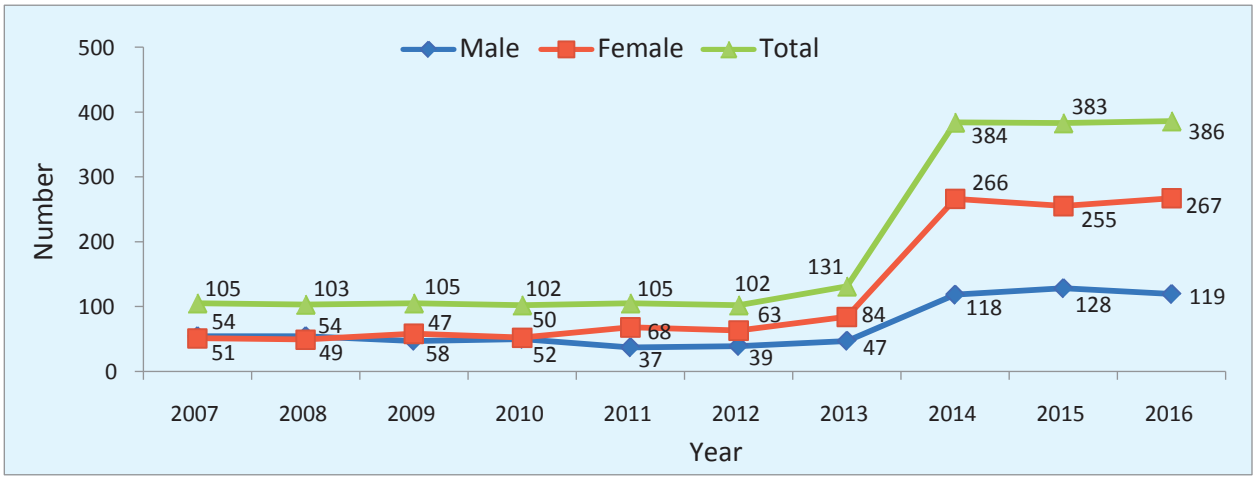
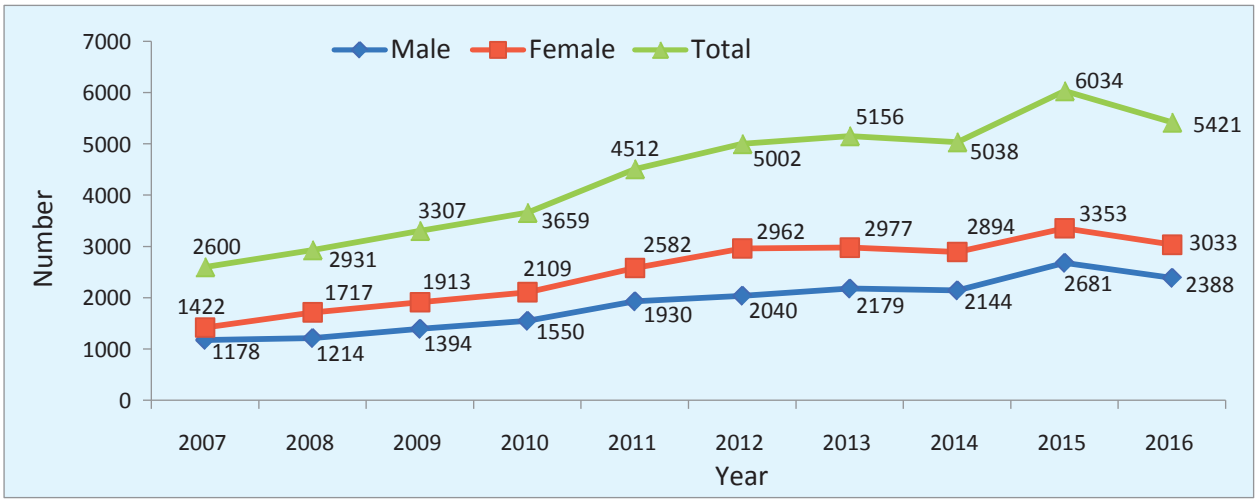


Figure 2A denotes that up to 2013 there was only one medical college. During 2013-2014, six new medical colleges were established under the control of armed forces/army, MoD. Therefore, there was an increase in the number of students admitted in 2014. Increase in female students was also prominent in the armed force medical colleges.

Figure 3A: Year-wise distribution of total students admitted into MBBS during 2007–2016 in nongovernment medical colleges



The number of total students admitted into MBBS course in nongovernment medical colleges increased, with the exception of years 2014 and 2016 (Figure 3A). The gap between the number of male and female students increased as the number of female students admitted was progressively more than male students.

Figure 4A: Year-wise distribution of Bangladeshi students admitted into MBBS during 2007–2016 in government medical colleges

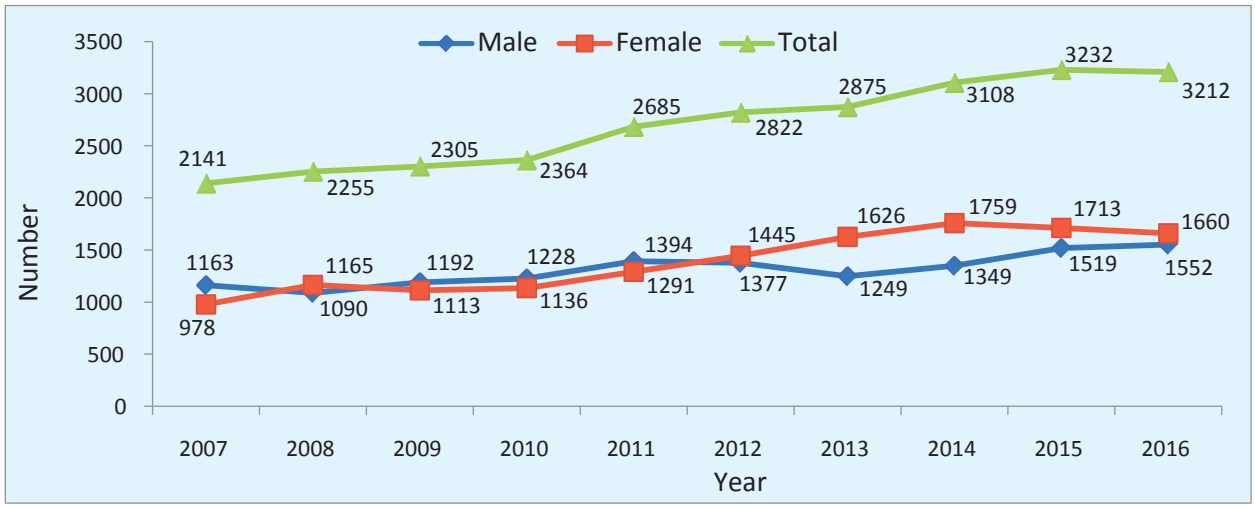
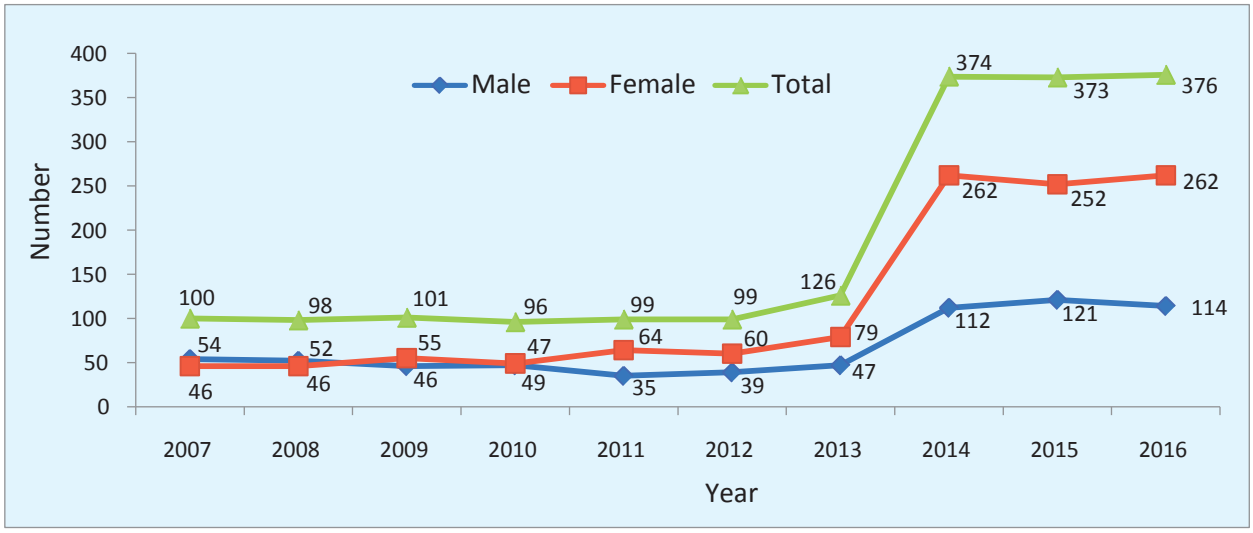


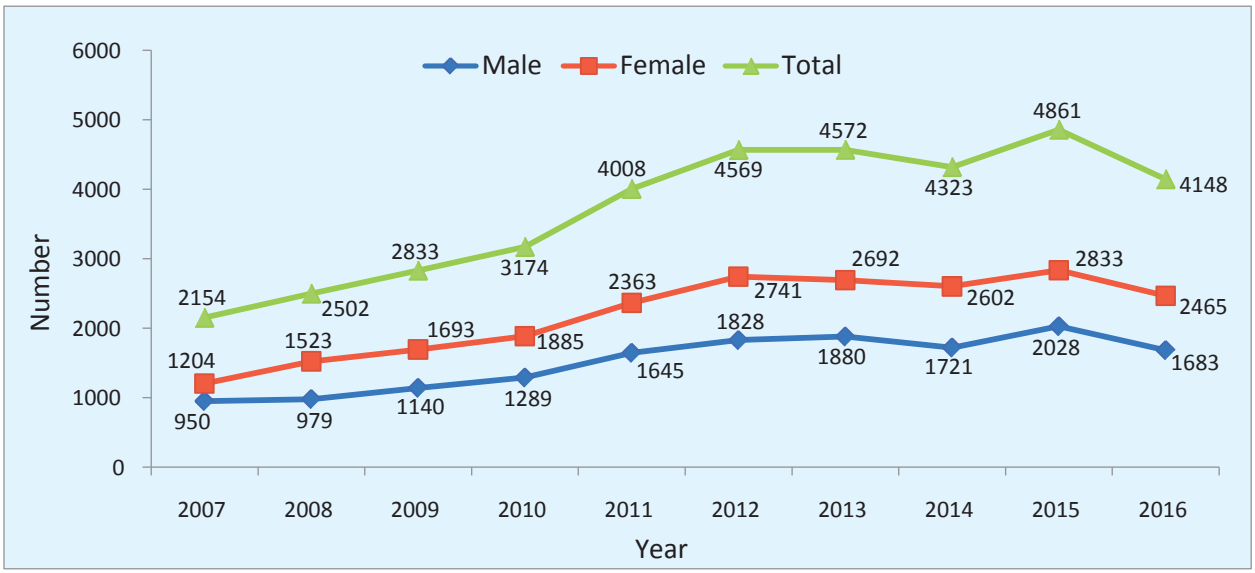
Figure 4A indicates that after 2012, more female students got admission into government medical colleges. Before 2012, more male students were admitted into the MBBS course in government medical colleges.

Figure 5A: Year-wise distribution of Bangladeshi students admitted into MBBS during 2007–2016 in armed forces/army medical colleges



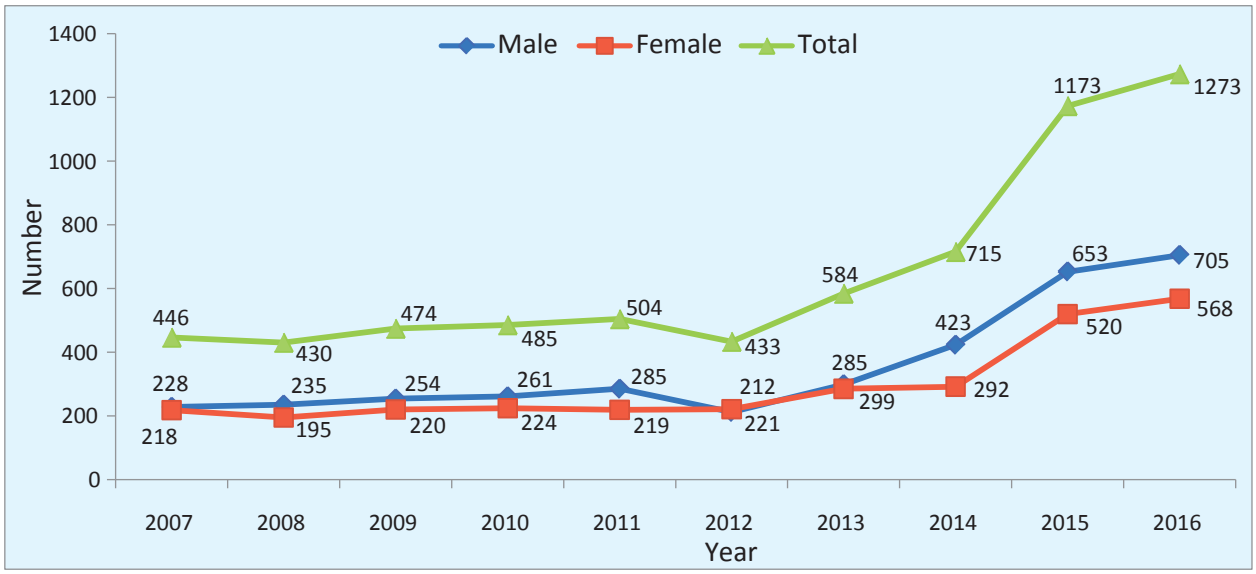
Up to 2010, the numbers of male and female students were around the equilibrium point, but after 2010, the number of female students started gradually increasing (Figure 5A).

Figure 6A: Year-wise distribution of Bangladeshi students admitted into MBBS during 2007–2016 in nongovernment medical colleges



The number of female students was always more than the number of male students in nongovernment medical colleges during 2007–2016 (Figure 6A). Increasingly more female students got admission into nongovernment medical colleges. There was an average increase of 7% in the number of female Bangladeshi students every year during 2007–2016.

Figure 7A: Year-wise distribution of non-Bangladeshi students admitted into MBBS during 2007–2016 in nongovernment medical colleges



There was a gradual increase in the number of non-Bangladeshi students from 2007 to 2016 in nongovernment medical colleges (Figure 7A) with male students being slightly more than female students.

Figure 8A: Total number of MBBS students with male–female distribution admitted into various medical colleges in 2016

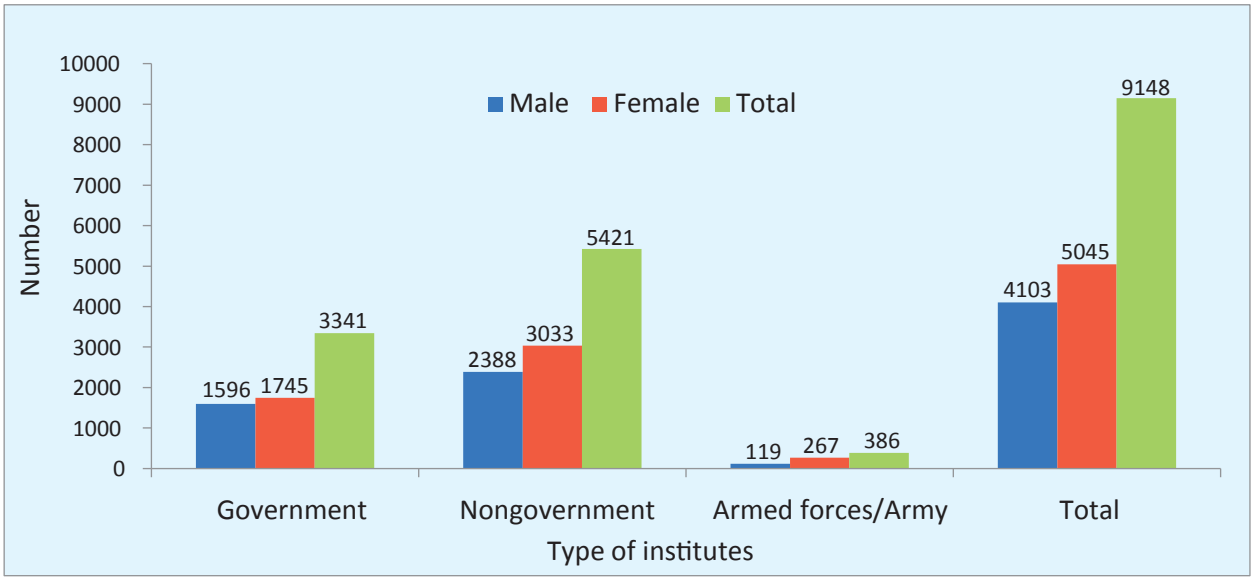
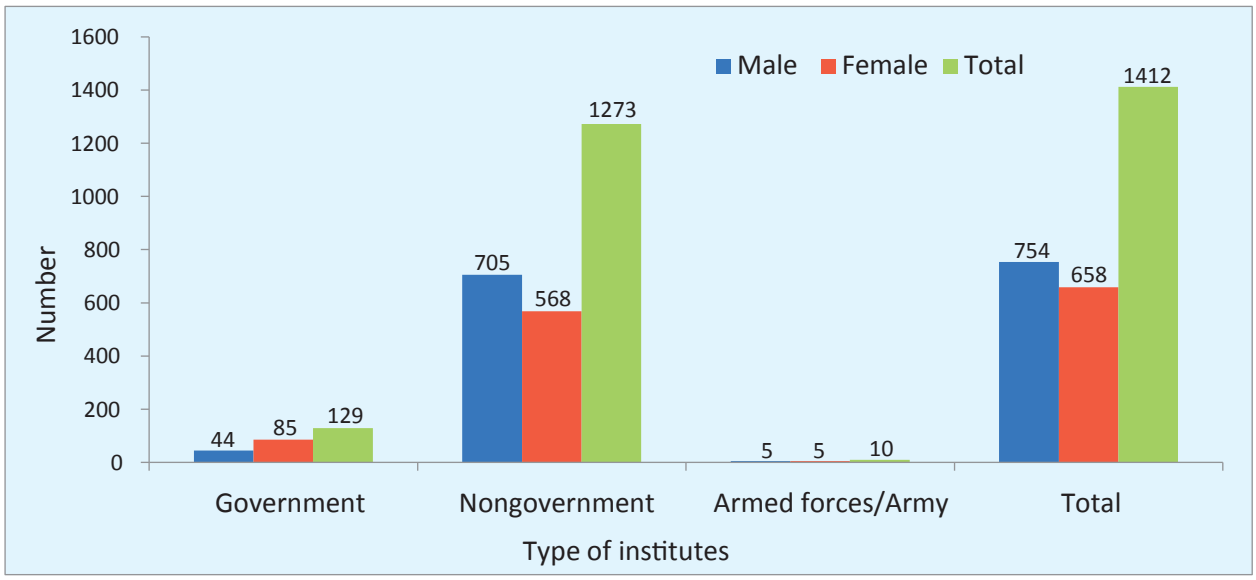


Figure 8A shows that 9148 students were admitted in the academic year 2016–2017, of whom approximately 37% were admitted into government medical colleges, 59% were admitted into nongovernment medical colleges and remaining were admitted into armed forces medical colleges.

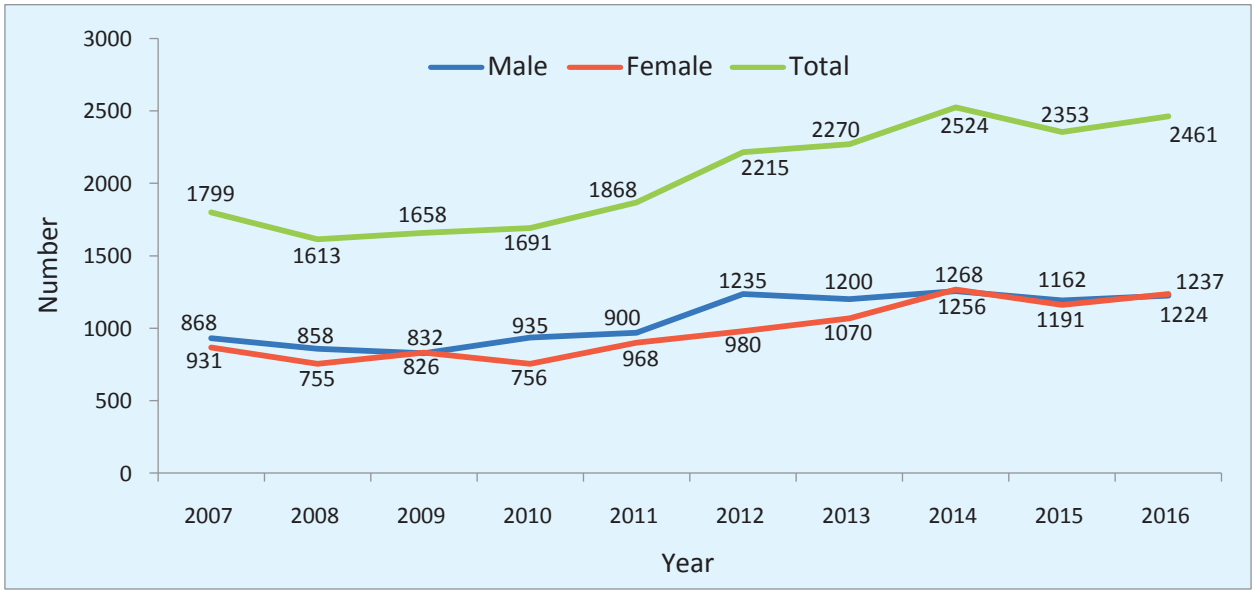
Figure 9A: Number of non-Bangladeshi MBBS students admitted in 2016



Of the 1412 non-Bangladeshi/foreign national students admitted into various medical colleges in Bangladesh for academic year 2016–2017, about 9% (total 129 students) were admitted into government medical colleges and 90% (1273 students) were admitted into nongovernment medical colleges.

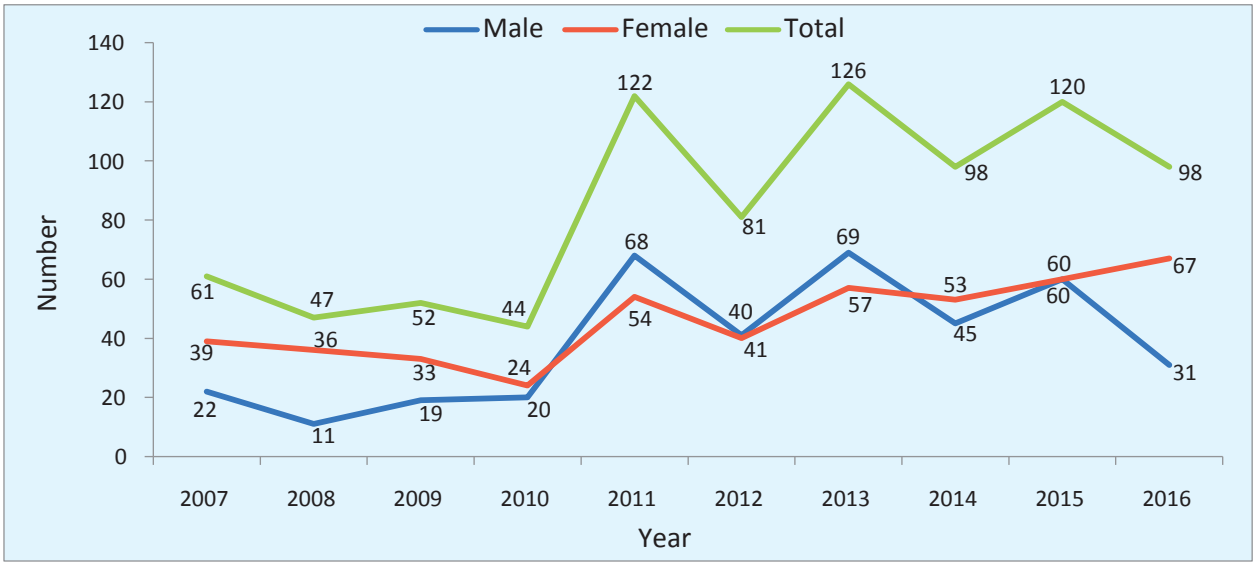
Graduation

Figure 10A: Year-wise distribution of total number of MBBS students who graduated during 2007–2016 from government medical colleges



Every year, there was an average 3% increase in the total number of graduates during 2007-2016 in government medical colleges (Figure 10A).

Figure 11A: Year-wise distribution of total number of MBBS students who graduated during 2007–2016 from armed forces/army medical colleges



The armed forces medical colleges also contributed to the increase in MBBS graduates every year (Figure 11A). Fluctuations in the number of graduates was noticeable every year – on an average, there was a 11% decrease against the corresponding year. Furthermore, about 1% increase in female graduates was found.

Figure 12A: Year-wise distribution of total number of MBBS students who graduated during 2007–2016 from nongovernment medical colleges

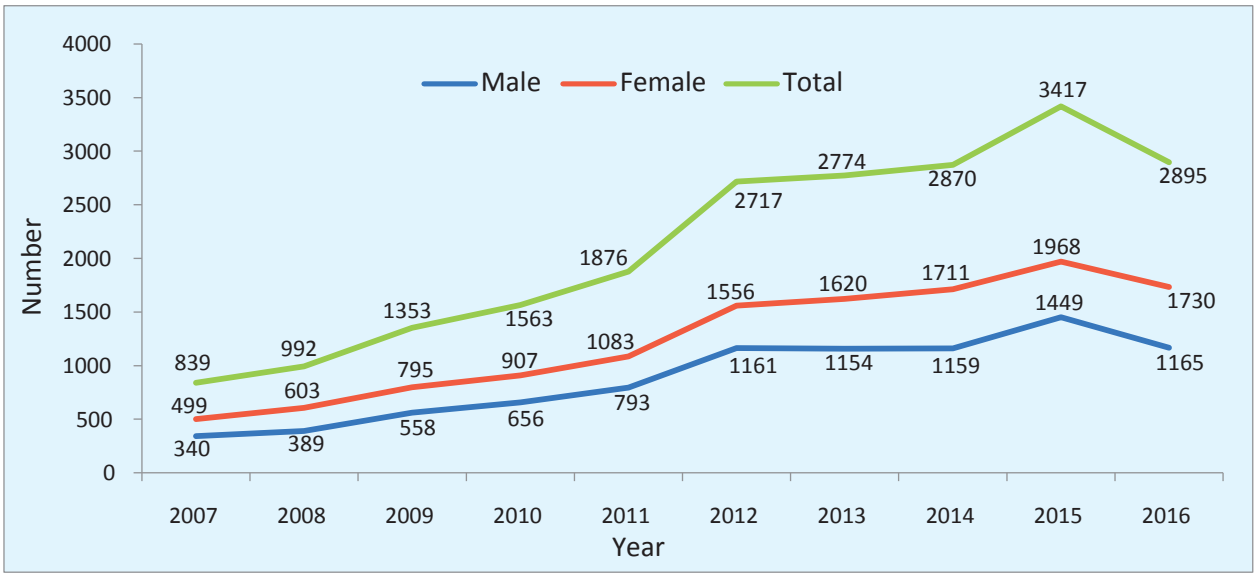
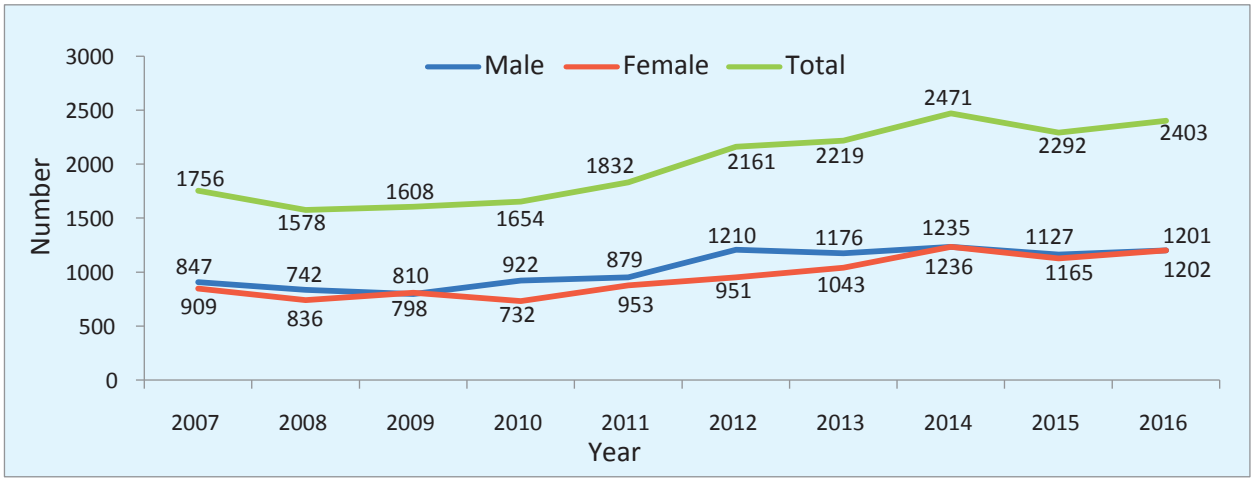


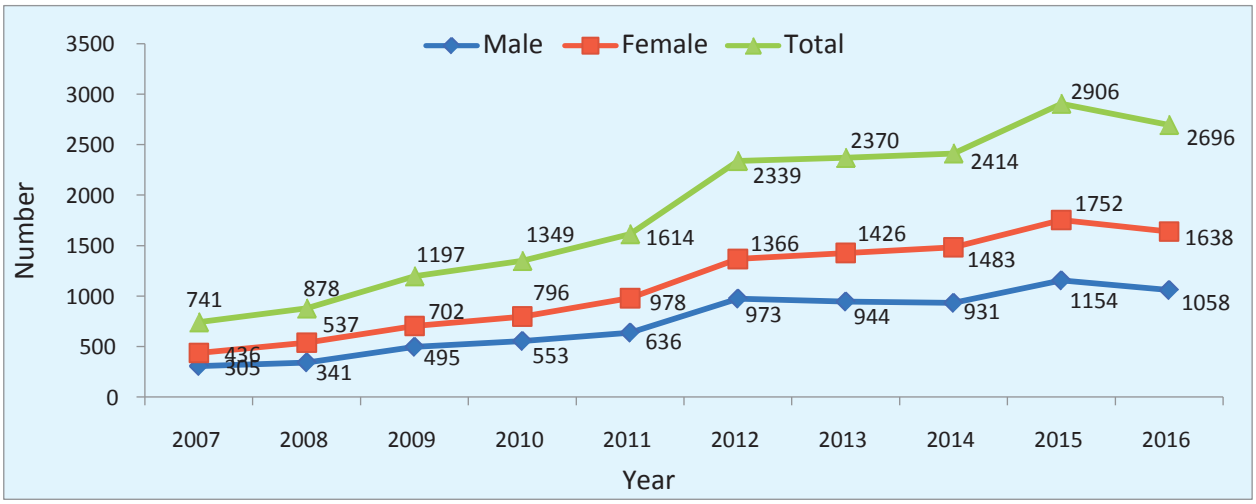
Figure 12A indicates that there was on an average 12% increase in the total number of year-wise graduates. The number of female graduates also increased (by 12%) every year with an exception during 2015–2016.

Figure 13A: Year-wise distribution of total Bangladeshi MBBS students who graduated during 2007–2016 from government medical colleges



During 2007–2016, 1998 students graduated the MBBS course from various government medical colleges every year (Figure 13A). Of the total number of graduates, about 48% were female.

Figure 14A: Year-wise distribution of total Bangladeshi MBBS students who graduated during 2007–2016 from nongovernment medical colleges



A total of 18,504 students graduated during 2007–2016, of whom 60% were female students (Figure 14A).

Figure 15A: Year-wise distribution of total non-Bangladeshi MBBS students who graduated during 2007–2016 from government medical colleges

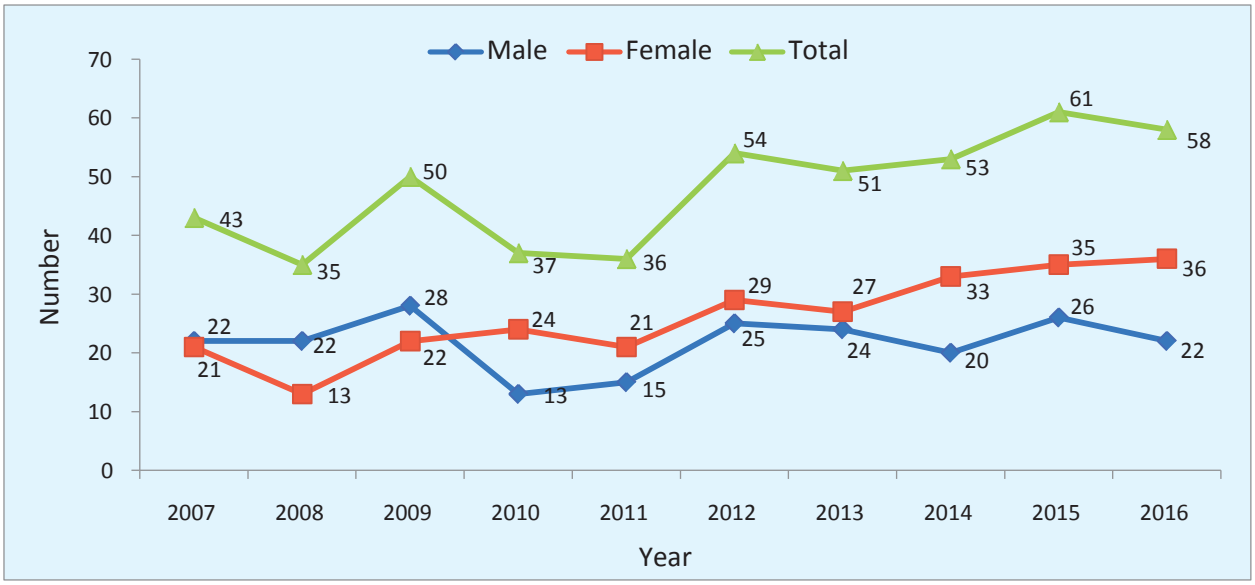
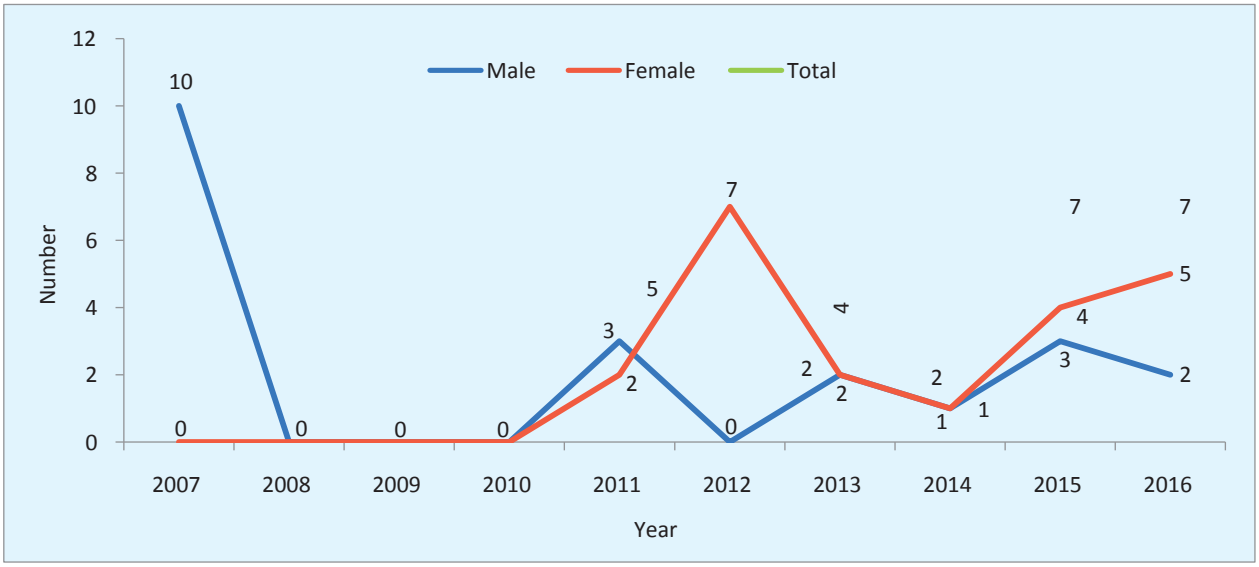


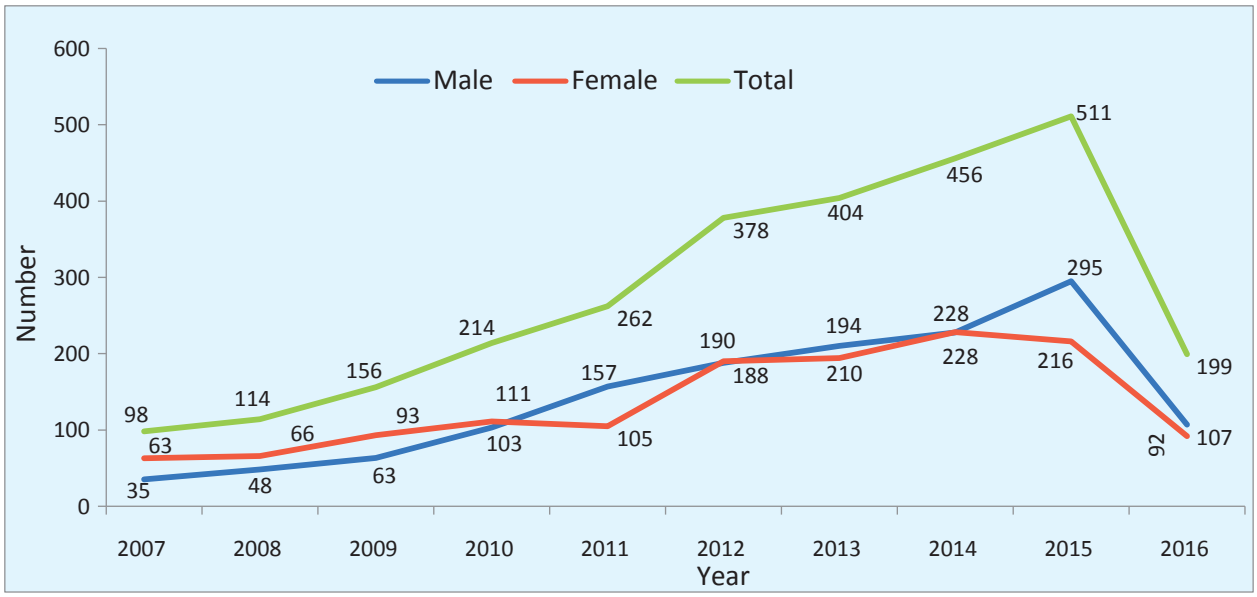
Figure 15A shows that 478 foreign students graduated from government medical colleges; 55% of them were female students.

Figure 16A: Year-wise distribution of total non-Bangladeshi MBBS students who graduated during 2007–2016 from armed forces/army medical colleges



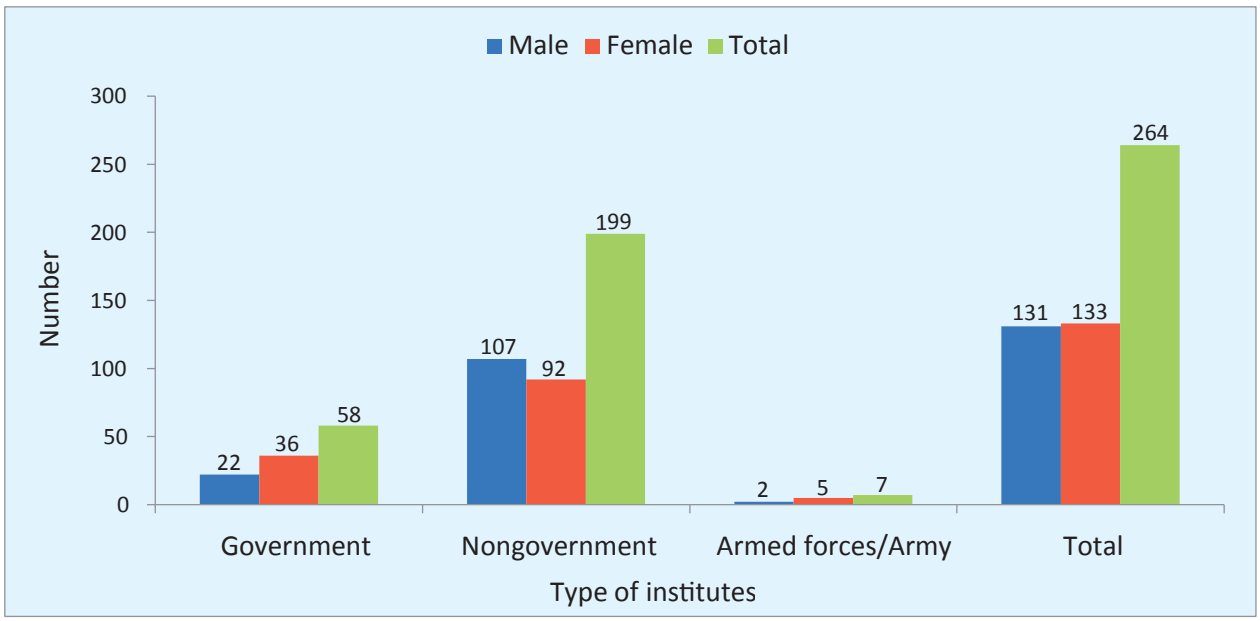
A total of 42 foreign/non-Bangladeshi students graduated from the armed forces medical colleges, of which 21 (50%) were female (Figure 16A).

Figure 17A: Year-wise distribution of total non-Bangladeshi MBBS students who graduated during 2007–2016 from nongovernment medical colleges



Until 2015, there was a gradual increase in the number of foreign graduates every year from nongovernment medical colleges. But, in 2016 there was a sudden fall from 511 (2015) to 199 (2016); of these graduates, about 49% were female.

Figure 18A: Number of non-Bangladeshi MBBS students who graduated in 2016

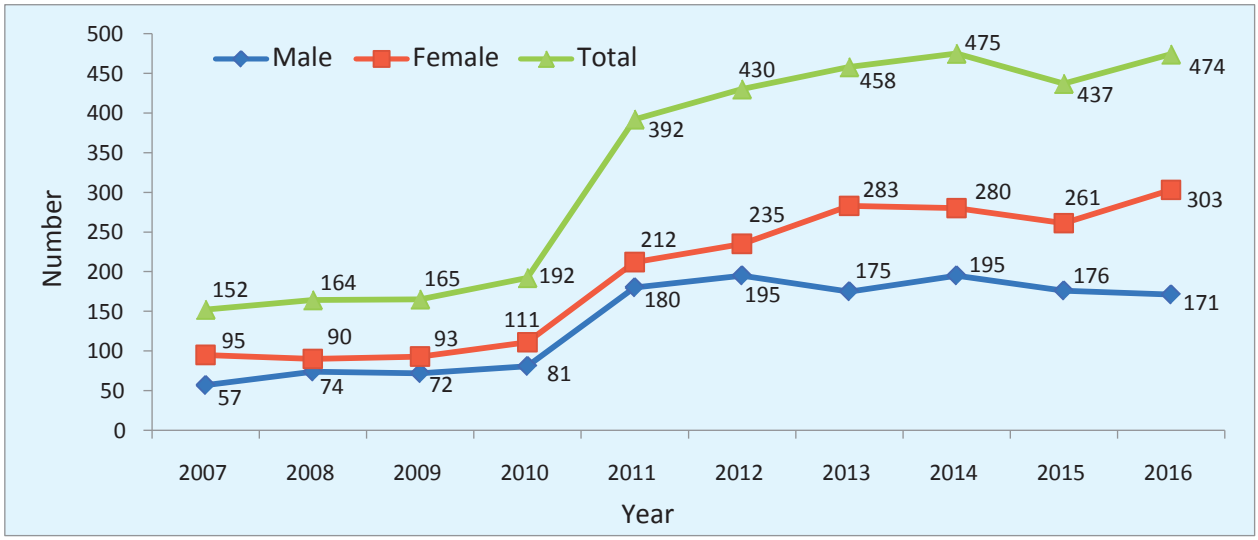


A total of 264 non-Bangladeshi students graduated in 2016, of which 133 (50%) were female. About 75% (199) graduated from nongovernment medical colleges and about 24% graduated from government medical colleges (Figure 18A).

Dental college (BDS)

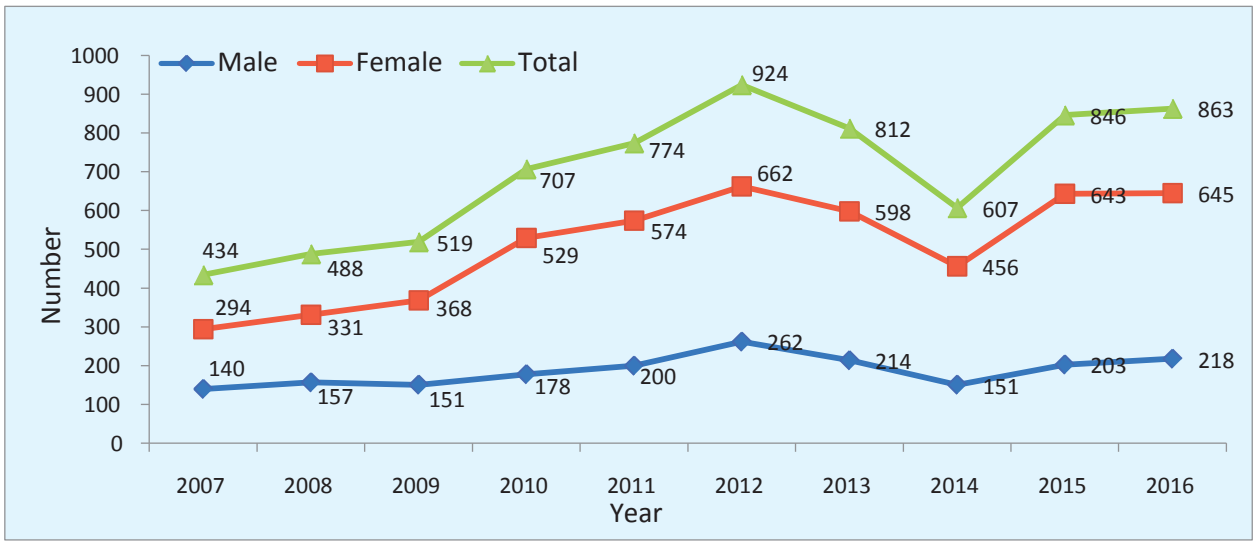
Admission

Figure 19A: Year-wise distribution of students admitted into BDS during 2007–2016 in government dental colleges/units



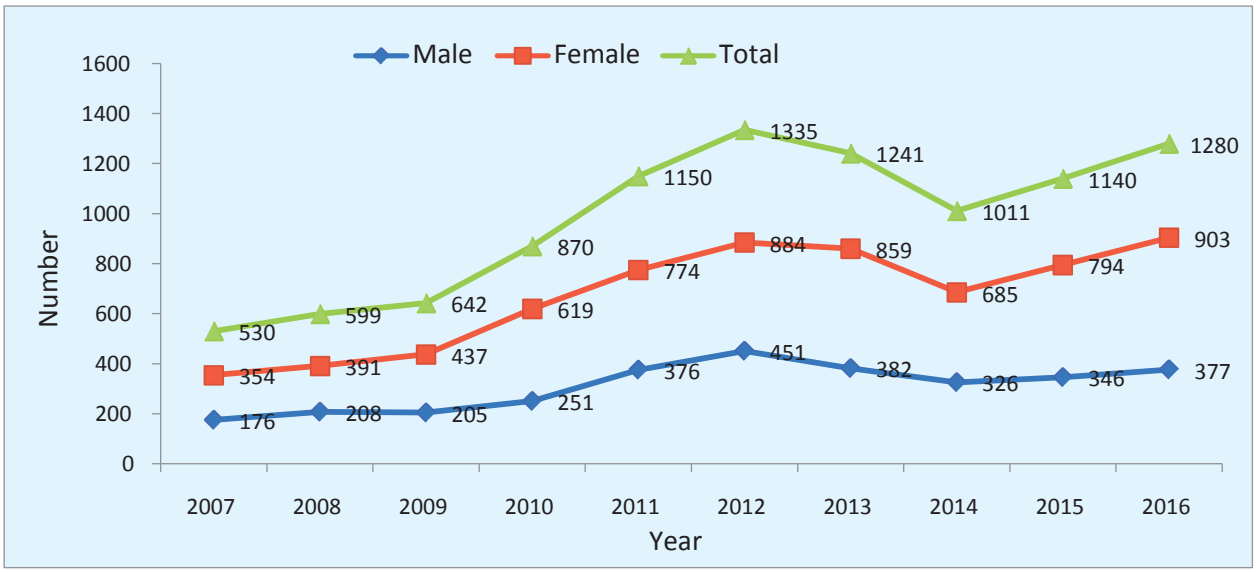
There was a significant increase in BDS admissions after 2010. During 2007-2016, on an average 334 students were admitted every year (196 female and 138 male students). The gap between the number of male and female students was prominent and increased after 2012.

Figure 20A: Year-wise distribution of students admitted into BDS during 2007–2016 in nongovernment dental colleges/units



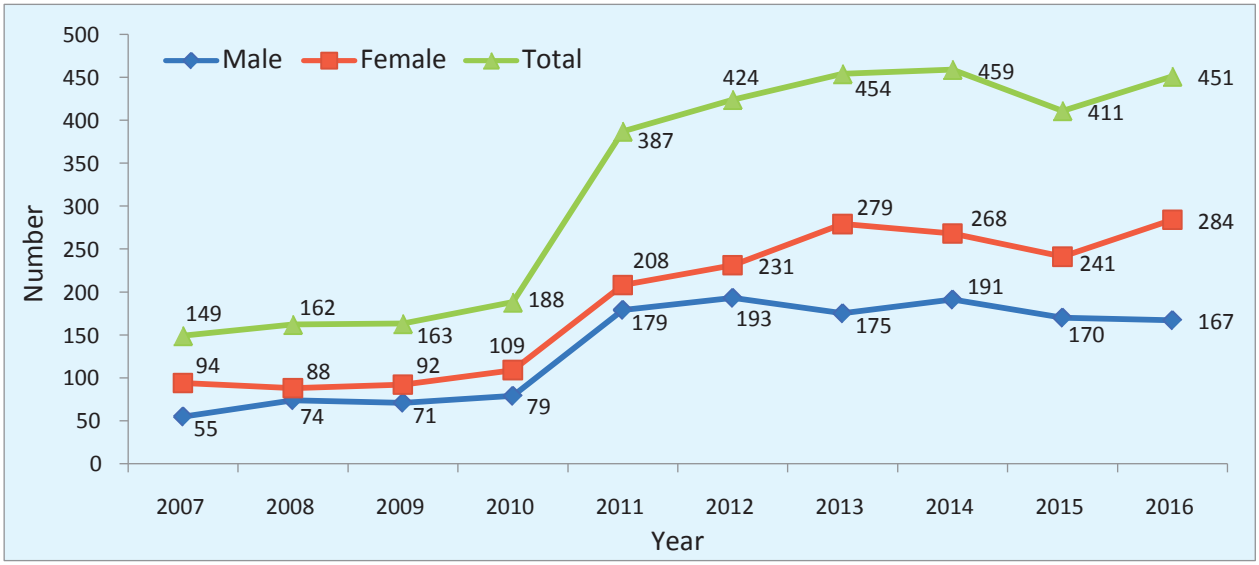
During 2007-2016, on an average 697 students were admitted every year (510 female and 187 male students). The gap between the number of male and female students was prominent and increased almost every year (Figure 20A).

Figure 21A: Year-wise distribution of total Bangladeshi students admitted into BDS during 2007–2016



On an average 980 students were admitted every year in both government and nongovernment dental colleges/units (Figure 21A). The gap between the number of male and female students started increasing after 2009 (i.e. more females than males were getting admitted).

Figure 22A: Year wise distribution of Bangladeshi students admitted into BDS during 2007–2016 in government dental colleges/units



The trend among Bangladeshi BDS students admitted into government medical colleges shows that the number of female students increased significantly compared to male students (Figure 22A).

Figure 23A: Year-wise distribution of Bangladeshi students admitted into BDS during 2007–2016 in nongovernment dental colleges/units

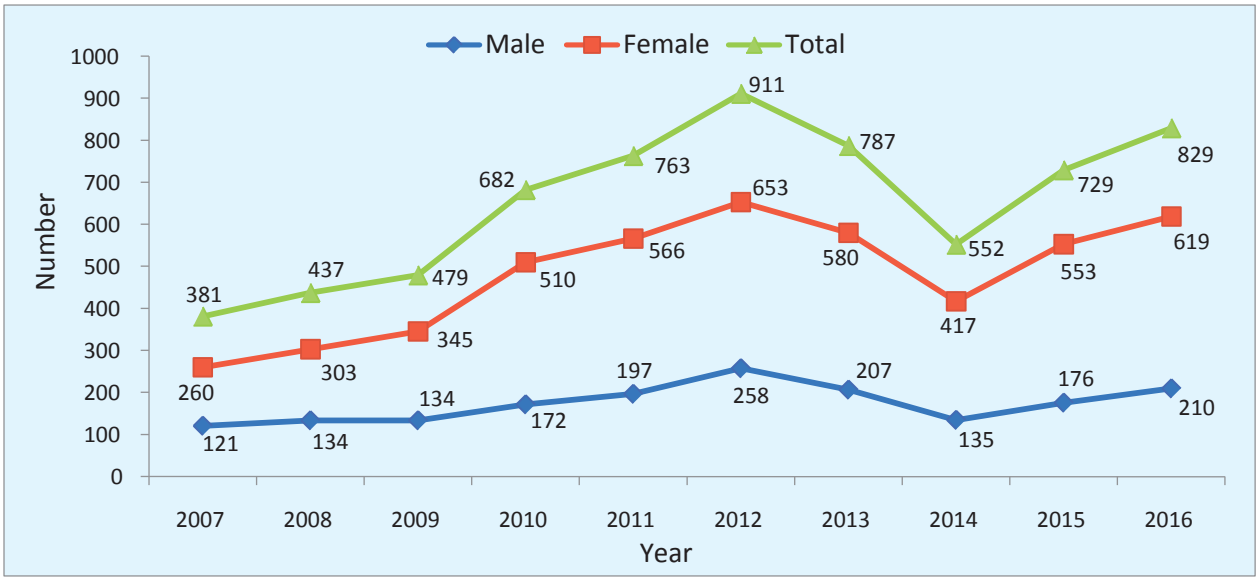
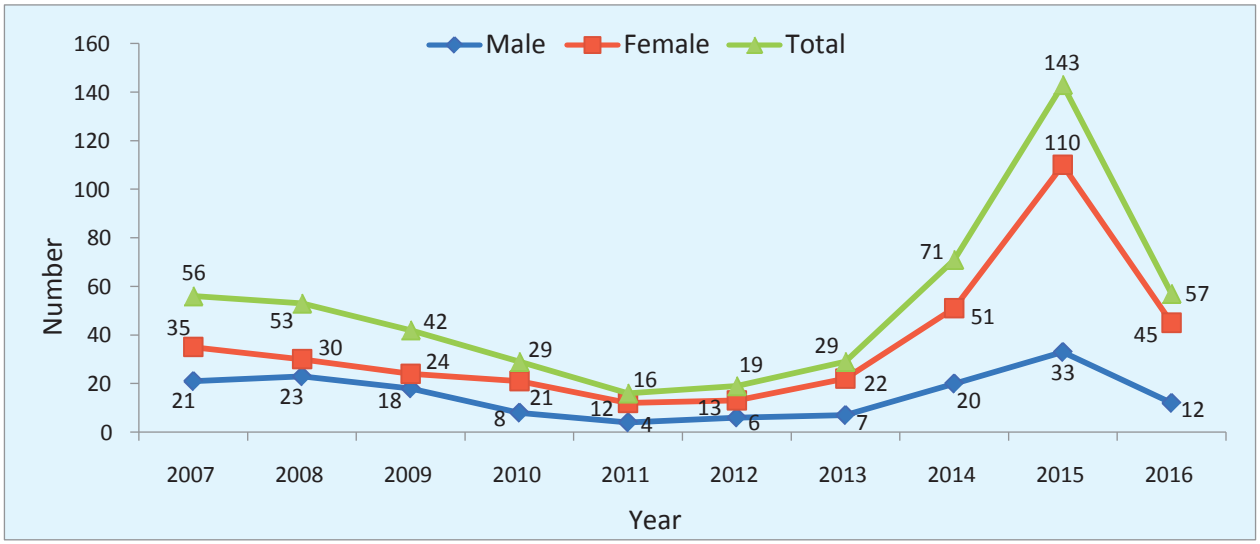


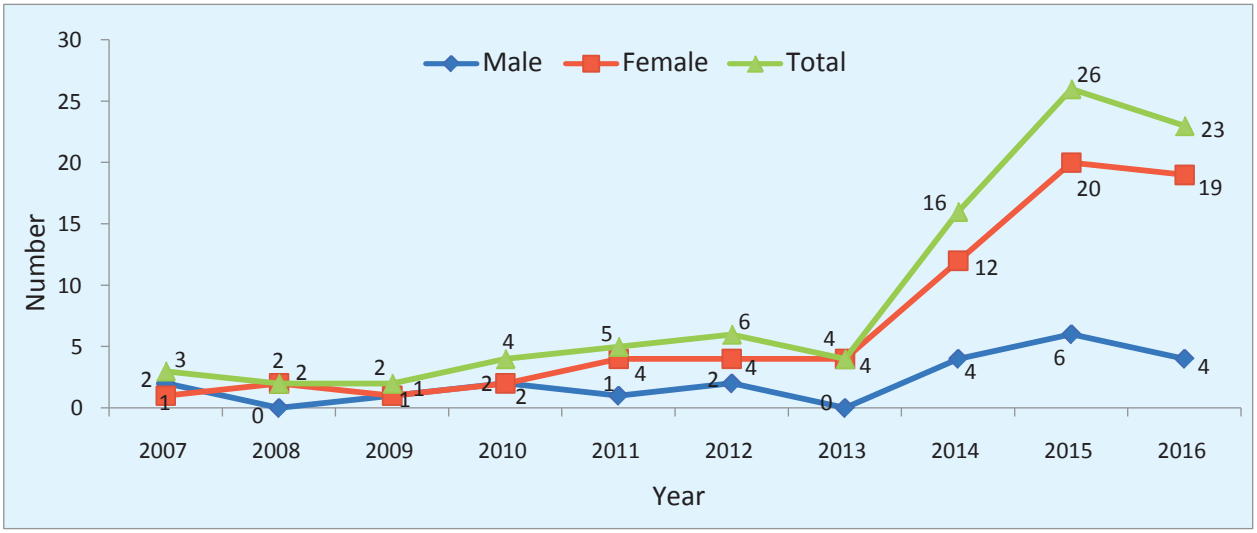
Figure 23A shows among Bangladeshi BDS students admitted into nongovernment medical colleges, female students increased significantly compared to male students during 2007–2016.

Figure 24A: Year-wise distribution of total non-Bangladeshi students admitted into BDS during 2007–2016



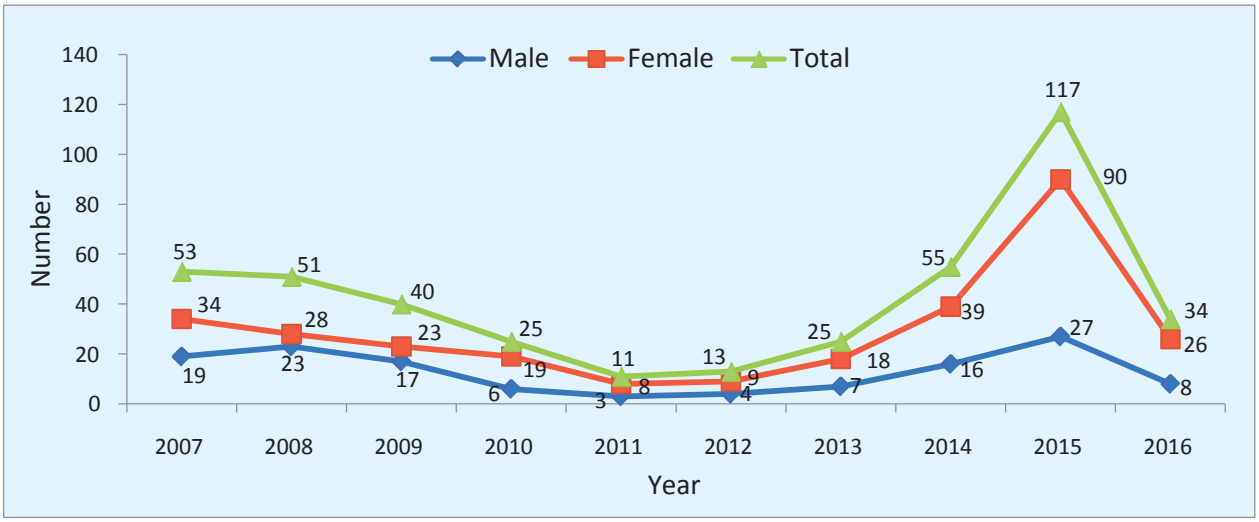
Comparatively more female non-Bangladeshi students were admitted every year for the BDS course in Bangladesh in both government and nongovernment dental colleges/units than their male counterparts. There was a sudden increase in the number of students admitted after 2013; however, by 2016 it showed a sudden decrease (Figure 24A).

Figure 25A: Year-wise distribution of non-Bangladeshi students admitted into BDS during 2007–2016 in government dental colleges/units



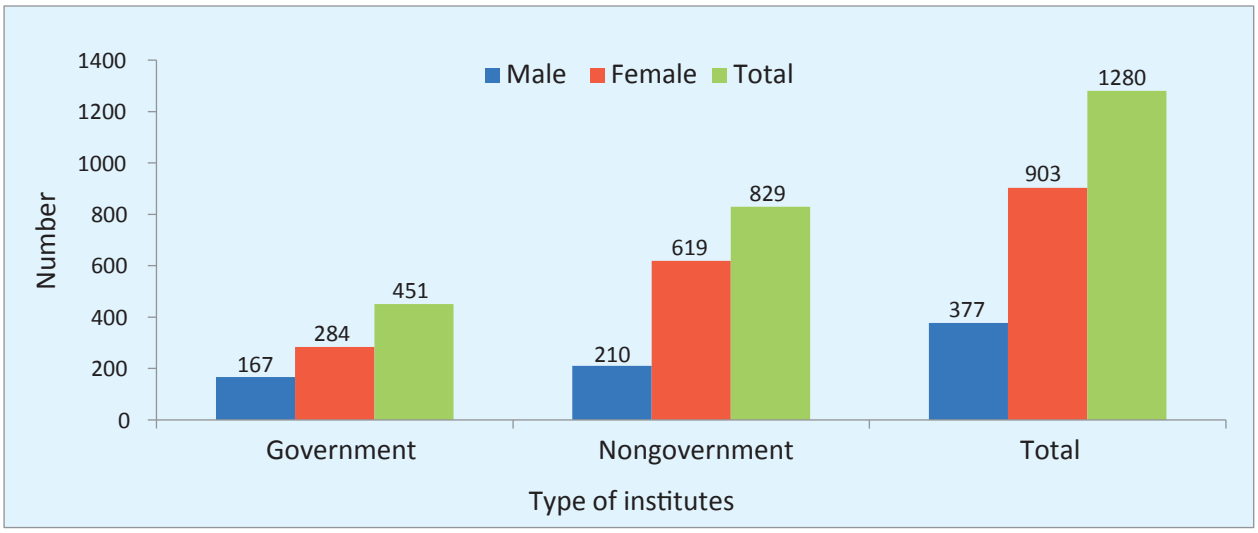
After 2013, there an increase in the number of non-Bangladeshi students admitted into government medical colleges (Figure 25A).

Figure 26A: Year wise distribution of non-Bangladeshi students admitted into BDS during 2007–2016 in nongovernment dental colleges/units



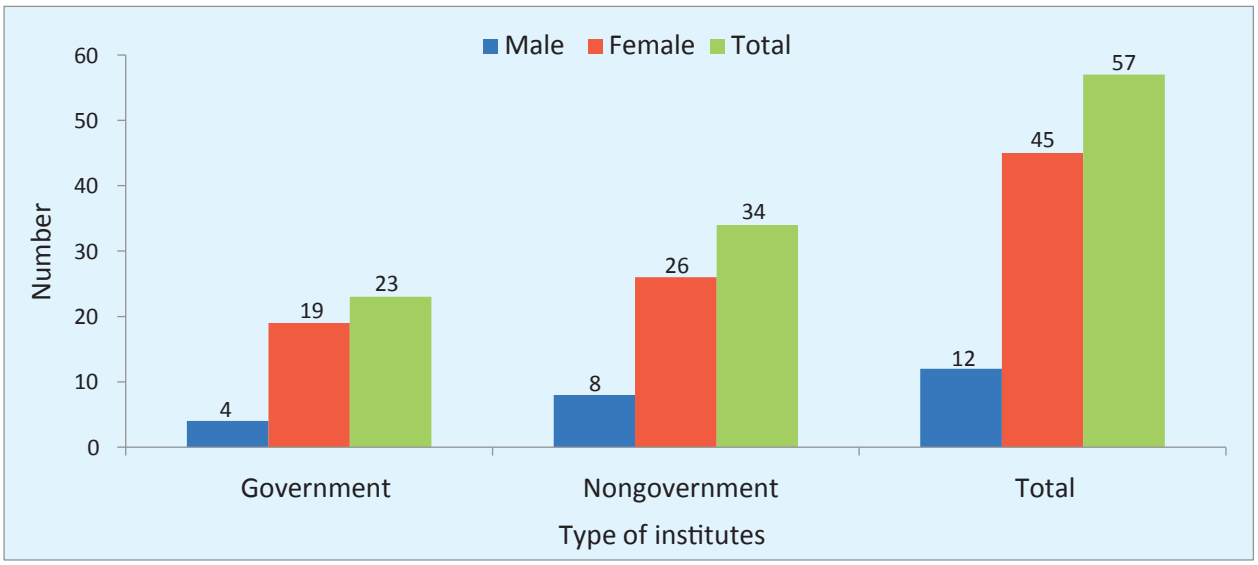
Comparatively more female non-Bangladeshi students were admitted every year for BDS course in nongovernment dental colleges/units. There was a sudden increase in the total number of admitted students after 2013, followed by a sudden decrease 2016 (Figure 26A).

Figure 27A: Number of Bangladeshi students admitted into BDS in 2016



More students were admitted into nongovernment dental colleges compared to the number admitted into government dental colleges (Figure 27A). The number of female students was significantly higher than the number of male students.

Figure 28A: Number of non-Bangladeshi students admitted into BDS in 2016



Though the number of non-Bangladeshi students who were admitted is not very significant, the number of female students admitted was higher than the number of male students 2016 (Figure 28A).

Graduation

Figure 29A: Year-wise distribution of BDS students who graduated during 2007–2016 from government dental colleges

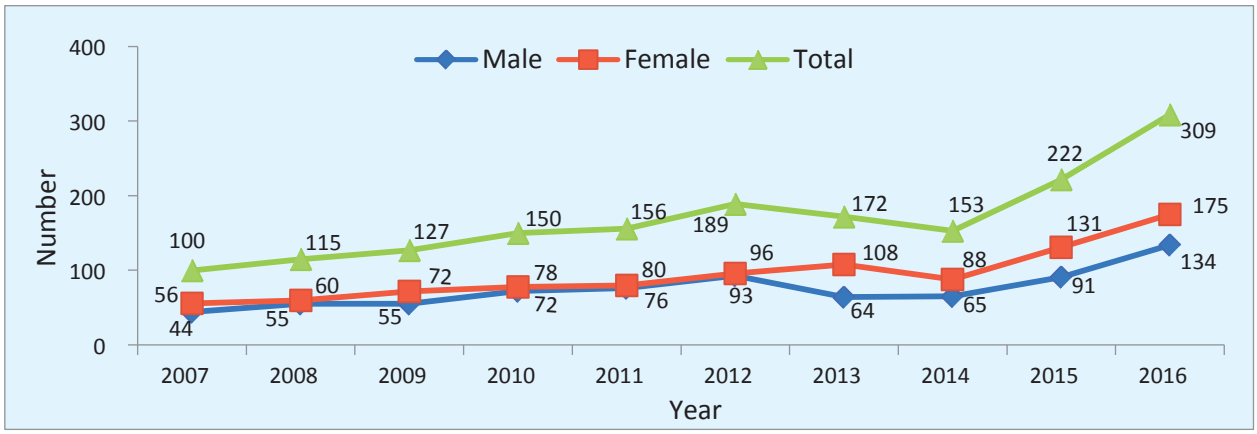
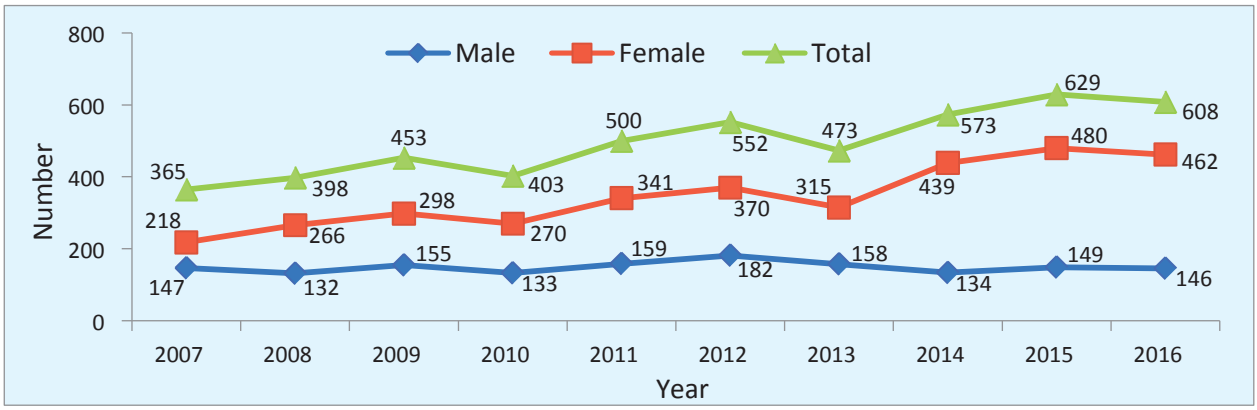


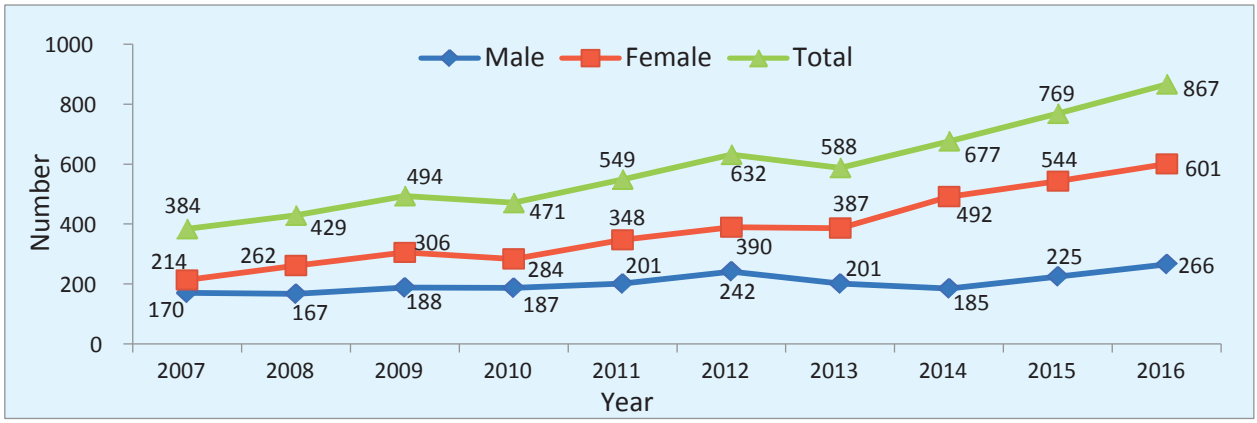
Figure 29A shows that 309 BDS students graduated during 2007-2016. The total number of graduates increased after 2014.

Figure 30A: Year-wise distribution of BDS students who graduated during 2007–2016 from nongovernment dental colleges



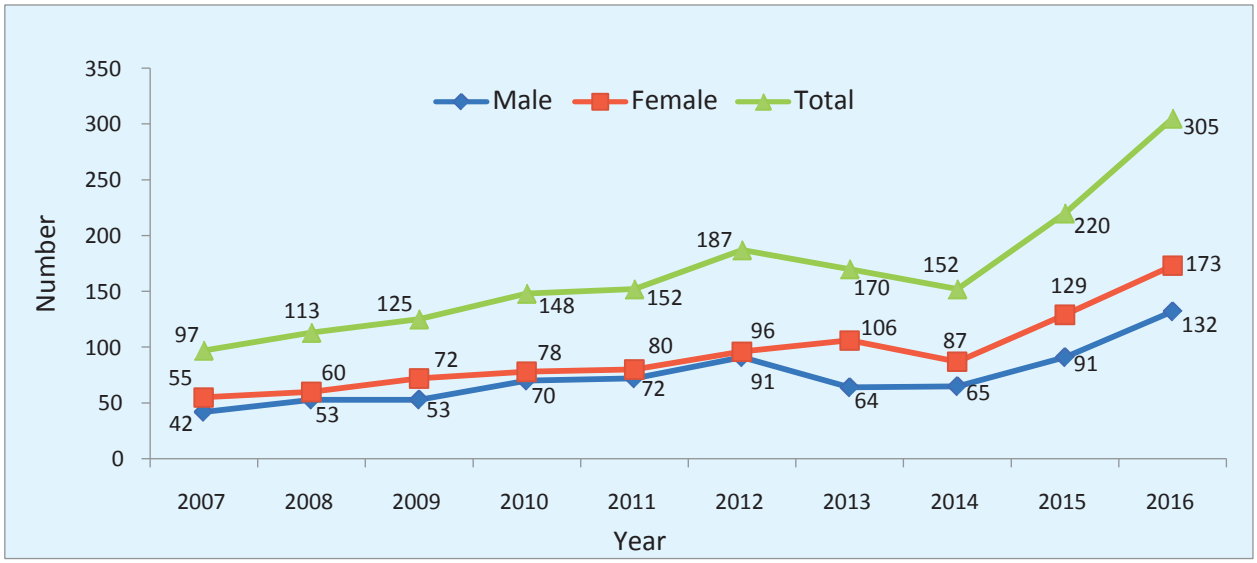
The number of female BDS graduates increased every year, while the number of male graduates did not significantly change (Figure 30A). A significant gap between male and female graduates was noted for 2014 and 2016.

Figure 31A: Year-wise distribution of total Bangladeshi BDS students who graduated during 2007–2016



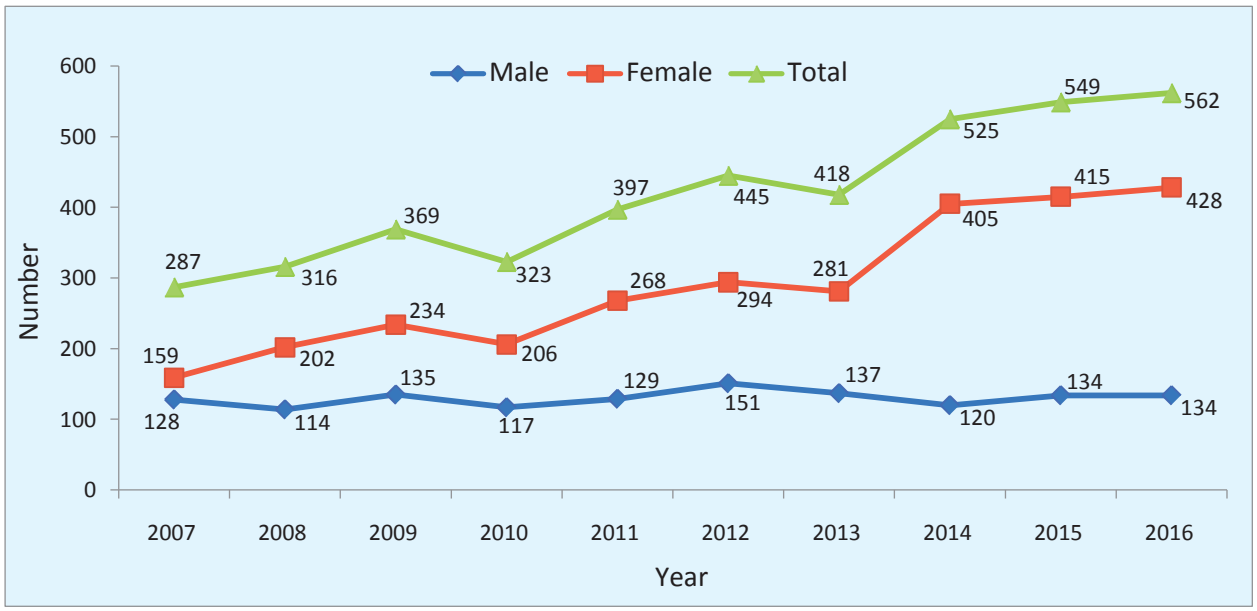
The number of total Bangladeshi graduates and the gap between male and female graduates gradually increased every year (Figure 31A). This means that every year more females were graduating than males.

Figure 32A: Year-wise distribution of Bangladeshi BDS students who graduated during 2007–2016 from government dental colleges



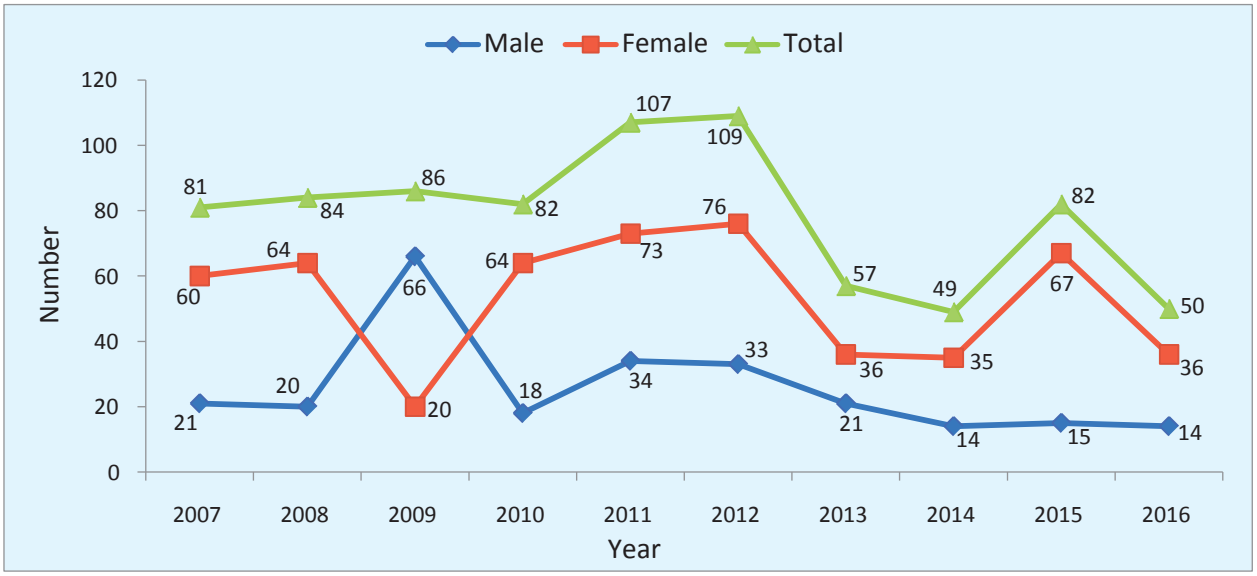
There was an increasing trend in the number of BDS graduates every year with more females graduating than males (Figure 32A).

Figure 33A: Year-wise distribution of Bangladeshi BDS students who graduated during 2007–2016 from nongovernment dental colleges



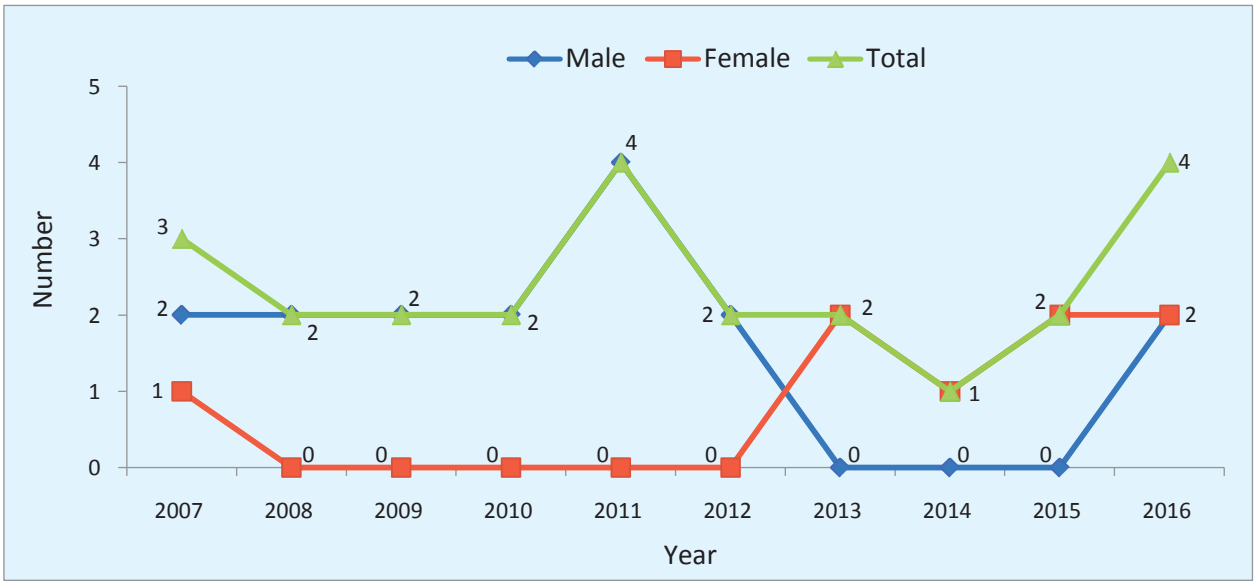
There was an increasing trend in the number of BDS graduates from nongovernment dental colleges (Figure 33A). In 2016, 562 BDS students graduated from nongovernment dental colleges.

Figure 34A: Year-wise distribution of the total non-Bangladeshi BDS students who graduated during 2007–2016



While Figure 34A shows fluctuations among the number of non-Bangladeshi BDS graduates, it was clear that overall more females than males graduated.

Figure 35A: Year-wise distribution of non-Bangladeshi BDS students who graduated during 2007–2016 from government dental colleges



The number of non-Bangladeshi students who graduated from government dental colleges was not significant as the maximum number was only four during 2007–2016 (Figure 35A).

Figure 36A: Year-wise distribution of non-Bangladeshi BDS students who graduated during 2007–2016 from nongovernment dental colleges

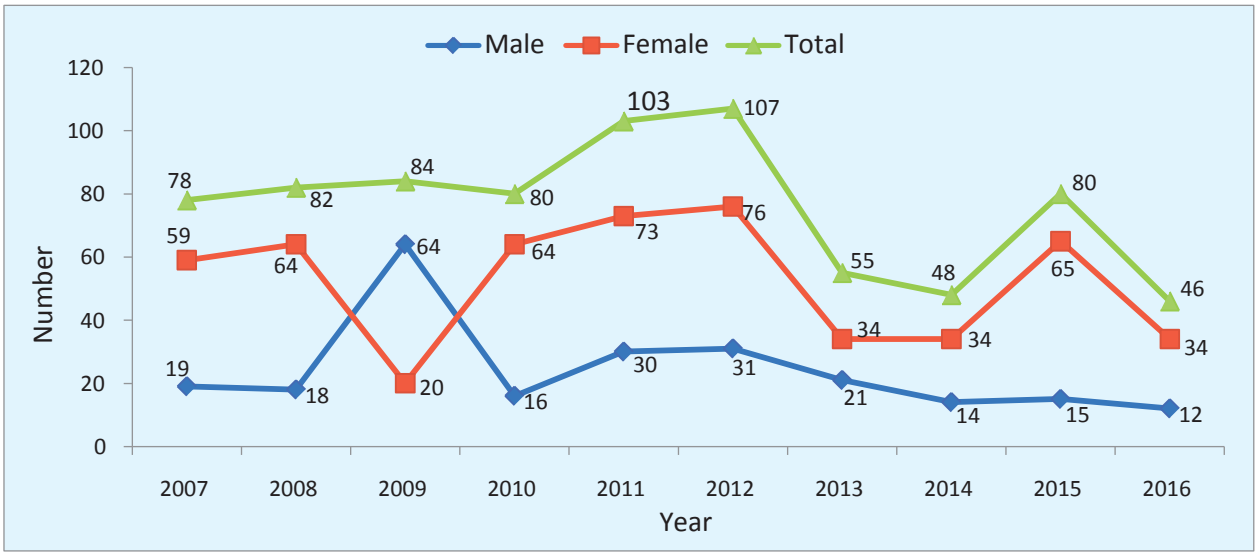


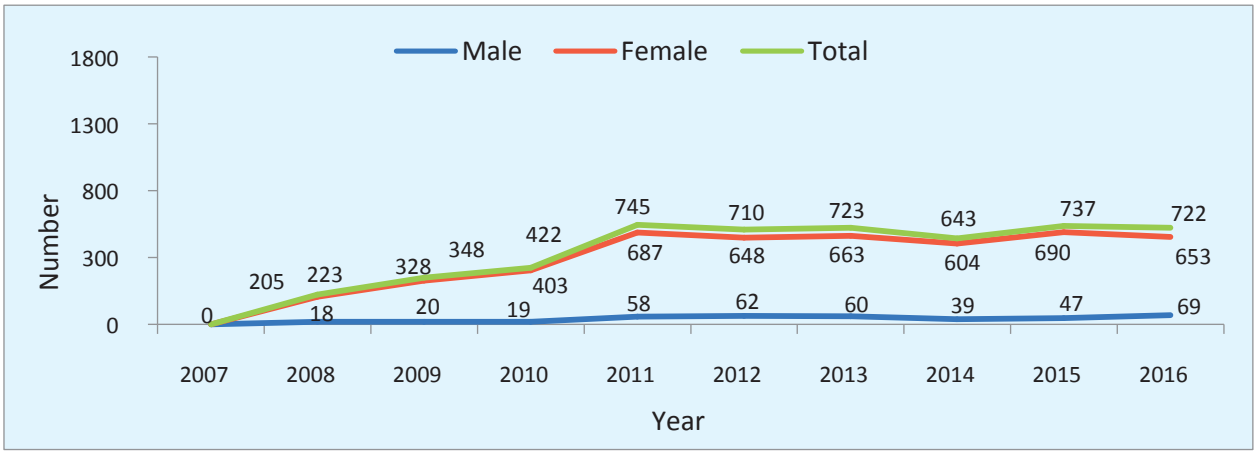
Figure 36A shows fluctuations in the number of non-Bangladeshi BDS graduates during 2007–2016 from-nongovernment dental colleges. The number of graduates was maximum during 2011–2012; 103 in 2011, 107 in 2012, but went down to 46 in2016.

Nursing and Midwifery Educational Institutions

BSc in Nursing (BScN)

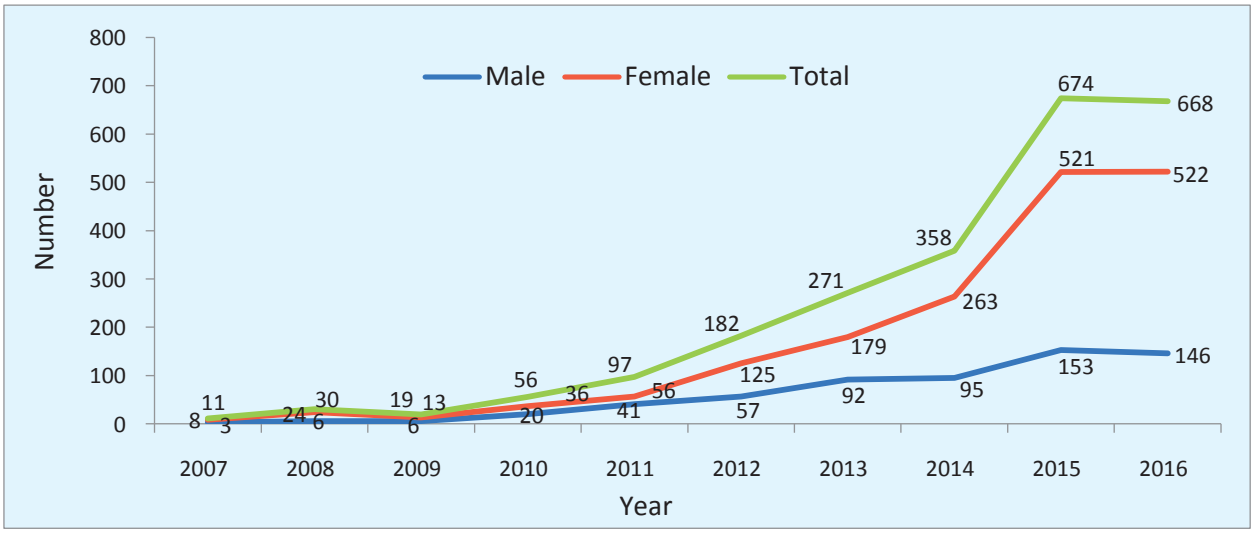
Admission

Figure 37A: Year-wise distribution of total students admitted into BSc in Nursing during 2007–2016 in government nursing colleges



In government nursing colleges, no student was admitted in 2007, but 233 were admitted in 2008 and there was a gradual increase in admissions until 2011, after which the numbers have remained stable between 700 to 750. Approximately 92% of the admitted students were female.

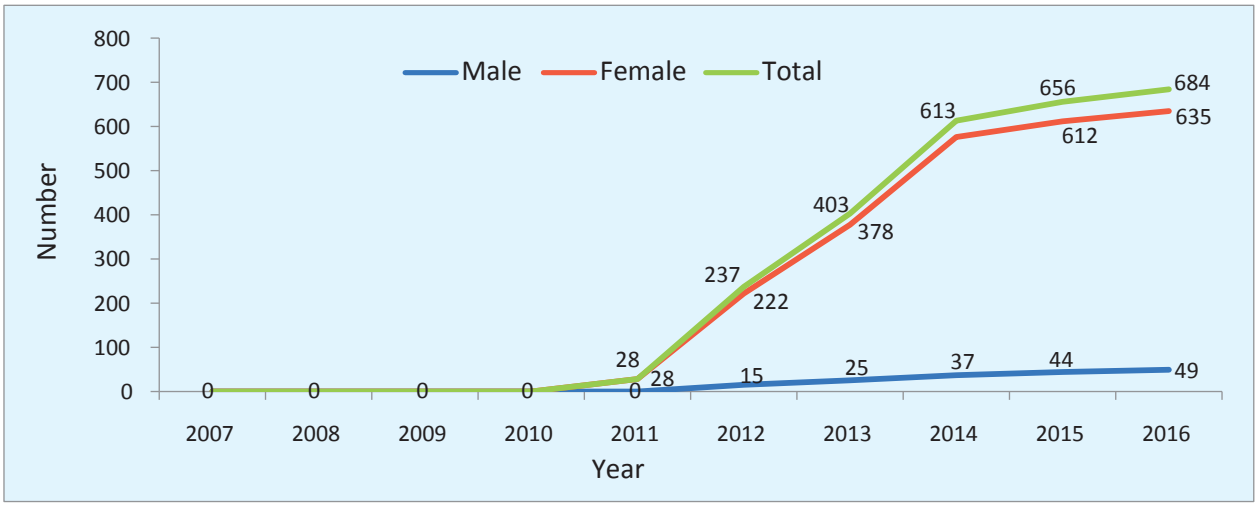
Figure 38A: Year-wise distribution of the total students admitted into BSc in Nursing during 2007–2016 in nongovernment nursing colleges



From 2007 there was a gradual increase in the number of admitted students every year in nongovernment nursing colleges. Similar to the government nursing colleges, throughout the decade, the majority of admitted students in BSc in Nursing were female (on average 74%).

Graduation

Figure 39A: Year-wise distribution of students who acquired BScN during 2007–2016 from government nursing colleges



The first batch of students (28 and all of them were female) from government nursing colleges graduated in 2011 (Figure 39A). Since then the number of students who achieved BScN degree from various colleges increased gradually. In 2012, 237 students graduated – a steep rise (about 746%) from 2011 (28). From 2014 to 2016, the number of graduates from government nursing colleges remained stagnant; they were predominantly female (about 93%).

Figure 40A: Year-wise distribution of students who acquired BSc Nduring 2007–2016 from nongovernment nursing colleges

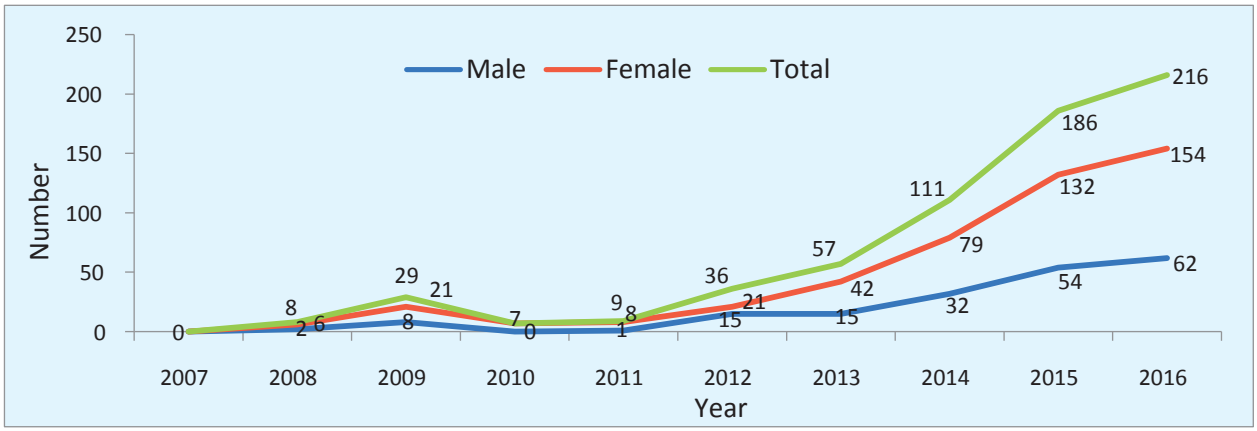


Figure 40A shows an uneven trend in the number of students who graduated in BScN from nongovernment nursing colleges (private sector) during 2007-2016. In 2008, only eight students had graduated, while in 2009, a 29 students graduated, and in 2010 and 2011 the numbers were 7 and 9, respectively. However, since 2012 a gradual increase was noted; from 36 in 2012 to 216 in 2016. Unlike government nursing colleges, considerably higher number of male students acquired BScN from nongovernment nursing colleges. During 2007–2016, while only 7% of the total graduates in government nursing colleges were male, about 29% of students who graduated from nongovernment nursing colleges were male.

Diploma in Nursing Science and Midwifery

Admission

Figure 41A: Year-wise distribution of total students into Diploma in Nursing Science and Midwifery during 2007–2016 in government nursing institutes

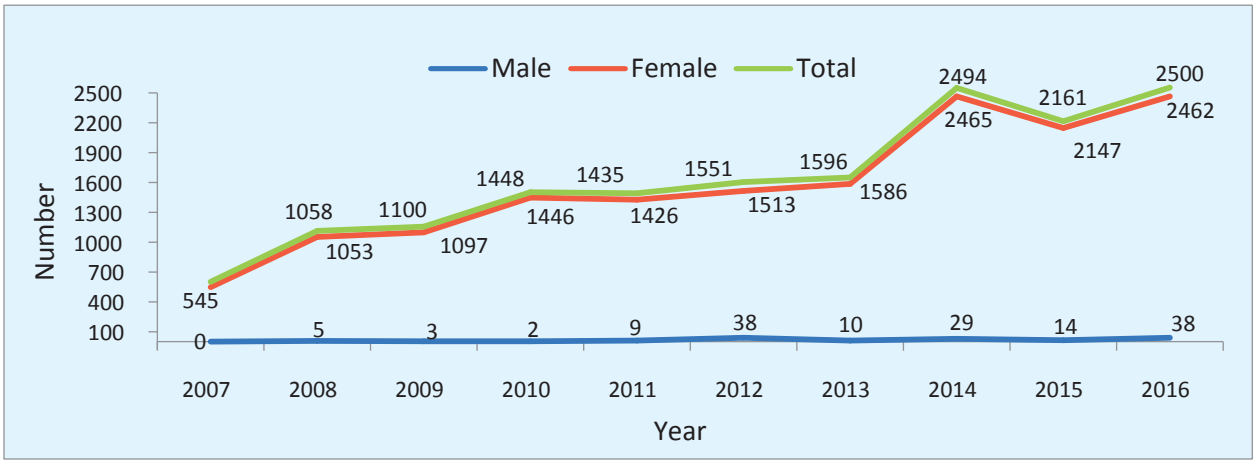
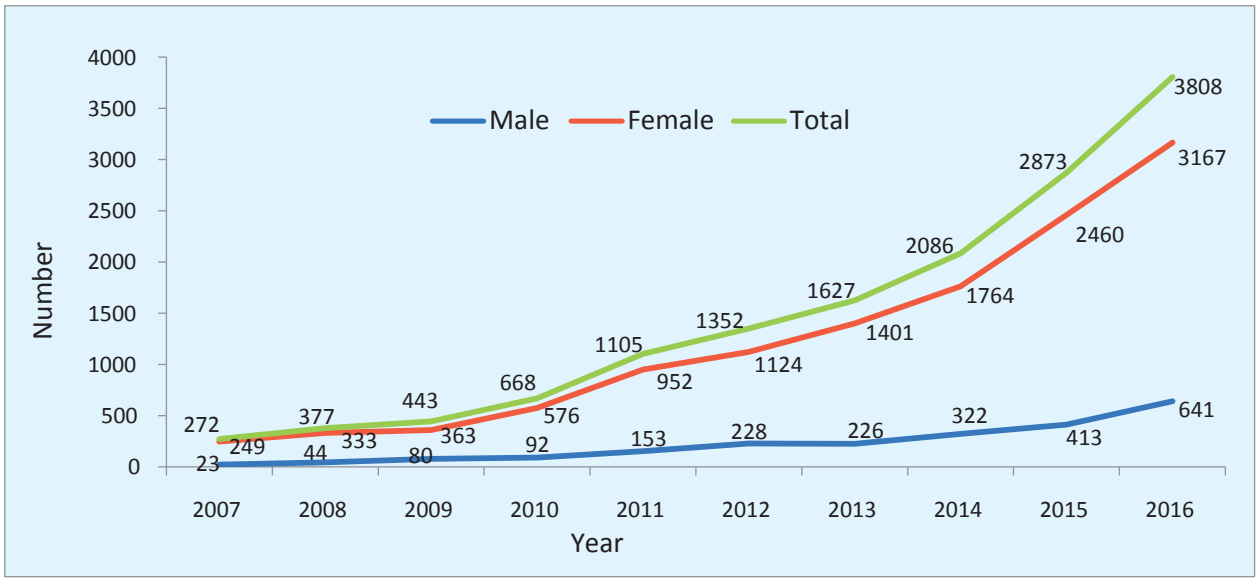


Figure 41A shows that from 2007 there was a gradual increase DNSM admissions until 2013 in government nursing institutes. Admissions then rose steeply in 2014 and reached a plateau, except for a small decrease in 2015. The number of admitted students in 2016 was 2500, which was almost 4.5 times higher than students admitted in 2007; among them more than 98% were female.

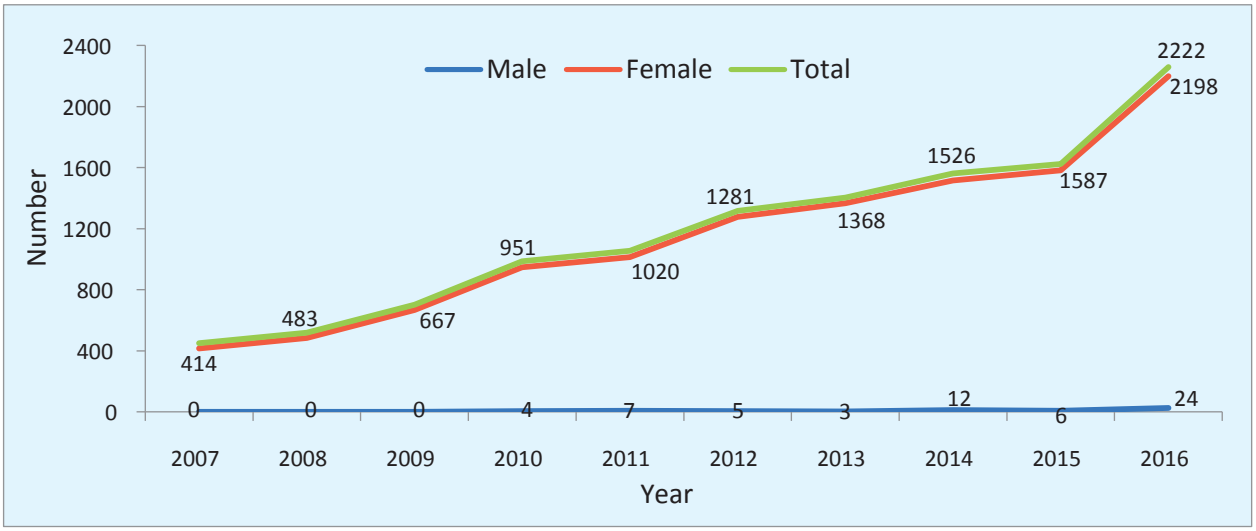
Figure 42A: Year-wise distribution of the total students admitted into Diploma in Nursing Science and Midwifery during 2007–2016 in nongovernment nursing institutes



During 2007–2016, the number of total admitted students in DNSM in nongovernment nursing institute increased steadily, from only 271 in 2007 to 3808 in 2016 (i.e. 14 times increase in a decade). Unlike government nursing institutes, more male students were admitted into DNSM in the nongovernment sector. Less than 1% male students were admitted into DNSM in government nursing institute, versus 18% male students admitted in the nongovernment sector.

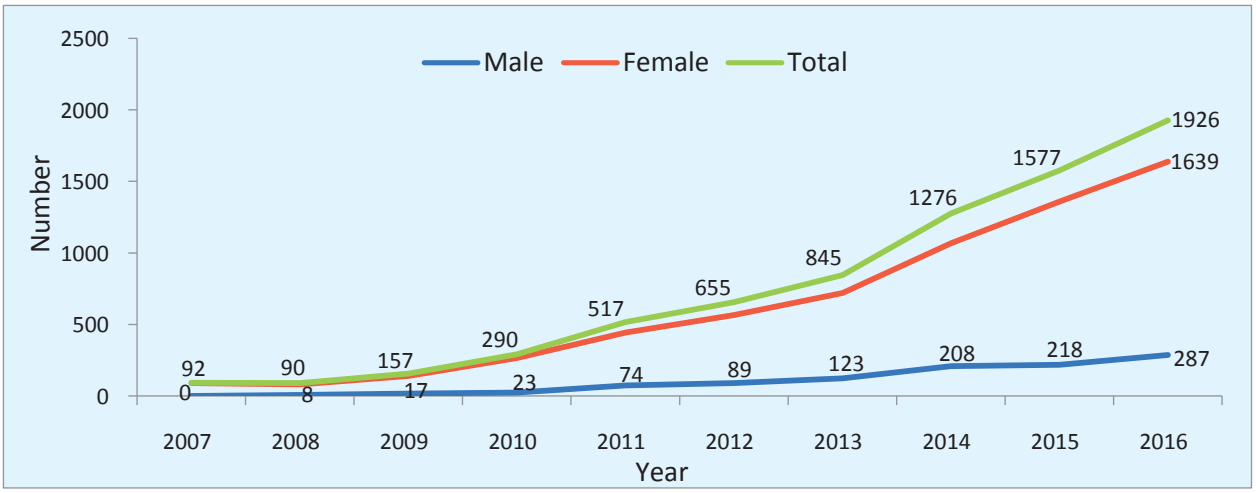
Graduation

Figure 43A: Year-wise distribution of students who acquired Diploma in Nursing Science and Midwifery during 2007–2016 from government nursing Institutes



There was a gradual increase in the number of students who acquired DNSM from government nursing institutes (and less than 1% students were male). In 2007, 414 students acquired DNSM and none of them were male. In 2016, 2222 acquired the degree and 24 of them were male (Figure 43A).

Figure 44A: Year-wise distribution of students who acquired Diploma in Nursing Science and Midwifery during 2007–2016 from nongovernment nursing Institutes

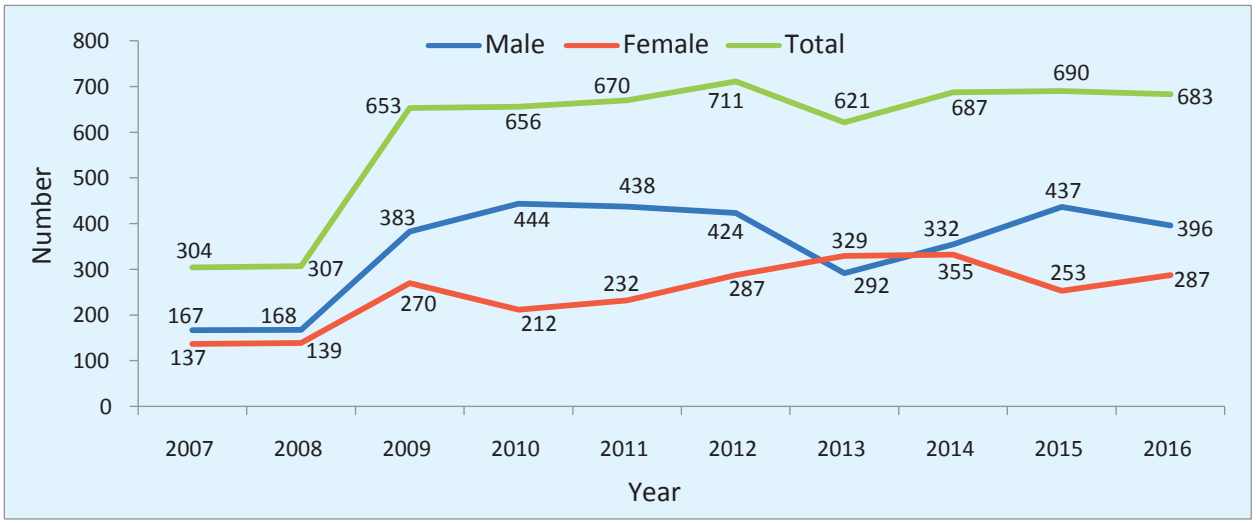


Students who acquired DNSM from nongovernment nursing educational institutions increased steadily-during 2007-2016; from 92 (all female) in 2007 to 1926 in 2016 (Figure 44A). More than 14% male students acquired DNSM from nongovernment nursing institutions, while less than 1% male students acquired DNSM ingovernment institutions.

Medical Assistant Training school (MATS)

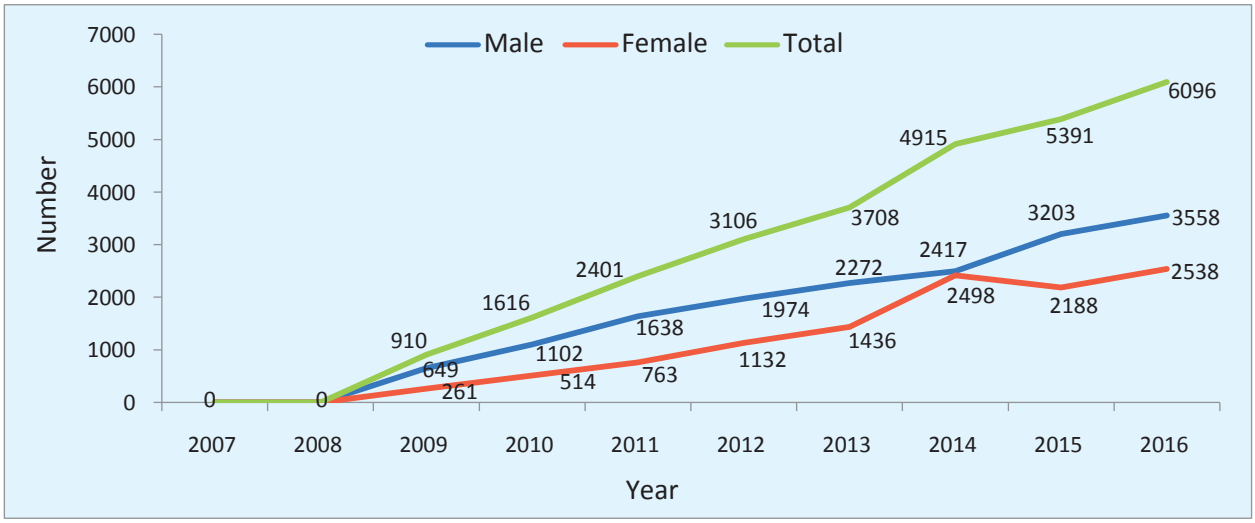
Admission in Diploma in Medical Faculty (DMF)

Figure 45A: Year-wise distribution of total students admitted during 2007–2016 in government MATS



In the government MATS, 304 students were admitted in 2007 and nearly an equal number in 2008. The number of admitted students doubled in 2009 (653) (Figure 45A). Since then the number of admitted students has remained stable between 621 and 711. During 2007-2016, approximately 42% of the admitted students were female.

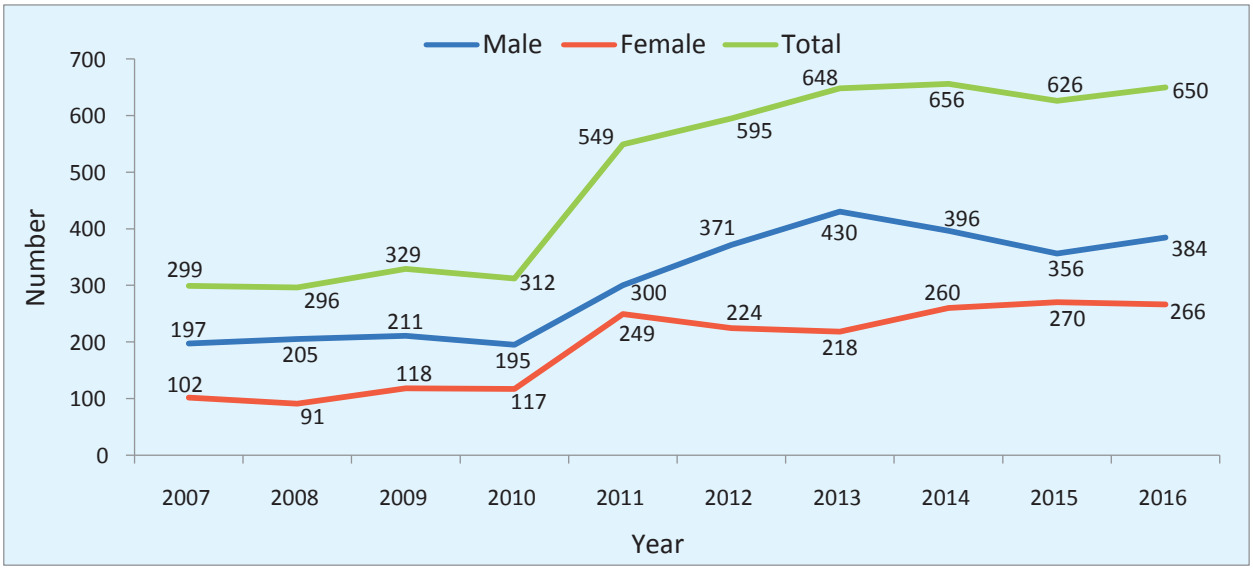
Figure 46A: Year-wise distribution of the total students admitted during 2007–2016 in nongovernment MATS



In the nongovernment sector, the first batch (910 students) was admitted in 2009. Since then the number of admitted students increased every year reaching 6096 in 2016 – more than 6.5 times higher than the number of students admitted in 2009 (Figure 46A).

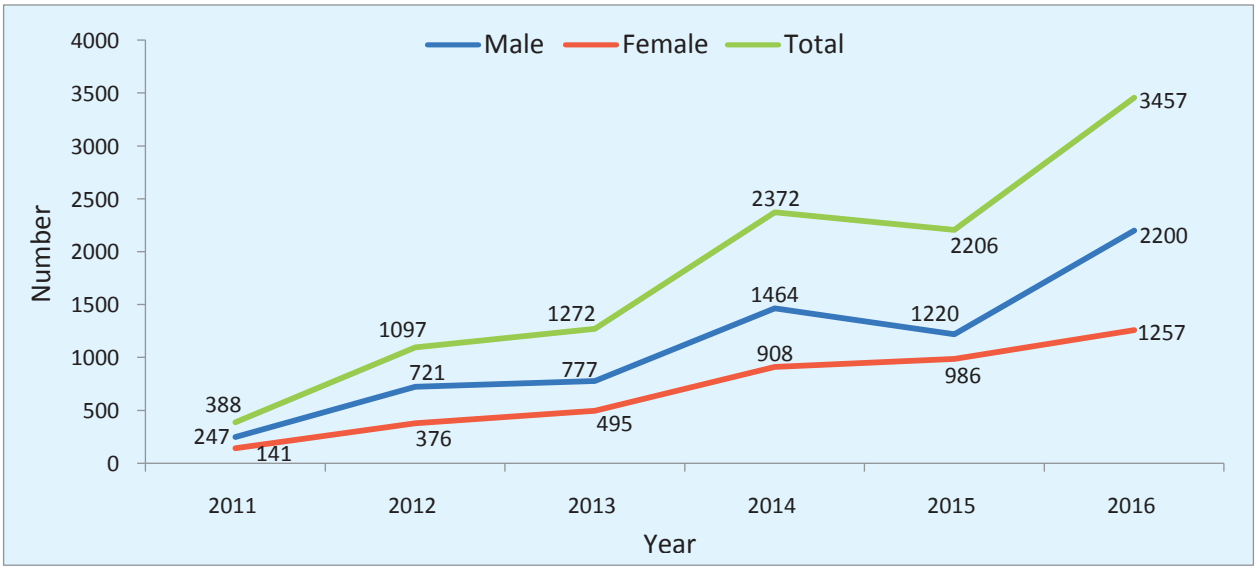
Graduation

Figure 47A: Year-wise distribution of students who acquired Diploma in Medical Assistantship during 2007–2016 from government MATS



Every year on an average 496 students successfully completed the diploma. During the first four years, the numbers were on average 309, which later increased to 620 for the immediate last six years (2011-2016) (Figure 47A).

Figure 48A: Year-wise distribution of students who acquired Diploma in Medical Assistantship during 2007–2016 from nongovernment MATS



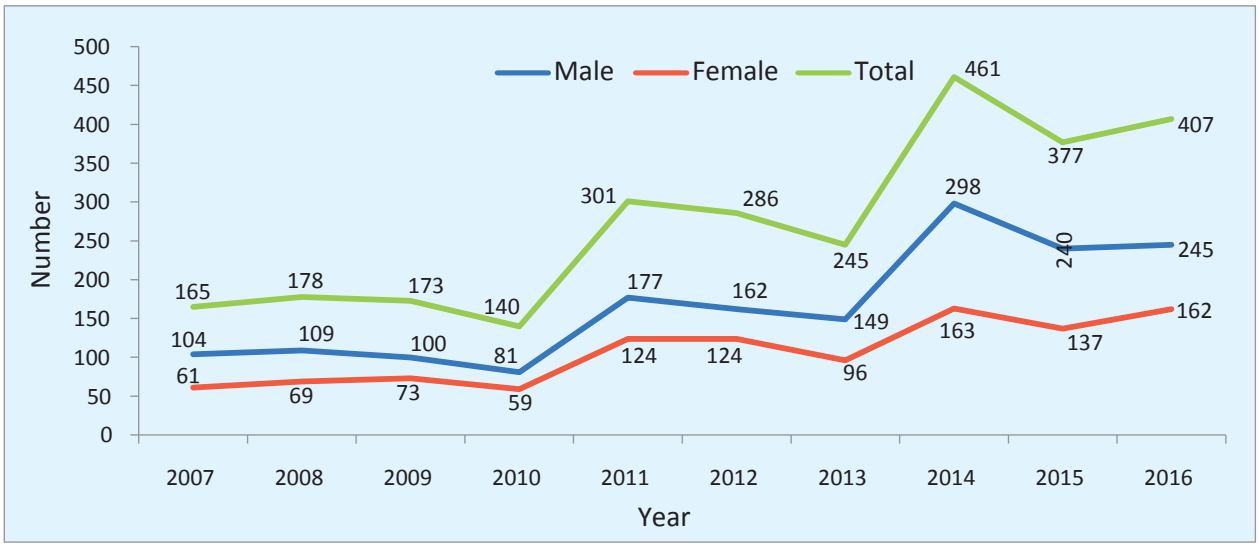
Since there were no MATS in the nongovernment sector before 2009, the first batch of 388 students completed DMA in 2011. Since then the numbers have increased sharply with 1799 students completing DMA from nongovernment MATS every year on an average; and about 39% of them were female.

Institute of Health Technology (IHT)

Diploma in Medical Technology (Labratory Technology)

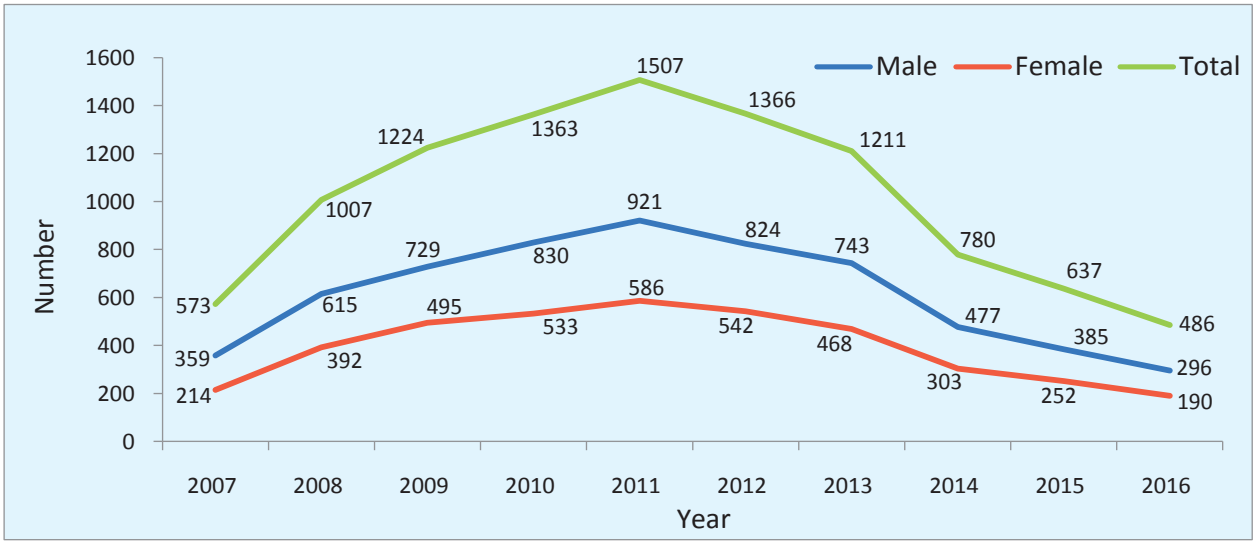
Admission

Figure 49A: Year-wise distribution of students admitted into DMT in Lab Technology during 2007–2016 in government IHTs



During 2007–2016, on average 273 students were admitted into DMT in Lab Technology with the highest enrolment in 2014 (461 students), and lowest (140) in 2010 (Figure 49A).

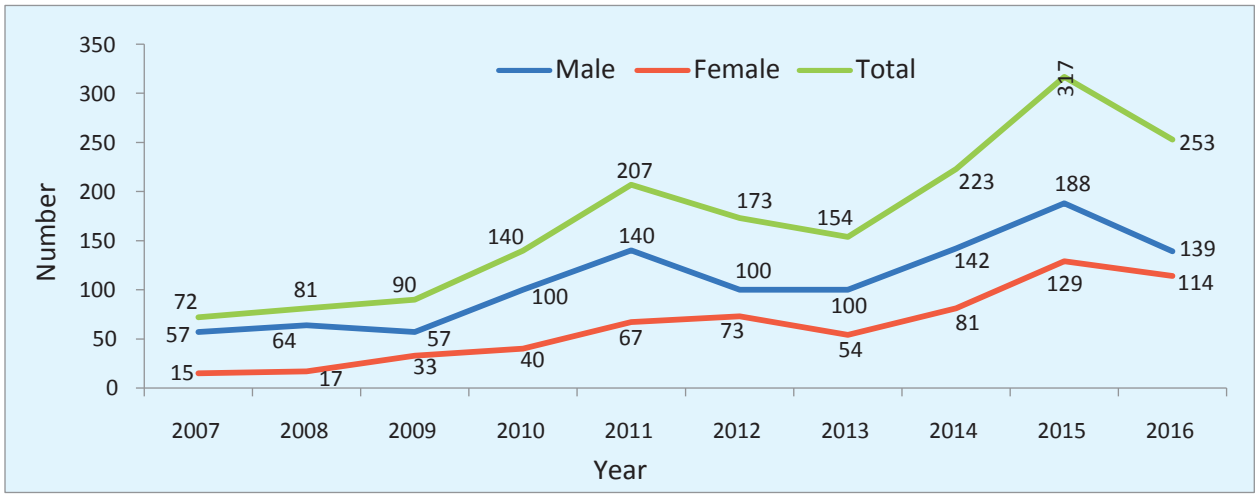
Figure 50A: Year-wise distribution of students admitted into DMT in Lab Technology admitted during 2007–2016 in nongovernment IHTs



In nongovernment IHTs, the number of admitted students increased gradually from 2007 (573) until 2011 (1507) – more than 2.5 times increase. However, since 2012 the numbers decreased gradually with only 486 admissions in 2016 (more than 32% lower than the students admitted in 2011) (Figure 50A).

Graduation

Figure 51A: Year-wise distribution of total students who acquired DMT in Lab Technology during 2007–2016 from government IHTs



During 2007–2016, on average 171 students graduated the diploma from government IHT institutes (Figure 51A).

Figure 52A: Year-wise distribution of total students who acquired DMT in Lab Technology during 2007–2016 from nongovernment IHTs

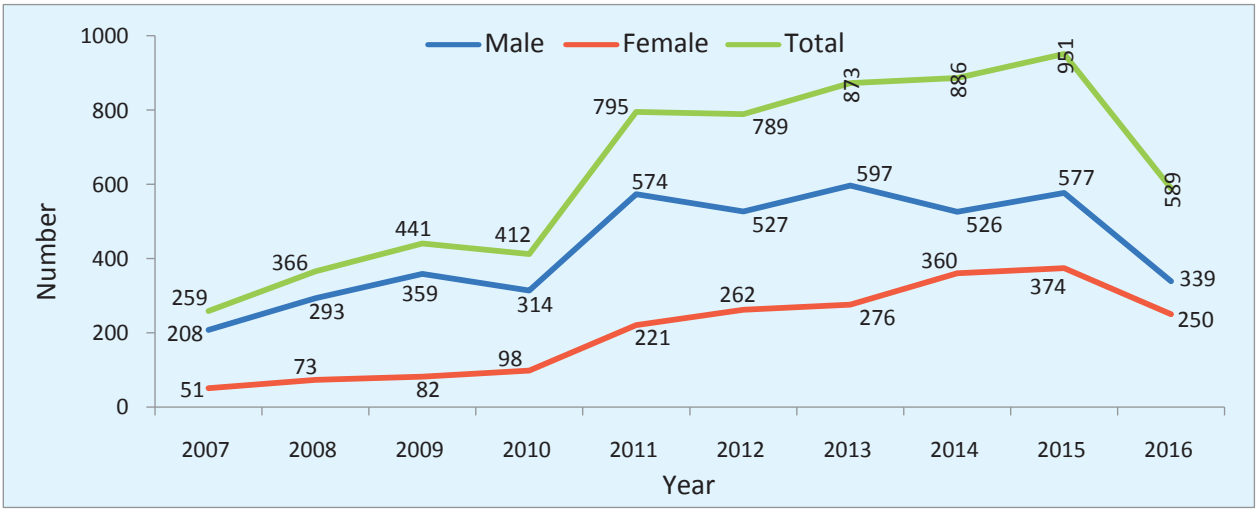
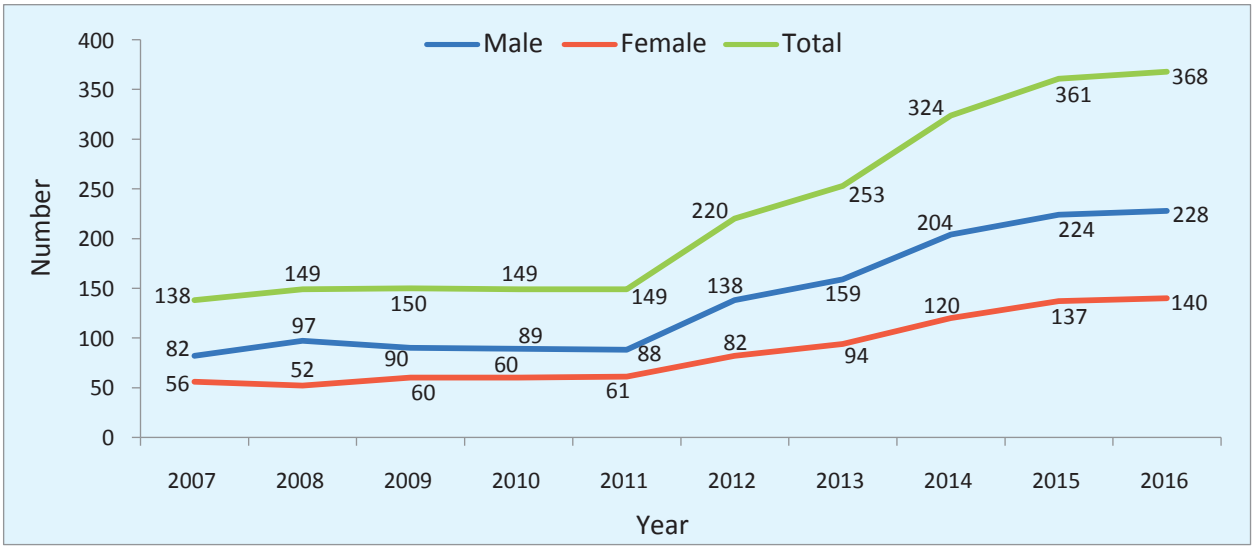


Figure 52A indicates that since 2007 students acquiring the diploma increased gradually, except in 2012. However, in 2016 the numbers decreased sharply by around 62% from that in 2015.

Diploma in Medical Technology (Physiotherapy)

Admission

Figure 53A: Year-wise distribution of students admitted into DMT in Physiotherapy during 2007–2016 in government IHTs



During 2007–2016, on an average 273 students were admitted into DMT in Physiotherapy; the highest numbers (368) were admitted in 2016 and the lowest (138) in 2007 (Figure 53A).

Figure 54A: Year-wise distribution of students admitted into DMT in Physiotherapy during 2007–2016 in nongovernment IHTs

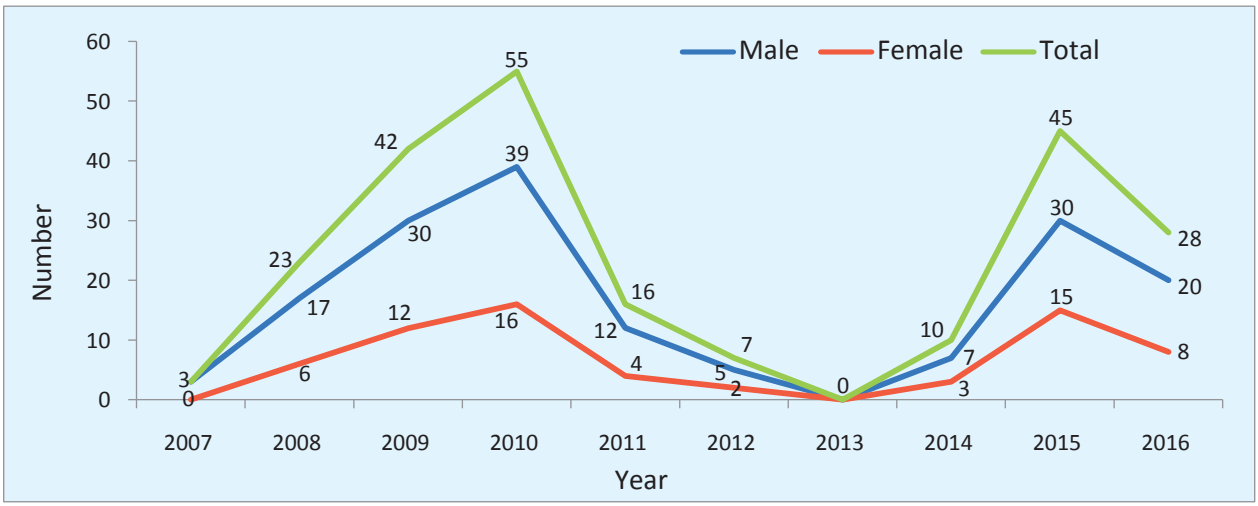
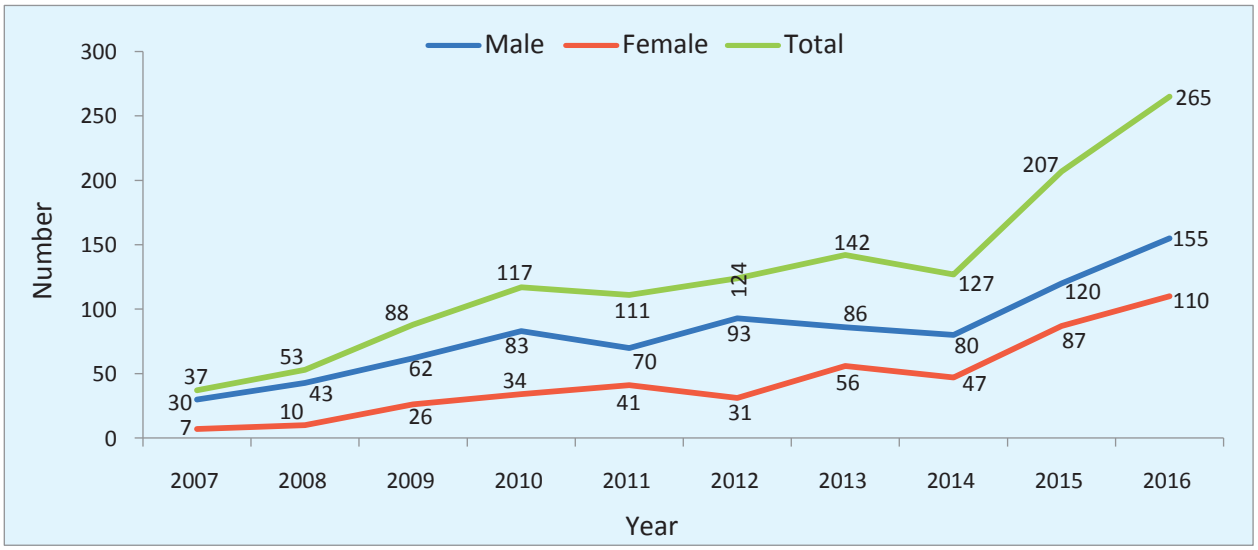


Figure 54A depicts the highly uneven trend in the number of students admitted into DMT in Physiotherapy in nongovernment IHTs. In 2007 only three students were admitted while there were no admissions in 2013. The highest number of students (55) was admitted in 2010. On an average, only 23 students were admitted per year, of whom seven were female.

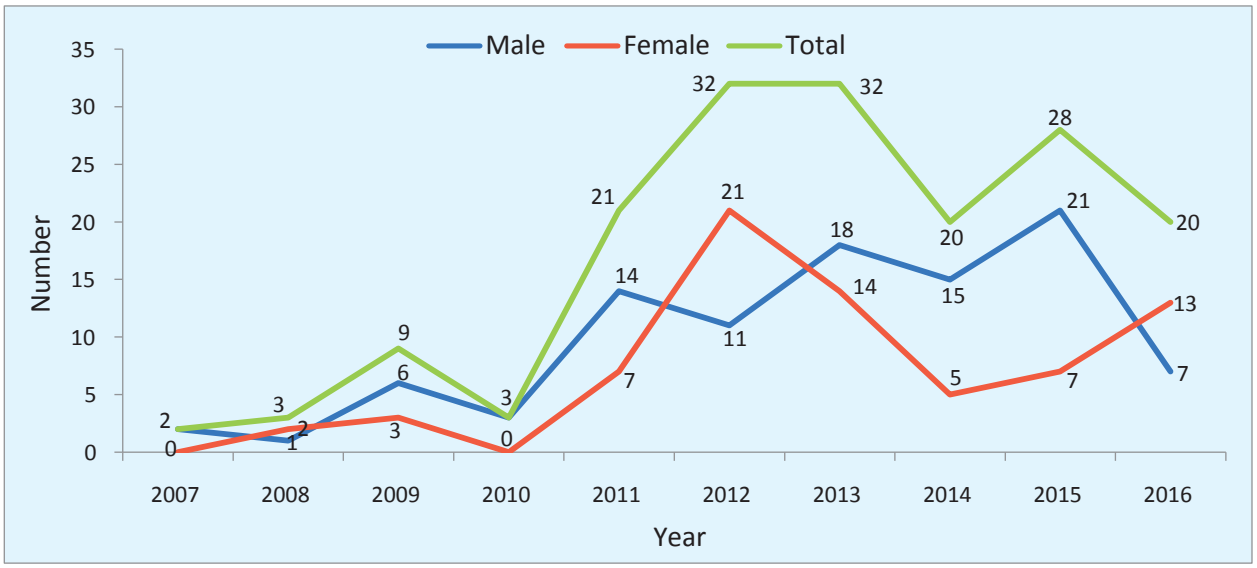
Graduation

Figure 55A: Year-wise distribution of total students who acquired DMT in Physiotherapy admitted during 2007–2016 from government IHTs



During 2007–2016, on an average 127 students graduated the DMT in Physiotherapy from government IHTs institutes, where the male–female ratio was 82:45 (Figure 55A).

Figure 56A: Year-wise distribution of total students who acquired DMT in Physiotherapy admitted during 2007–2016 from nongovernment IHTs



A total of 32 students completed the diploma in 2012 and 2013, which was the highest; and two graduated in 2007, which was the lowest number (Figure 56A). Every year on an average 17 students completed the diploma successfully from the nongovernment IHTs, where the male–female ratio was 10:7.

Diploma in Medical Technology in Dental Technology

Admission

Figure 57A: Year-wise distribution of students admitted into DMT in Dental Technology during 2007–2016 in government IHTs

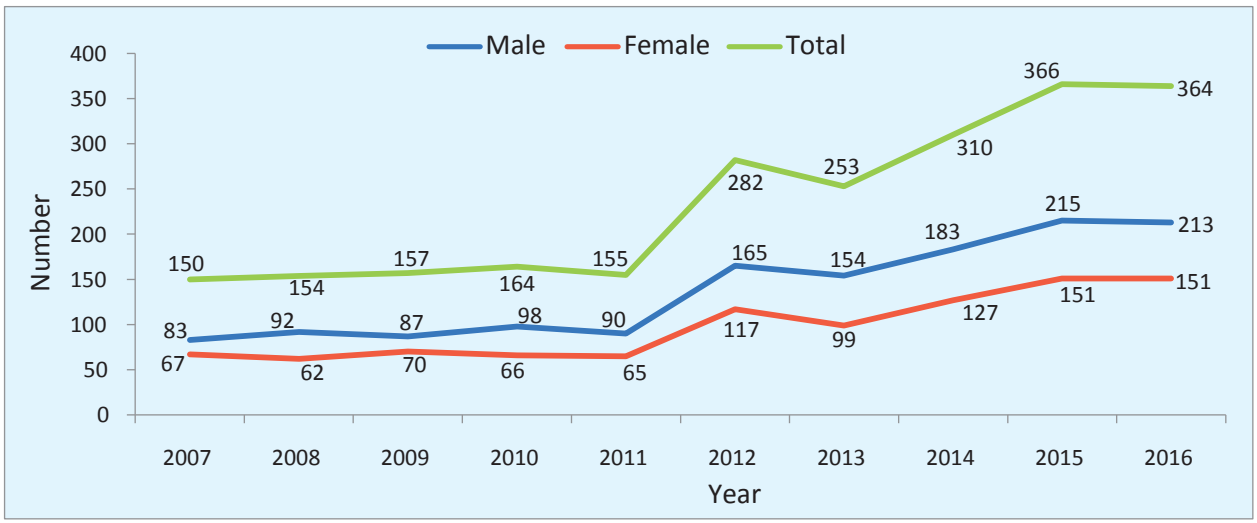
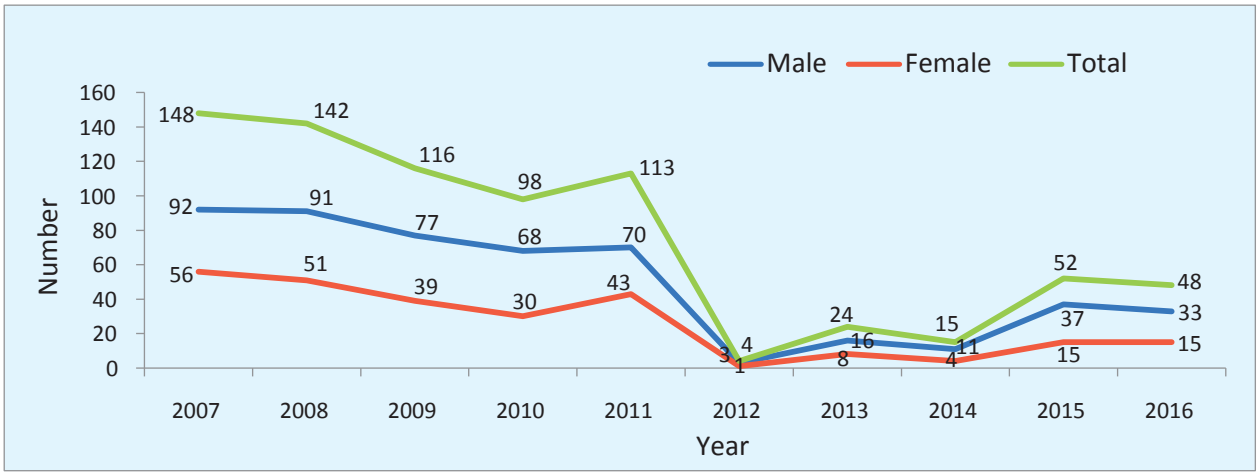


Figure 57A shows that since 2007 the number of admitted students into DMT in Dental Technology in government IHTs increased gradually with a slight decrease in 2011 and 2013 than the previous years. During 2007–2016, on an average 236 students were admitted per year with a male–female ratio of 138:98.

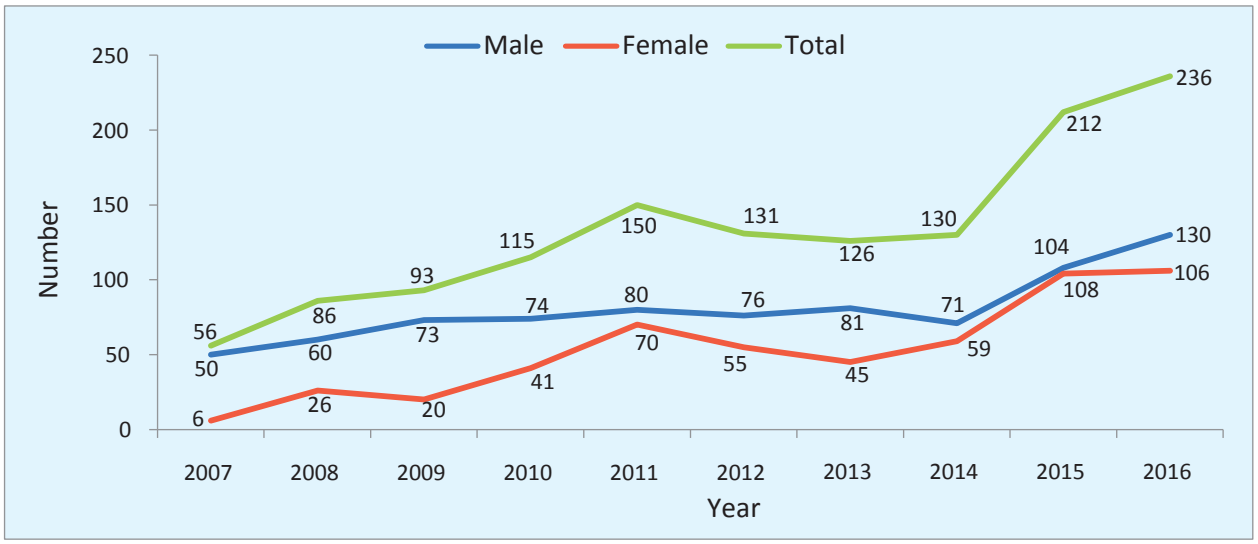
Figure 58A: Year-wise distribution of students admitted into DMT in Dental Technology during 2007–2016 in nongovernment IHTs



The number of students admitted into DMT in Dental Technology decreasing gradually since 2007 and decreased sharply in 2012 (Figure 58A). In the first five years (2007–2011) the average number of admitted students was 123 while in the last five years of the study duration (2012-2016) the number decreased to 29. The trend shows that even though higher number of nongovernment IHTs offered the diploma, the number of admissions was much lower than into government institutes.

Graduation

Figure 59A: Year-wise distribution of total students who acquired DMT in Dental Technology during 2007–2016 from government IHTs



During 2007–2016, on an average 134 students graduated DMT in Dental Technology; the male–female ratio was 81:53 (Figure 59A).

Figure 60A: Year-wise distribution of total students who acquired DMT in Dental Technology during 2007–2016 from nongovernment IHTs

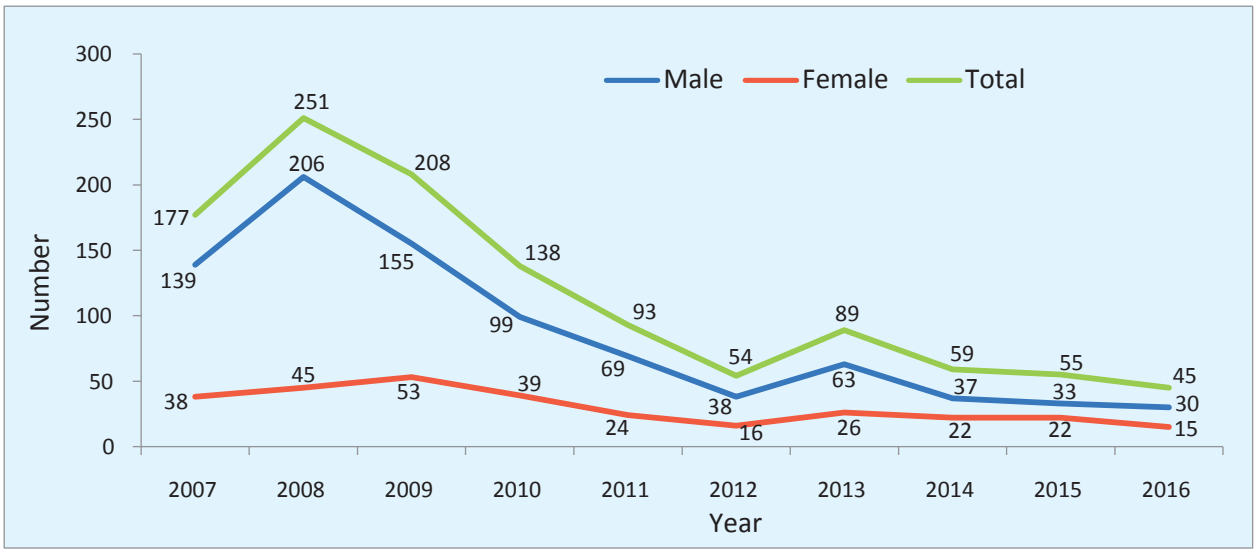
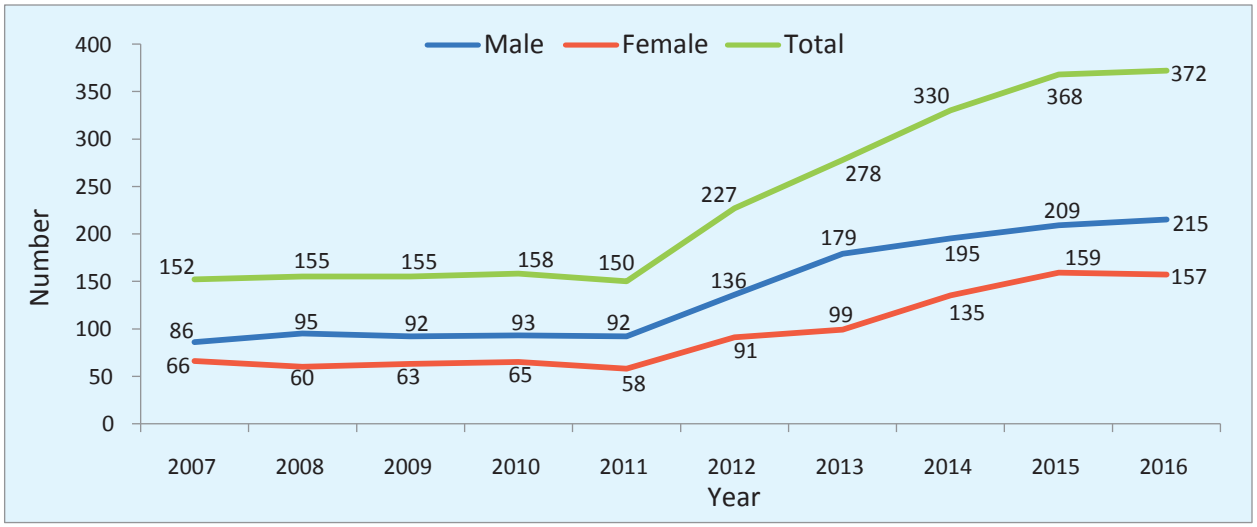


Figure 60A indicates that the highest number (251 students) completed the DMT in Dental Technology in 2008 and the lowest number (45) graduated in 2016. Every year, on an average 117 students completed the diploma successfully; male–female ratio was 87:30.

Diploma in Medical Technology in Radiology and Imaging

Admission

Figure 61A: Year-wise distribution of students admitted into DMT in Radiology and Imaging during 2007–2016 in government IHTs



Since 2007 the number of students admitted into DMT in Radiology and Imaging in government IHTs increased gradually (Figure 61A). On an average, 235 students were admitted per year; male–female ratio of total admitted students per year was 139:96.

Figure 62A: Year-wise distribution of admitted into DMT in Radiology and Imaging during 2007–2016 in nongovernment IHTs

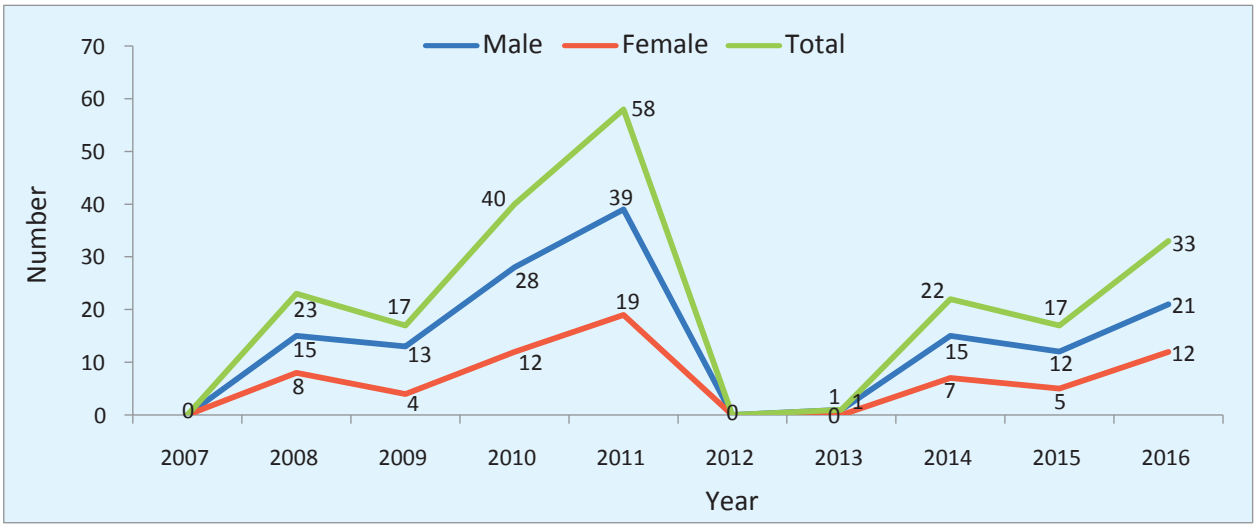
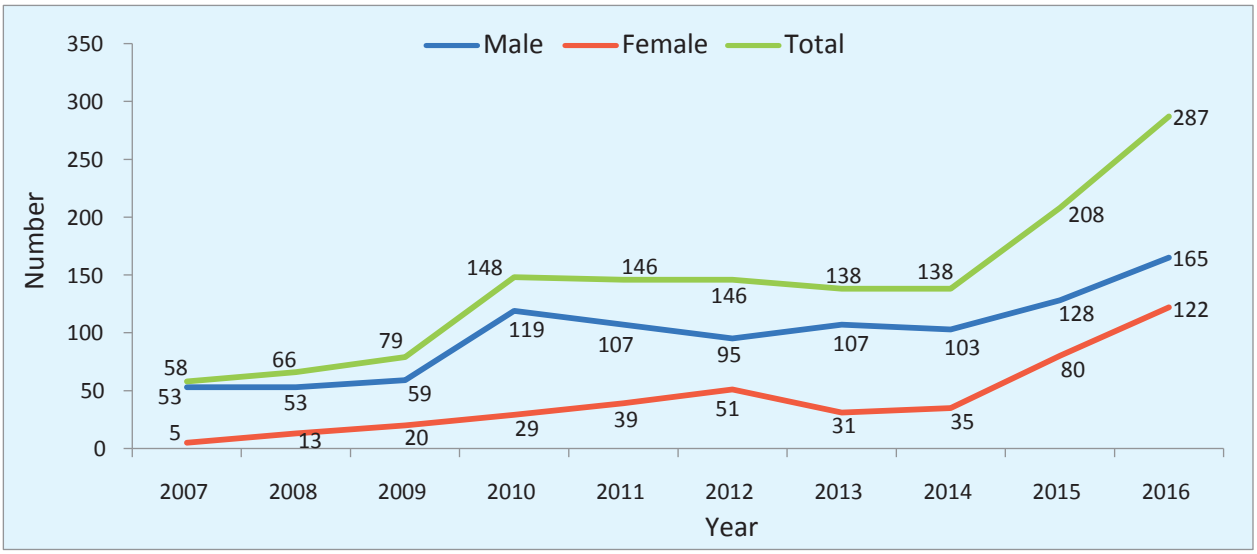


Figure 62A shows that the number of students admitted into DMT in Radiology and Imaging in nongovernment IHTs per year was 21, which means a large number of total available seats remained vacant. In 2016, only 4% of total available seats (995) were used and the remaining 96% remained vacant. No student was admitted in 2007 and 2012, and only one student was admitted in 2013; the highest number of students (58) was admitted in 2011.

Graduation

Figure 63A: Year-wise distribution of total students who acquired DMT in Radiology and Imaging during 2007–2016 from government IHTs



During 2007–2016, on an average 141 students graduated DMT in Radiology and Imaging from these institutes; male– female ratio was 99:42 (Figure 63A).

Figure 64A: Year-wise distribution of total students who acquired DMT in Radiology and Imaging during 2007–2016 from nongovernment IHTs

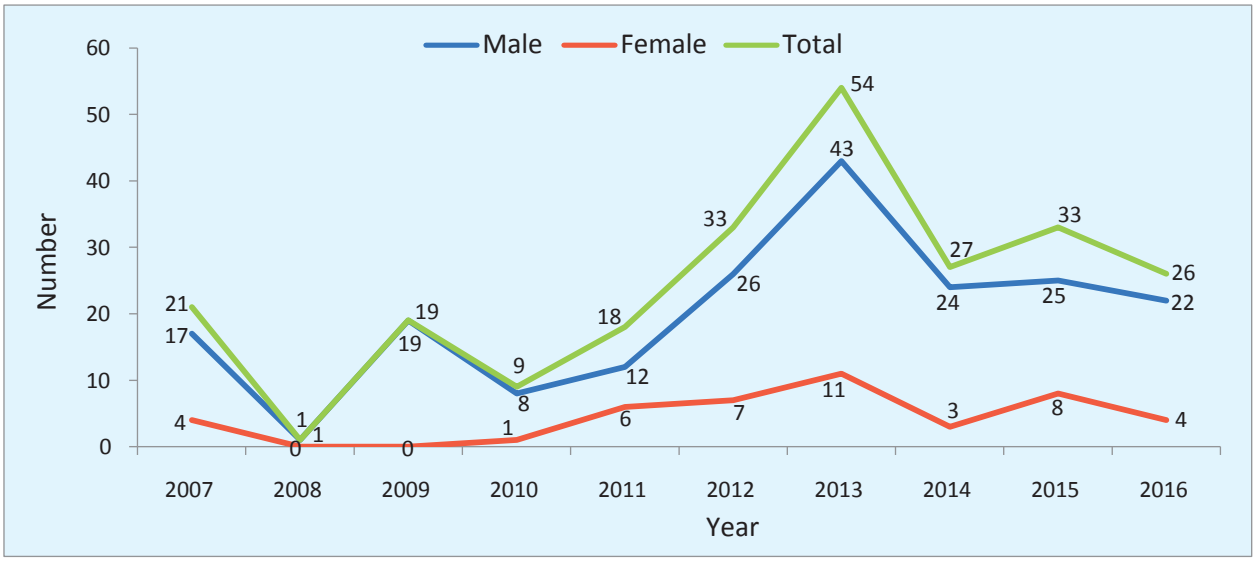
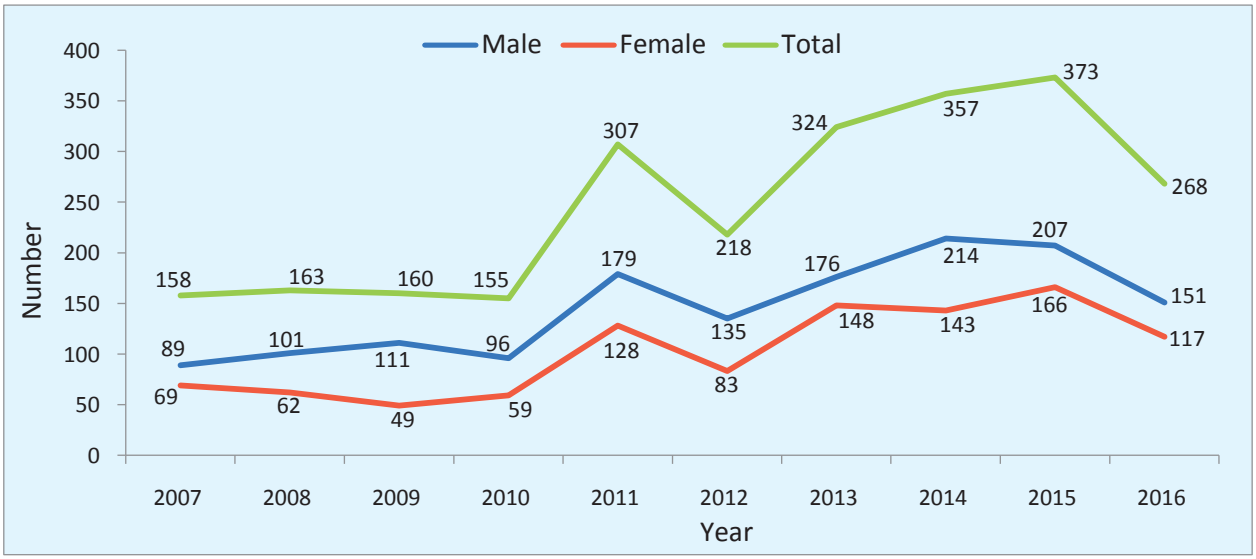


Figure 64A indicates that the highest number of students (2251) completed the diploma in 2008 and the lowest number of students (45) graduated in 2016. Every year on an average 117 students completed the diploma successfully; male–female ratio was 87:30.

Diploma in Medical Technology in Pharmacy

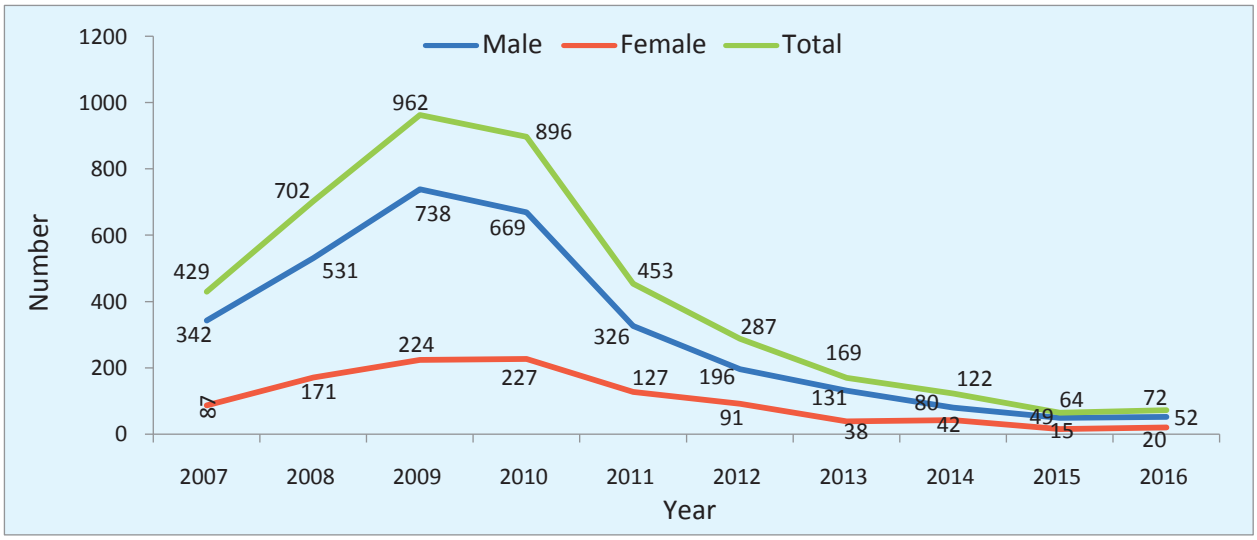
Admission

Figure 65A: Year-wise distribution of students admitted into DMT in Pharmacy during 2007–2016 in government IHTs



In 2007, 158 were admitted into DMT in Pharmacy, which reached 373 in 2015, however, the numbers decreased by 28% in 2016. On an average 248 students were admitted to the course every year (Figure 65A).

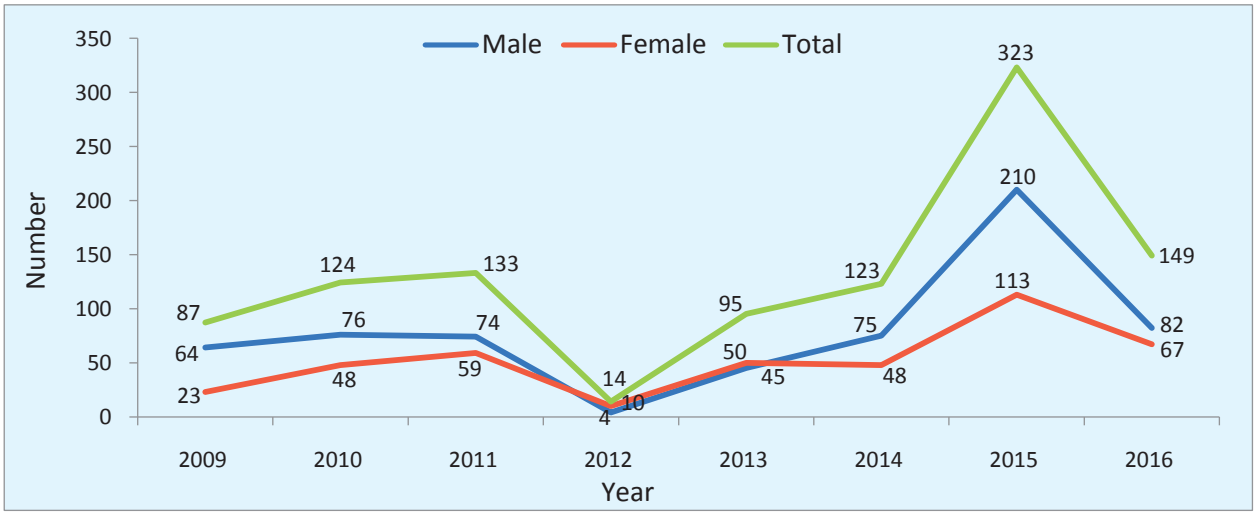
Figure 66A: Year-wise distribution of students admitted into DMT in Pharmacy during 2007–2016 in nongovernment IHTs



In nongovernment IHTs, the number of students admitted into DMT in Pharmacy gradually more than doubled from 429 in 2007 until 962 in 2009. However, since 2010 the numbers substantially decreased to 72 admissions in 2016. The lowest admission was 64 in 2015.

Graduation

Figure 67A: Year-wise distribution of total students who acquired DMT in Pharmacy during 2009–2016 from government IHTs



During 2007–2016, on an average 105 students graduated the DMT in Pharmacy from government IHTs (Figure 67A). The number of students acquired DMT in Pharmacy from the government IHTs gradually increasing from 87 in 2009 to 149 in 2016.

Figure 68A: Year-wise distribution of total students who acquired DMT in Pharmacy during 2009–2016 from nongovernment IHTs

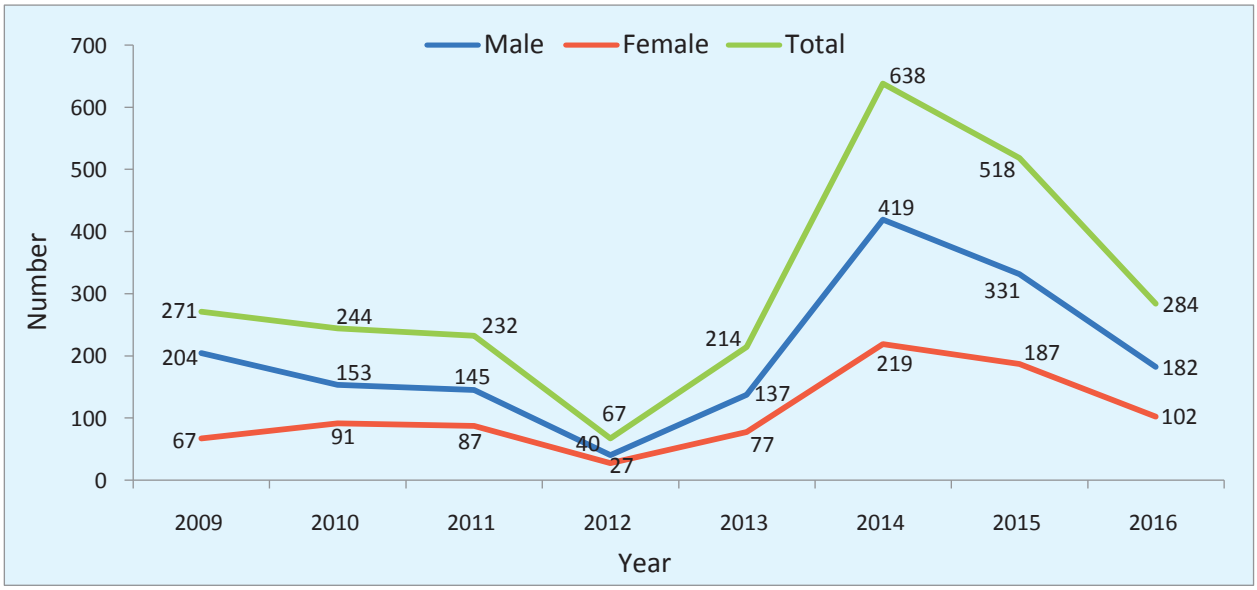


Figure 68A indicates of the number of students who graduated the DMT in Pharmacy every year during 2009-2016, from the nongovernment IHTs, the first batch completed the diploma in 2009. On an average 309 students graduated the diploma per year.

Annex 6: List of health professional education institutes in Bangladesh (by December 2016)

Serial No.	Medical college	Type of organization
1	Dhaka Medical College	Government
2	Sir Salimullah Medical College	Government
3	Shaheed Suhrawardy Medical College	Government
4	Mymensing Medical College	Government
5	Chattogram Medical College	Government
6	Rajshahi Medical College	Government
7	Sylhet M.A. G. Osmani Medical College	Government
8	Sher-e-Bangla Medical College	Government
9	Rangpur Medical College	Government
10	Cumilla Medical College	Government
11	Khulna Medical College	Government
12	Shaheed Ziaur Rahman Medical College	Government
13	Faridpur Medical College	Government
14	M A Rahim Medical College(Dinajpur Medical College)	Government
15	Pabna Medical College	Government
16	Abdul Malik Ukil Medical College	Government
17	Cox's Bazar Medical College	Government
18	Jashore Medical College	Government
19	Satkira Medical College	Government
20	Shahid Syed Nazrul Islam Medical College	Government
21	Kushtia Medical College	Government
22	Sheikh Sayera Khatun Medical College	Government
23	Shaheed Tazuddin Ahmad Medical College	Government
24	Tangail Medical College	Government
25	Jamalpur Medical College	Government
26	Manikganj Medical College	Government
27	Shaheed M. Monsur Ali Medical College	Government
28	Patuakhali Medical College	Government
29	Rangamati Medical College	Government
30	Mugda Medical College	Government
31	Army Medical College, Chattogram	Armed Force
32	Army Medical College, Jashore	Armed Force
33	Army Medical College, Cumilla	Armed Force
34	Armed Forces Medical College, Dhaka	Armed Force
35	Army Medical College, Bogura	Armed Force
36	Army Medical College, Rangpur	Armed Force
37	Bangladesh Medical College	Nongovernment
38	Gonoshasthaya Samaj Vittik Medical College	Nongovernment
39	Institute of Applied Health Sciences (USTC)	Nongovernment
40	Jahurul Islam Medical College	Nongovernment
41	Medical College for Women and Hospital	Nongovernment
42	Z.H Sikder Women Medical College	Nongovernment
43	Dhaka National Medical College	Nongovernment
44	Community Based Medical College	Nongovernment

Serial No.	Medical college	Type of organization
45	Jalalabad Ragib Rabeya Medical College	Nongovernment
46	Shaheed Monsur Ali Medical College	Nongovernment
47	North East Medical College	Nongovernment
48	Holy Family Red Crescent Medical College	Nongovernment
49	International Medical College	Nongovernment
50	North Bengal Medical College	Nongovernment
51	East West Medical College	Nongovernment
52	Kumudini Medical College	Nongovernment
53	Tairunnessa Medical College	Nongovernment
54	Ibrahim Medical College	Nongovernment
55	BGC Trust Medical College	Nongovernment
56	Shahabuddin Medical College	Nongovernment
57	Enam Medical College	Nongovernment
58	Islami Bank Medical College	Nongovernment
59	IBN Sina Medical College	Nongovernment
60	Central Medical College	Nongovernment
61	Eastern Medical College	Nongovernment
62	Khawja Eunus Medical College	Nongovernment
63	Chattogram Ma O Shishu Medical College	Nongovernment
64	Sylhet Women Medical College	Nongovernment
65	Nightangel Medical College	Nongovernment
66	Southern Medical College	Nongovernment
67	Northern International Medical College	Nongovernment
68	Uttara Adhunik Medical College	Nongovernment
69	Delta Medical college.	Nongovernment
70	Addin Women Medical College	Nongovernment
71	Dhaka Community Medical College	Nongovernment
72	TMSS Medical college	Nongovernment
73	Anwer Khan Modern Medical College	Nongovernment
74	Prime Medical College	Nongovernment
75	Rangpur Community Hospital Medical College	Nongovernment
76	Northern Private Medical College	Nongovernment
77	Faridpur Diabetic Association Medical College	Nongovernment
78	Green Life Medical College	Nongovernment
79	Popular Medical College	Nongovernment
80	MH Shamarita Medical College	Nongovernment
81	Monno Medical College	Nongovernment
82	Dhaka Central International Medical College	Nongovernment
83	Dr. Sirajul Islam Medical College	Nongovernment
84	Marks Medical College	Nongovernment
85	Moinamoti Medical College	Nongovernment
86	Ad-din- Sakina Medical College	Nongovernment
87	Gazi Medical College	Nongovernment
88	Barind Medical College	Nongovernment
89	City Medical College	Nongovernment

Serial No.	Medical college	Type of organization
90	Ashiyan Medical College	Nongovernment
91	Aichi Medical College	Nongovernment
92	Bashundhara Ad-din Medical College, Keranigong	Nongovernment
93	Abdul Hamid Medical College	Nongovernment
94	Bikrampur Bhuiyan's Medical College	Nongovernment
95	Universal Medical College	Nongovernment
96	Care Medical College	Nongovernment
97	Brahmanbaria Medical College	Nongovernment
98	Parkview Medical College	Nongovernment
99	Marine City Medical College	Nongovernment
100	Shah Makhdum Medical College	Nongovernment
101	Chattogram International Medical college	Nongovernment
102	US Bangla Medical College	Nongovernment
103	Addin Akij Medical College	Nongovernment
104	Monowara Sikder Medical College	Nongovernment
105	Khulna City Medical College	Nongovernment

Serial No.	Dental college/unit	Type of organization
1	Dhaka Dental College	Government
2	Chattogram Medical College Dental Unit	Government
3	Rajshahi Medical College Dental Unit	Government
4	Shaheed Shuhrawardhy Medical College Dental Unit	Government
5	Sir Salimullah Medical College Dental Unit	Government
6	Mymensingh Medical College Dental Unit	Government
7	Sylhet M. A. G. Osmani Medical College Dental Unit	Government
8	Sher-e- Bangla Medical College Dental Unit	Government
9	Rangpur Medical College Dental Unit	Government
10	Pioneer Dental College	Nongovernment
11	City Dental College	Nongovernment
12	University Dental College	Nongovernment
13	Bangladesh Dental College	Nongovernment
14	Sapporo Dental College	Nongovernment
15	Rangpur Dental College	Nongovernment
16	Chattogram International Dental College	Nongovernment
17	Samaj Vittik Dental College	Nongovernment
18	Marks Dental College	Nongovernment
19	Update Dental College	Nongovernment
20	Udayan Dental College	Nongovernment
21	Sephena Women's Dental College	Nongovernment
22	Mendi Dental College	Nongovernment
23	A.H Shamorita Medical College Dental Unit	Nongovernment
24	Kumudini Medical College Dental Unit	Nongovernment
25	Holy Family Red Crescent Medical College Dental Unit	Nongovernment
26	TMSS- Bogura Medical College Dental Unit	Nongovernment
27	Community Medical College,Dhaka Dental Unit	Nongovernment
28	Delta Medcial Collge Dental Unit	Nongovernment
29	Community Based Medical College Mymensingh Dental Unit	Nongovernment
30	Dhaka National Medical College Dental Unit	Nongovernment
31	Islami Bank Medical College Dental Unit	Nongovernment
32	Sylhet Central Dental College	Nongovernment
33	Ibrahim Medical College Dental Unit	Nongovernment
34	Khaja Yunus Ali Medical College Dental Unit	Nongovernment
35	North East Medical College Dental Unit	Nongovernment

Serial No.	Medical Assistant Training School	Type of organization
1	Medical Assistant Training School, Bagerhat	Government
2	Medical Assistant Training School, Sirajganj	Government
3	Medical Assistant Training School, Tangail	Government
4	Medical Assistant Training School, Kushtia	Government
5	Medical Assistant Training School, Noakhali	Government
6	Medical Assistant Training School, Faridpur	Government
7	Medical Assistant Training School, Cumilla	Government
8	Medical Assistant Training School, Jhenidah	Government
9	Dhaka Medical Assistant Training School, Dhaka	Nongovernment (functional)
10	SAIC Institute of Medical Assistants, Dhaka	Nongovernment (functional)
11	SIMT Medical Assistant Training School, Dhaka	Nongovernment (functional)
12	SIMT Medical Assistant Training School, Bogura	Nongovernment (functional)
13	Rampura Institute of Medical Technology & MATS, Dhaka	Nongovernment (functional)
14	Udayan Medical Assistant Training School, Rajshahi	Nongovernment (functional)
15	Rajshahi Medical Assistant Training School, Rajshahi	Nongovernment (functional)
16	Prime Medical Assistant Training School, Rangpur	Nongovernment (functional)
17	Green International Medical Assistant Training School, Rangpur	Nongovernment (functional)
18	TMSS Medical Assistant Training School, Bogura	Nongovernment (functional)
19	Spark Medical Assistant Training Academy, Dhaka	Nongovernment (functional)
20	Sylhet Medical Assistant Training School, Sylhet	Nongovernment (functional)
21	Healthways Medical Assistant Training School, Bogura	Nongovernment (functional)
22	Rabeya Medical Assistant Training School, Dhaka	Nongovernment (functional)
23	Jalalabad Medical Assistant Training School, Sylhet	Nongovernment (functional)
24	SPKS Medical Assistant Training School, Dhaka	Nongovernment (functional)
25	Cumilla Medical Assistant Training School, Thakurpara, Cumilla	Nongovernment (functional)
26	Moulovibazar Medical Assistant Training School, Moulovibazar	Nongovernment (functional)
27	The Medical Assistant Training School, Dhaka	Nongovernment (functional)
28	Advanced Medical Assistant Training School, Dhaka	Nongovernment (functional)
29	Rumdo Medical Assistant Training School, Mymensingh	Nongovernment (functional)
30	Bangladesh Medical Institute, Dhaka	Nongovernment (functional)
31	Trauma Institute of Medical Assistant Training School, Dhaka	Nongovernment (functional)
32	NDC Medical Assistant Training School, Joypurhat	Nongovernment (functional)
33	Joypurhat Medical Assistant Training School, Joypurhat	Nongovernment (functional)
34	National Institute of Medical & Dental Technology & MATS, Dhaka	Nongovernment (functional)
35	Shyamoli Medical Assistant Training School, Dhaka	Nongovernment (functional)
36	Rajbari Community Medical Assistant Training School, Rajbari	Nongovernment (functional)
37	Professor Sohrab Uddin Medical Assistant Training School, Tangail	Nongovernment (functional)
38	Taleb Ali Medical Assistant Training School, Mymensingh	Nongovernment (functional)
39	Tangail Medical Assistant Training School, Tangail	Nongovernment (functional)
40	State Medical Assistant Training Academy, Jhenidah	Nongovernment (functional)
41	Institute of Medical Assistant, Faridpur	Nongovernment (functional)
42	Eden Medical Assistant Training School, Dhaka	Nongovernment (functional)
43	Rangpur Medical Assistant Training School, Rangpur	Nongovernment (functional)
44	Prince Medical Assistant Training School, Savar, Dhaka	Nongovernment (functional)
45	Chandpur Medical Assistant Training School, Chandpur	Nongovernment (functional)

Serial No.	Medical Assistant Training School	Type of organization
46	Galaxy Medical Assistant Training School, Rajshahi	Nongovernment (functional)
47	Renin Medical Assistant Training School, Lalmonirhat	Nongovernment (functional)
48	Anowara Medical Assistant Training School, Dinajpur	Nongovernment (functional)
49	T S Medical Assistant Training School, Sirajgonj	Nongovernment (functional)
50	Unilab Medical Assistant Training School, Magura	Nongovernment (functional)
51	NYDASA Medical Assistant Training School, Dhaka	Nongovernment (functional)
52	Ghatail Medical Assistant Training School, Tangail	Nongovernment (functional)
53	Fortune Medical Assistant Training School, Shahbag, Dhaka	Nongovernment (functional)
54	Ideal Medical Training Institute and Health Technology, Tangail	Nongovernment (functional)
55	Bangladesh Medical Assistant Training School, Rajshahi	Nongovernment (functional)
56	Ideal Medical Technology MATS, Sherpur Road, Bogura	Nongovernment (functional)
57	New Turag General Hospital Pvt. Ltd. & Mats, Gazipur	Nongovernment (functional)
58	Shahid S. A. Memorial Medical Institute & MATS, Dhaka	Nongovernment (functional)
59	People's International Medical Assistant Training School, Rajshahi	Nongovernment (functional)
60	Paramedical Institute MATS, Bhuapur, Tangail	Nongovernment (functional)
61	ALO Medical Assistant Training School, Kushtia	Nongovernment (functional)
62	Dr. Liza-Dr. Ratan Medical Assistant Training School, Kushtia	Nongovernment (functional)
63	Pabna Community Medical Assistant Training School, Pabna	Nongovernment (functional)
64	Pabna Medical Assistant Training School, Pabna	Nongovernment (functional)
65	Morning Glory Medical Assistant Training School, Chapai Nawabganj	Nongovernment (functional)
66	Pallyshasthya Medical Assistant Training School, Manikgonj	Nongovernment (functional)
67	Dhaka Microlab Institute of Medical Technology & MATS, Dhaka	Nongovernment (functional)
68	Uttarbango Medical Assistant Training School, Bogura	Nongovernment (functional)
69	Noakhali Paramedical Center (NPC-MATS), Noakhali	Nongovernment (functional)
70	Chattogram Medical Assistant Training School, Chattogram	Nongovernment (functional)
71	Jashim Uddin Medical Assistant Training School, Jamalpur	Nongovernment (functional)
72	Khulna Medical Assistant Training School, Khulna	Nongovernment (functional)
73	Institute of Medical Technology & MATS, Narayangonj	Nongovernment (functional)
74	Prime Medical Assistant Training School, Rajshahi	Nongovernment (functional)
75	Janata Medical Assistant Training School, Kurigram	Nongovernment (functional)
76	B. Baria Medical Assistant Training School, Cumilla	Nongovernment (functional)
77	Dr. Halima Khatun Medical Assistant Training School, Mymensingh	Nongovernment (functional)
78	Rajdhani Medical Assistant Training School, Barishal	Nongovernment (functional)
79	Khandoker Abdul Mannan Medical Institute, Kishoregonj	Nongovernment (functional)
80	Maynamoti Medical Assistant Training School, Maynamoti	Nongovernment (functional)
81	Natore Medical Assistant Training School, Natore	Nongovernment (functional)
82	PIMT Medical Assistant Training School, Bogura	Nongovernment (functional
83	SDDL Medical Assistant Training School, Bogura	Nongovernment (functional)
84	A.S.I Medical Assistant Training School, Sirajgonj	Nongovernment (functional)
85	Central Medical Assistant Training School, Rangpur	Nongovernment (functional)
86	Biborton Medical Assistant Training School, Mirpur, Dhaka	Nongovernment (functional)
87	Matryseba Medical Assistant Training School, Gagipur	Nongovernment (functional)
88	Morning Sun Medical Assistant Training School, Rangpur	Nongovernment (functional)
89	Chuadanga Ideal Medical Assistant Training School, Chuadanga	Nongovernment (functional)
90	Rangpur City Medical Assistant Training School, Rangpur	Nongovernment (functional)

Serial No.	Medical Assistant Training School	Type of organization
91	Jamuna Medical Assistant Training School, Tangail	Nongovernment (functional)
92	Ullapara Medical Assistant Training School. Sirajgonj	Nongovernment (functional)
93	Birampur Medical Assistant Training School, Dinajpur	Nongovernment (functional)
94	Creative Medical Assistant Training School, Nilphamari	Nongovernment (functional)
95	Scholars Medical Assistant Training School, Mymensingh	Nongovernment (functional)
96	DWF Medical Assistant Training School, Patuakhali	Nongovernment (functional)
97	Institute of Health and Development, Dhaka	Nongovernment (functional)
98	Shahjalal (Rh:) Medical Institute of Mats, Tangail	Nongovernment (functional)
99	Unique Medical Assistant Training School, Tangail	Nongovernment (functional)
100	Community Medical Assistant Training Institute, Faridpur	Nongovernment (functional)
101	Zam Zam Institute of Health Technology & Mats, Barishal	Nongovernment (functional)
102	Feroza Medical Assistant Training School, Kishoreganj	Nongovernment (functional)
103	Genomic Medical Assistant Training School, Gopalgonj	Nongovernment (functional)
104	Radium Medical Assistant Training School, Rajshahi	Nongovernment (functional)
105	ASA Medical Assistant Training School, Habigonj	Nongovernment (functional)
106	RTM International Medical Assistant Training School, Sylhet	Nongovernment (functional)
107	Shimantik Medical Assistant Training School, Sylhet	Nongovernment (functional)
108	National Life Care Medical Assistant Training School, Sylhet	Nongovernment (functional)
109	GTN Mats & Medical Technology, Gazipur	Nongovernment (functional)
110	Mohasthan Medical Assistant Training School, Bogura	Nongovernment (functional)
111	Doctors Medical Assistant Training School, Rajshahi	Nongovernment (functional)
112	Daf Bangladesh Medical Assistant Training School, Rajshahi	Nongovernment (functional)
113	Confidence Medical Assistant Training School, Manikgonj	Nongovernment (functional)
114	Resource Medical Assistant Training School, Netrokona	Nongovernment (functional)
115	Mahi Sawer Medical Assistant Training School, Bogura	Nongovernment (functional)
116	North Bengol Medical Assistant Training School, Gaibandha	Nongovernment (functional)
117	Oriental Medical Assistant Training School, Thakurgaon	Nongovernment (functional)
118	Institute of Health Technology MATS, Dinajpur	Nongovernment (functional)
119	D-Medical Assistant Training School, Rajshahi	Nongovernment (functional)
120	Ethic Medical Assistant Training School, Narsingdi	Nongovernment (functional)
121	Afforda Medical Assistant Training School, Rajshahi	Nongovernment (functional)
122	Bright Nation Medical Assistant Training School, Pabna	Nongovernment (functional)
123	Compact Medical Institute, Feni	Nongovernment (functional)
124	British Bangla Medical Assistant Training School, Mymensingh	Nongovernment (functional)
125	BIIMT Medical Assistant Training School, Bogura	Nongovernment (functional)
126	Life Care Medical Institute, Chowmuhani, Noakhali	Nongovernment (functional)
127	Amena Medical Assistant Training School, Rajshahi	Nongovernment (functional)
128	MR Medical Assistant Training School, Dhaka	Nongovernment (functional)
129	BRIC Medical Assistant Training School, Khulna	Nongovernment (functional)
130	DWF Medical Assistant Training School, Barishal	Nongovernment (functional)
131	Royal Medical Assistant Training School, Bogura	Nongovernment (functional)
132	Green Leaf Medical Assistant Training School, Dinajpur	Nongovernment (functional)
133	Shyamoli Ideal Medical Assistant Training School, Dhaka	Nongovernment (functional)
134	Dr. Taher & Dr. Lina Medical Assistant Training School, Meherpur	Nongovernment (functional)
135	Rupsha Medical Assistant Training School, Khulna	Nongovernment (functional)

Serial No.	Medical Assistant Training School	Type of organization
136	Oxford Medical Assistant Training School, Magura	Nongovernment (functional)
137	Uttara Adhunik Medical Institute (UAMI), Dhaka	Nongovernment (functional)
138	Advanced Institute of Medical & Dental Technology, Barishal	Nongovernment (functional)
139	S M Institute of Medical Technology & Mats, Sirajgonj	Nongovernment (functional)
140	Bangladesh Cancer Society Medical Assistant Training School, Dhaka	Nongovernment (functional)
141	Mamtaz Medical Assistant Training Institute, Dhaka	Nongovernment (functional)
142	Lab Care Medical Assistant Training School, Sirajgonj	Nongovernment (functional)
143	Al-Amana Medical Assistant Training School, Pabna	Nongovernment (functional)
144	Bushra Medical Assistant Training School, Satkhira	Nongovernment (functional)
145	Progressive Medical Assistant Training School, Patuakhali	Nongovernment (functional)
146	Lalon Shah Medical Assistant Training School, Kustia	Nongovernment (functional)
147	Trauma Women's Medical Assistant Training School, Mirpur, Dhaka	Nongovernment (functional)
148	Muktizoddha Tofazzel Hossain Medical Assistant Training School, Jhenaidah	Nongovernment (functional)
149	Dr. Mesbah-Ur-Rahman Medical Assistant Training School, Sadar, Jashore	Nongovernment (functional)
150	Monowara Anowara Medical Assistant Training Institute, Thakurgaon	Nongovernment (functional)
151	Pabna Ideal Medical Assistant Training School, Pabna	Nongovernment (functional)
152	Padma-Garai Medical Assistant Training School, Kushtia	Nongovernment (functional)
153	Eastern Medical Assistant Training School, Dhaka	Nongovernment (functional)
154	Gurukul Medical Assistant Training School, Rajbari	Nongovernment (functional)
155	Asian Medical Assistant Training School, Bogura	Nongovernment (functional)
156	Specialized Medical Assistant Training School, Kushtia	Nongovernment (functional)
157	Tangi Medical Assistant Training School, Dhaka	Nongovernment (functional)
158	Alpha Medical Assistant Training School, R.K. Road, Rangpur	Nongovernment (functional)
159	Lec View Medical Assistant Training School, Foridpur	Nongovernment (functional)
160	Cox's Bazar Institute of Medical Technology & MATS, Cox's Bazar	Nongovernment (functional)
161	Altra Medical Assistant Training School, Mirpur, Dhaka	Nongovernment (functional)
162	Bengol Medical Assistant Training School, Rangpur	Nongovernment (functional)
163	Savar Stol Medical Assistant Training Institute, Dhaka	Nongovernment (functional)
164	Institute of Medical and Dental Technology & Mats, Tangail	Nongovernment (functional)
165	Institute of Health Technology & Mats, Chattogram	Nongovernment (functional)
166	J M Medical Assistant Training School, Jashore	Nongovernment (functional)
167	Aero Medical Institute, Bangladesh Air Force, Dhaka	Nongovernment (functional)
168	Impulse Medical Assistant Training School, Noakhali	Nongovernment (functional)
169	Sumona Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
170	New Pilot Medical Assistant Training School, Tangail	Nongovernment (non-functional)
171	A R Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
172	Reliable Medical Assistant Training School, Rangpur	Nongovernment (non-functional)
173	Sirajgonj Modern Medical Training School, Sirajgonj	Nongovernment (non-functional)
174	Desh Medical Assistant Training School, Mymensigh	Nongovernment (non-functional)
175	A M C Centre & School, Ghatail Sananibash, Tangail	Nongovernment (non-functional)
176	Mayjdi Medical Assistant Training School, Noakhali	Nongovernment (non-functional)
177	IACIB Medical Assistant Training School, Saver	Nongovernment (non-functional)
178	Rubi Medical Assistant Training School	Nongovernment (non-functional)
179	Shah Foridpur Medical Assistant Training School, Foridpur	Nongovernment (non-functional)
180	Akanda Medical Assistant Training School, Mymensigh	Nongovernment (non-functional)

Serial No.	Medical Assistant Training School	Type of organization
181	Jefry Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
182	J- MATS & Medical Institute Jamalpur	Nongovernment (non-functional)
183	PBM Medical Assistant Training Institute, Khagrachari Sadar	Nongovernment (non-functional)
184	Padma Medical Assistant Training School, Rajshahi	Nongovernment (non-functional)
185	Combined Medical Assistant Training School, Bogura	Nongovernment (non-functional)
186	Peerless Medical Assistant Training Institute, Puthia, Rajshahi	Nongovernment (non-functional)
187	Ma Medical Assistant Training Institute, Gazipur	Nongovernment (non-functional)
188	Mawna Medical Assistant Training School, Gagipur	Nongovernment (non-functional)
189	Niyak Medical Assistant Training School, Bogura	Nongovernment (non-functional)
190	The Rediam MATS & Technology Institute, Manikgong	Nongovernment (non-functional)
191	Jonoseba Medical Assistant Training School, Chapai Nawabganj	Nongovernment (non-functional)
192	Saleha Medical Assistant Training Institute, Rajshahi	Nongovernment (non-functional)
193	Dhaka City Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
194	Ideal Medical Assistant Training School, Mymensingh	Nongovernment (non-functional)
195	The Green Medical Assistant Training School, Pabna	Nongovernment (non-functional)
196	Central Institute of Health Science & MATS, Dhaka	Nongovernment (non-functional)
197	Abul Hossain Medical Assistant Training School, Dinajpur	Nongovernment (non-functional)
198	Eklas Uddin Khan Medical Assistant Training School, Manikgong	Nongovernment (non-functional)
199	Neuron Medical Assistant Training School, Rajshahi	Nongovernment (non-functional)
200	Panchagarh Medical Assistant Training School, Panchagarh	Nongovernment (non-functional)
201	Medical Training Institute, Gaibandha	Nongovernment (non-functional)
202	Medihelp Medical Assistant Training School, Rangpur	Nongovernment (non-functional)
203	RIMT Medical Assistant Training School, Mymensingh	Nongovernment (non-functional)
204	Hamida Medical Assistant Training School, Gaibandha	Nongovernment (non-functional)
205	Pasievic Medical Assistant Training School, Tangail	Nongovernment (non-functional)
206	Tast Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
207	Ettehah Medical Assistant Training School, Dhaka	Nongovernment (non-functional)
208	The ModernMedical Assistant Training School, Khulna	Nongovernment (non-functional)

Serial No.	Institute of Health Technology	Type of organization
1	Institute of Health Technology, Dhaka	Government
2	Institute of Health Technology, Rajshahi	Government
3	Institute of Health Technology, Bogura	Government
4	Institute of Health Technology, Fouzdarhat, Chattogram	Government
5	Institute of Health Technology, Barishal	Government
6	Institute of Health Technology, Rangpur	Government
7	Institute of Health Technology, Jhenidah	Government
8	Institute of Health Technology, Sylhet	Government
9	Bangladesh Health Professions Institute, Savar, Dhaka	Nongovernment (functional)
10	Institute of Health Technology, City Corporation, Chattogram	Nongovernment (functional)
11	Marks Institute of Medical Technology, Dhaka	Nongovernment (functional)
12	Institute of Medical Technology, Faridpur	Nongovernment (functional)
13	Institute of Community Health Bangladesh, Dhaka	Nongovernment (functional)
14	National Institute of Medical & Dental Technology, Dhaka	Nongovernment (functional)
15	International Institute of Health Sciences, Dhaka	Nongovernment (functional)
16	Saic Institute of Medical Technology, Dhaka	Nongovernment (functional)
17	Gonosasta Institute of Health Science, Gazipur	Nongovernment (functional)
18	Professor Sohrab Uddin IMT, Tangail	Nongovernment (functional)
19	Islami Bank Institute of Health Technology, Rajshahi	Nongovernment (functional)
20	TMSS Medical Technology Institute, Bogura	Nongovernment (functional)
21	Rumdo Institute of Health Technology, Mymensingh	Nongovernment (functional)
22	Cumilla Institute of Health Technology, Cumilla	Nongovernment (functional)
23	Prime Institute of Science & Medical Technology (PRISMET), Rangpur	Nongovernment (functional)
24	Ad-din Womens Institute of Health Technology, Jashore	Nongovernment (functional)
25	Ahsania Mission Institute of Medical Technology, Dhaka	Nongovernment (functional)
26	Trauma Institute of Medical Technology, Dhaka	Nongovernment (functional)
27	DAD Institute of Medical Technology, Dinajpur	Nongovernment (functional)
28	Joypurhat Institute of Medical Technology, Joypurhat	Nongovernment (functional)
29	Fortune Institute of Medical Technology,Dhaka	Nongovernment (functional)
30	Advanced Institute of Medical & Dental Technology, Barishal	Nongovernment (functional)
31	Sirajgonj Institute of Medical Technology, Sirajgonj	Nongovernment (functional)
32	Institute of Medical Technology, Rajbari	Nongovernment (functional)
33	United Care Institute of Medical Technology, Brahmanbaria	Nongovernment (functional)
34	Armed Forces Institute of Health Technology, Dhaka	Nongovernment (functional)
35	Rangpur City Institute of Medical Technology, Rangpur	Nongovernment (functional)
36	National Heart Foundation Hospital & Research Institute, Dhaka	Nongovernment (functional)
37	Sailor Institute of Health Technology, Rajshahi	Nongovernment (functional)
38	Ideal Institute of Health Technology, Bogura	Nongovernment (functional)
39	North East Institute of Health Technology, Sylhet	Nongovernment (functional)
40	Specialized Institute of Health Technology, Kushtia	Nongovernment (functional)
41	Zam Zam Institute of Health Technology & Mats, Barishal	Nongovernment (functional)
42	Bangladesh Institute of Medical & Dental Technology, Mohammadpur, Dhaka	Nongovernment (non-functional)
43	Institute of Medical Technology, Dhaka	Nongovernment (non-functional)
44	Janata Institute of Medical Technology, Bogura	Nongovernment (non-functional)
45	Greenview Institute of Health Technology, Dhaka	Nongovernment (non-functional)

Serial No.	Institute of Health Technology	Type of organization
46	Healthways Institute of Medical Technology, Bogura	Nongovernment (non-functional)
47	Radiant College of Medical Technology, Dhaka	Nongovernment (non-functional)
48	National Institute of Medical Technology, Uttara, Dhaka	Nongovernment (non-functional)
49	Rajshahi Institute of Medical Technology, Rajshahi	Nongovernment (non-functional)
50	Chattogram Institute of Medical Technology, Chattogram	Nongovernment (non-functional)
51	Newlab Institute of Medical Technology, Dhaka	Nongovernment (non-functional)
52	Prime Institute of Medical Technology, Rajshahi	Nongovernment (non-functional)
53	Shahid S. A. Memorial Medical Institute, Dhaka	Nongovernment (non-functional)
54	Bangladesh Institute of Medical Technology, Pabna	Nongovernment (non-functional)
55	Sumona Institute of Medical Technology, Dhaka	Nongovernment (non-functional)
56	Institute of Medical and Dental Technology, Tangail	Nongovernment (non-functional)
57	Institute of British Colombia Medical Technology, Dhaka	Nongovernment (non-functional)
58	Prince Institute of Medical Technology	Nongovernment (non-functional)
59	Dhaka Institute of Health Technology, Dhaka	Nongovernment (non-functional)
60	CSCR Institute of Medical Technology, Chattogram	Nongovernment (non-functional)
61	Jeffrey Institute of Health Science & Technology, Dhaka	Nongovernment (non-functional)
62	SAIC Institute of Medical Technology, Bogura	Nongovernment (non-functional)
63	SAIC Institute of Medical Technology, Khulna	Nongovernment (non-functional)
64	A.R. Medical Institute, Mohammadpur, Dhaka	Nongovernment (non-functional)
65	Dhaka Microlab Institute of Medical Technology, Shahjadpur, Dhaka	Nongovernment (non-functional)
66	Bhairab Inst. of Medical & Dental Technology, Kishoregonj	Nongovernment (non-functional)
67	Institute of Medical Technology, Narayongonj	Nongovernment (non-functional)
68	Compact Med. Institute, Feni	Nongovernment (non-functional)
69	Shah Mokhdum Institute of Medical Technology, Rajshahi	Nongovernment (non-functional)
70	Morning Glory Institute of Health Technology, Chapai Nawbabganj	Nongovernment (non-functional)
71	Uttara Crescent Institute of Medical Technology, Uttara, Dhaka	Nongovernment (non-functional)
72	Cox's Bazar Institute of Medical Technology, Cox's Bazar	Nongovernment (non-functional)
73	Central Institute of Health Science (CIHS), Dhaka	Nongovernment (non-functional)
74	Florence Institute of Medical Technology	Nongovernment (non-functional)
75	Birampur Institute of Health Technology, Dinajpur	Nongovernment (non-functional)
76	Disable Welfare Foundation Institute of Medical Technology	Nongovernment (non-functional)
77	Lackview Institute of Medical Technology, Faridpur	Nongovernment (non-functional)
78	Jenemic Institute of Medical Technology	Nongovernment (non-functional)
79	Feroza Medical Technology, Kishorganj	Nongovernment (non-functional)
80	Bright Nation Health & Technology, Pabna	Nongovernment (non-functional)
81	Pabna Ideal Institute of Health Technology	Nongovernment (non-functional)
82	Maizdi Institute of Health Technology	Nongovernment (non-functional)
83	SRB Diploma in Health Technology	Nongovernment (non-functional)
84	Army Medical Corps Centre & School	Nongovernment (non-functional)
85	Shyamoli Ideal Institute of Health Technology	Nongovernment (non-functional)
86	Bangladesh Medical College, Dhaka	Nongovernment (non-functional)
87	Rampura Institute of Medical Technology	Nongovernment (non-functional)
88	NDC Institute Of Medical Technology	Nongovernment (non-functional)
89	B-Baria Institute of Medical Technology	Nongovernment (non-functional)
90	Bangladesh Institute of Medical Technology	Nongovernment (non-functional)

Serial No.	Institute of Health Technology	Type of organization
91	Christiyan Institute of Medical Technology	Nongovernment (non-functional)
92	Naogaon Institute of Medical Science & Technology	Nongovernment (non-functional)
93	SPKS Institute of Medical Technology	Nongovernment (non-functional)
94	Dayalab Institute of Medical Technology	Nongovernment (non-functional)
95	Confidence Medical Assistant Training School	Nongovernment (non-functional)
96	Ghatail Medical Assistant Training School	Nongovernment (non-functional)
97	Rabeya MATS & Technology	Nongovernment (non-functional)
98	Akanda Institute of Medical Technology	Nongovernment (non-functional)
99	S M Institute of Medical Technology& MATS	Nongovernment (non-functional)
100	Saleha Medical Technology Institute	Nongovernment (non-functional)
101	Progressive Institute of Medical & Dental Technology	Nongovernment (non-functional)
102	Fulpur Institute of Medical Technology	Nongovernment (non-functional)
103	East West Institute of Medical Technology	Nongovernment (non-functional)
104	Gurukul Institute of Health Technology	Nongovernment (non-functional)
105	J-MATS & Medical Institute	Nongovernment (non-functional)

Serial No.	Nursing college	Type of organization
1	Dhaka Nursing College, Dhaka	Government
2	Mymensingh Nursing College, Mymensigh	Government
3	Rajshahi Nursing College, Rajshahi	Government
4	Chattogram Nursing College, Chattogram	Government
5	Rangpur Nursing College, Rangpur	Government
6	Sylhet Nursing College, Sylhet	Government
7	Barishal Nursing College, Barishal	Government
8	Faculty of Nursing, BSMMU, Shahbag, Dhaka	Government
9	Manikgonj Nursing College, Manikgonj	Government
10	Dinajpur Nursing College	Government
11	Bogura Nursing College	Government
12	Fauzderhat Nursing College, Chattogram	Government
13	College of Nursing, Mohakhali, Dhaka	Government
14	Armed Forces Medical Institute, Dhaka Cant. Dhaka	Armed Force
15	Army Nursing College, Rangpur Cant. Rangpur	Armed Force
16	Army Nursing College, Ctg. Cant. Chattogram	Armed Force
17	Army Nursing College, Cumilla Cant. Cumilla	Armed Force
18	Army Nursing College, Jashore Cant. Jashore	Armed Force
19	Army Nursing College, Bogura Cant. Bogura	Armed Force
20	State College of Health Science, Dhanmondi, Dhaka	Nongovernment
21	Kumudini Nursing College, Mirzapur, Tangail	Nongovernment
22	International Nursing College, Tongi, Gazipur	Nongovernment
23	North East Nursing College, S.Surma, Sylhet	Nongovernment
24	Begum Rabeya Khatun Chow. C/N, Pathantula, Sylhet	Nongovernment
25	Prime Nursing College, Rangpur	Nongovernment
26	Square Nursing College, Dhanmondi, Dhaka	Nongovernment
27	United College of Nursing, Gulshan, Dhaka	Nongovernment
28	TMSS Nursing College, Thangamara, Gokul, Bogura	Nongovernment
29	TMMC Nursing College, Boardbazar, Gazipur	Nongovernment
30	East West N. College, Aichinagar, Turag, Dhaka	Nongovernment
31	CRP Nursing College, Savar, Dhaka	Nongovernment
32	Birdem Nursing College, Shahbagh, Dhaka	Nongovernment
33	Prime Bank College of Nursing , Dhaka	Nongovernment
34	Anwer Khan Modern Nursing College, Dhanmondi, Dhaka	Nongovernment
35	Green Life Nursing College, Green Road, Dhaka	Nongovernment
36	IUBAT, Uttara, Dhaka	Nongovernment
37	Sheikh Fazilatunnessa Mujib Memorial KPJ Specialized Hospital and Nursing College, Kashimpur, Gazipur	Nongovernment
38	Rangpur Community Nursing College, Rangpur	Nongovernment
39	Grameen Caladonian College of Nursing, Dhaka	Nongovernment
40	Dhaka Central Int. Nursing College & Inst, Shamoly, Dhaka	Nongovernment
41	Jahurul Islam Nursing College, Bajitpur, Kishorgonj	Nongovernment
42	College of Nursing Science Dinajpur, Zia-H.F.H. Upasahar, Dinajpur	Nongovernment
43	Dhaka Community Nursing College, Moghbazar, Dhaka	Nongovernment
44	M.H Samorita Nursing College Tejgaon, Dhaka	Nongovernment

Serial No.	Nursing college	Type of organization
45	Fatema Nursing College, Moghbazar, Dhaka	Nongovernment
46	Islami Bank Nursing College, Rajshahi	Nongovernment
47	Udayan Nursing College, Rajshahi	Nongovernment
48	ART Nursing College, Cumilla	Nongovernment
49	Marks Nursing College, Mirpur-14, Dhaka	Nongovernment
50	Skabo Nursing College, Mymensingh	Nongovernment
51	Shamsun Nahar Khan Nursing College, Chattogram	Nongovernment
52	Anowara Nursing College, Dinajpur	Nongovernment
53	Gazi Munibur Rahman Nursing College, Patuakhali	Nongovernment
54	DWF Nursing College, Barishal	Nongovernment
55	Monno Nursing College	Nongovernment
56	Mirza Nursing College, Rajshahi	Nongovernment
57	Ideal Nursing College, Chakfarid, Kaloni, Bogura	Nongovernment
58	Al-Amin Nursing College, Sylhet	Nongovernment
59	East West University Nursing College, Dhaka	Nongovernment
60	Holy Family Red Crescent Nursing College, Dhaka	Nongovernment
61	Northern International Nursing College, Dhaka	Nongovernment
62	Unihealth Nursing College, Dhaka	Nongovernment
63	Khaja Yunus Ali Nursing College	Nongovernment
64	Sakhawat H. Memorial Nursing College	Nongovernment

Serial No.	Nursing institutes	Type of organization
1	Nursing Institute, Mitford Hospital, Dhaka	Government
2	Cumilla Nursing Institute	Government
3	Faridpur Nursing Institute	Government
4	Khulna Nursing Institute	Government
5	Bogura Nursing Institute	Government
6	Dinajpur Nursing Institute	Government
7	Noakhali Nursing Institute	Government
8	Pabna Nursing Institute	Government
9	Jashore Nursing Institute	Government
10	Kushtia Nursing Institute	Government
11	Tangail Nursing Institute	Government
12	Rangamati Nursing Institute	Government
13	Patuakhali Nursing Institute	Government
14	Sirajgonj Nursing Institute	Government
15	Munshigonj Nursing Institute	Government
16	Chuadanga Nursing Institute	Government
17	Magura Nursing Institute	Government
18	Cox's Bazar Nursing Institute	Government
19	Moulvibazar Nursing Institute	Government
20	Sherpur Nursing Institute	Government
21	Chapainowabgonj Nursing Institute	Government
22	Joypurhat Nursing Institute	Government
23	Satkhira Nursing Institute	Government
24	Thakurgaon Nursing Institute	Government
25	Rajbari Nursing Institute	Government
26	B-Baria Nursing Institute	Government
27	Feni Nursing Institute	Government
28	Bagerhat Nursing Institute	Government
29	Kurigram Nursing Institute	Government
30	Bhola Nursing Institute	Government
31	Netrokona Nursing Institute	Government
32	Gopalgonj Nursing Institute	Government
33	Madaripur Nursing Institute	Government
34	Pirojpur Nursing Institute	Government
35	Barguna Nursing Institute	Government
36	Naogaon Nursing Institute	Government
37	Nilphamari Nursing Institute	Government
38	Panchagar Nursing Institute	Government
39	Kishorgonj Nursing Institute	Government
40	Jamalpur Nursing Institute	Government
41	Jhinaidah Nursing Institute	Government
42	Chandpur Nursing Institute	Government
43	Habigonj Nursing Institute	Government
44	N.I. Christian Mission Hospital, Rajshahi	Nongovernment
45	N.I. Christian Mission Hospital, Chandraghona	Nongovernment

Serial No.	Nursing institutes	Type of organization
46	Diabetic Association Nursing Institute, Faridpur	Nongovernment
47	Shaheed Monsur Ali N.I., Uttara, Dhaka	Nongovernment
48	Ad-din N.I., Ad-din Hospital, Jashore	Nongovernment
49	Safina N.I., Ad-din Hospital, Kushtia	Nongovernment
50	N.I Shisu Shastha F.H., Mirpur, Dhaka	Nongovernment
51	CHP N.I, Joyramkura, Haluaghat, Mymensingh	Nongovernment
52	N.I, M.C. for Women & Hospital, Uttara, Dhaka	Nongovernment
53	Ctg. Maa-O-Shisu H. N.I, Agrabad, Chattogram	Nongovernment
54	N.I, Central H., Dhanmondi, Dhaka	Nongovernment
55	IBN SINA Nursing Institute, Kalyanpur, Dhaka	Nongovernment
56	GMR Nursing Institute, Sonadanga, Khulna	Nongovernment
57	St.Vincent Nursing Institute, Dinajpur	Nongovernment
58	Community Based Nursing Institute, Mymensingh	Nongovernment
59	Pabna Community Nursing Institute, Pabna	Nongovernment
60	Shah Makhdum Nursing Institute, Kharkhari, Boalia, Rajshahi	Nongovernment
61	Lamb Nursing Institute, Parbatipur, Dinajpur	Nongovernment
62	Cumilla Diabetic Association Nursing Institute, Cumilla	Nongovernment
63	M.R.F. Nursing Institute, Joypurhat	Nongovernment
64	Diabetic Association Nursing Institute, Rajshahi	Nongovernment
65	Safa-Makkah Nursing Institute, Sirajgonj	Nongovernment
66	Japan-Bangladesh Friendship Nursing Institute, Dhaka	Nongovernment
67	Universal Nursing Institute, Mohakhali, Dhaka	Nongovernment
68	Kalihati Nursing Institute, Kalihati, Tangail	Nongovernment
69	Northern Institute of Nursing Science, Dhap, Rangpur	Nongovernment
70	The Greenlife Nursing Institute, Dinajpur	Nongovernment
71	Impact Nursing Institute, Amjhupi, Meherpur	Nongovernment
72	Scholars Nursing Institute, Mymensingh	Nongovernment
73	BADS Nursing Institute, Naruli, Bogura	Nongovernment
74	Uttarbango Nursing Institute, Tin Matha, Bogura	Nongovernment
75	Sylhet Red-Crecent Nursing Institute, Sylhet	Nongovernment
76	Mahbubur Rahman Memorial Hospital and Nursing Institute	Nongovernment
77	Al-Helala Nursing Institute, Mirpur-11, Dhaka	Nongovernment
78	Hamida Nursing Institute, Mirpur, Dhaka	Nongovernment
79	NIMDT Nursing Institute, Mohammadpur, Dhaka	Nongovernment
80	Salauddin Nursing Institute, Dhaka	Nongovernment
81	Prince Nursing Institute, Savar, Dhaka	Nongovernment
82	Uttara Adhunik Nursing Institute, Uttara, Dhaka	Nongovernment
83	Royal Nursing Institute, Gazipur	Nongovernment
84	Shahjalal (Rh) Nursing Institute, Tangail	Nongovernment
85	Madhupur Nursing Institute, Tangail	Nongovernment
86	Professor Sohrab Uddin Nursing Institute, Tangail	Nongovernment
87	Bir Muktijudda S. A Salam Nursing Institute, Faridpur	Nongovernment
88	Rezwan Mollah Nursing Institute, Faridpur	Nongovernment
89	Abdullah Nursing Institute, Rajbari	Nongovernment
90	Dr. Jubeida Khatoon Nursing Institute, Rajshahi	Nongovernment

Serial No.	Nursing institutes	Type of organization
91	Mahi Sawer Nursing Institute, Bogura	Nongovernment
92	SDDL Nursing Institute, Bogura	Nongovernment
93	SIT-Faundation Nursing Institute, Bogura	Nongovernment
94	Brigth Nation Nursing Institute, Pabna	Nongovernment
95	Pabna Ideal Nursing Institute, Pabna	Nongovernment
96	Smart Nursing Institute, Pabna	Nongovernment
97	Adarsha Nursing Institute, Shirajganj	Nongovernment
98	Shahera Amir Nursing Institute, Shirajganj	Nongovernment
99	MediHelp Nursing Institute, Rangpur	Nongovernment
100	Monwara Anowara Nursing Institute, Thakurgoan	Nongovernment
101	Jahir Meherun Nursing Institute, Patuakhali	Nongovernment
102	The North Bengal Nursing Institute, Thakurgong	Nongovernment
103	Amarica Bangladesh Friendship Nursing Institute, Joypurhat	Nongovernment
104	Naogaon Prime Nursing Institute, Naogaon	Nongovernment
105	Barind Institute of Nursing Science, Rajshahi	Nongovernment
106	Anwara-Nur Nursing Institute, Khulshi, Chattogram	Nongovernment
107	Sylhet Women's Nursing Institute, Sylhet	Nongovernment
108	Tangail Diabetic Association Nursing Institute, Tangail	Nongovernment
109	Zam Zam Nursing Institute, Barishal	Nongovernment
110	Saseg–Gurukul Nursing Institute, Kushtia	Nongovernment
111	Jashim Uddin Nursing Institute, Jamalpur	Nongovernment
112	Supreme Nursing Institute, Tangail	Nongovernment
113	M. Rahman Nursing Institute, Rajshahi	Nongovernment
114	RIMT Nursing Institute, Mymensingh	Nongovernment
115	Dr. Halima Khatun Nursing Institute, Mymensingh	Nongovernment
116	Mirpur Institute of Nursing Science & Midwifery, Mirpur-1, Dhaka	Nongovernment
117	Turag Adhunik Nursing College, Uttara, Dhaka	Nongovernment
118	DCMT Nursing Institute	Nongovernment
119	Provati Nursing Institute, Laximipur, Rajshahi	Nongovernment
120	Global Nursing Institute, Boalia, Rajshahi	Nongovernment
121	Mamota Nursing Institute, Rajshahi	Nongovernment
122	Bijoy Nursing Institute, Chapai Nawabganj	Nongovernment
123	Asian Nursing Institute, Sheikhpapra, Khulna	Nongovernment
124	Shandhani Nursing Institute, Gangni, Meherpur	Nongovernment
125	Crescent Nursing Institute, Kushtia	Nongovernment
126	Karatoa Nursing Institute, Kalitola, Bogura	Nongovernment
127	Mitu Nursing Institute, Shalgaria, Pabna	Nongovernment
128	Bangladesh Adventist Nursing Institute, Kaliakoir, Gazipur	Nongovernment
129	Brahmanbaria United Nursing College, Brahmanbaria	Nongovernment
130	CARE Nursing Institute	Nongovernment
131	Diabetic Association Nursing Institute, Narayanganj	Nongovernment
132	Dr. Liza Nursing Institute, Kushtia	Nongovernment
133	Gaibandha Community Nursing Institute, Gaibandha	Nongovernment
134	Golden Life Nursing Institute, Thakurgoan	Nongovernment
135	Jashore Institute of Nursing Science and Midwifery, Jashore	Nongovernment

Serial No.	Nursing institutes	Type of organization
136	New Sonar Bangla Nursing Institute, Rangpur	Nongovernment
137	SAIC Nursing College, Dhaka	Nongovernment
138	RTMI Nursing Institute, Sylhet	Nongovernment
139	Seba Nursing Institute, Chapainawabganj	Nongovernment
140	Shimantic Nursing Institute, Sylhet	Nongovernment
141	Shirin Rahman Nursing Institute, Jashore	Nongovernment
142	Suratan Nesa Nursing Institute, Mymensingh	Nongovernment
143	Surma Nursing Institute, Sylhet	Nongovernment
144	Trauma Nursing Institute, Dhaka	Nongovernment
145	LAMB Center, Parbatipur, Dinajpur	Nongovernment
146	FIVDB-Center, Sylhet	Nongovernment
147	Shimantik Center, Sylhet	Nongovernment
148	BRAC University Dhaka Centre, Mirpur	Nongovernment
149	GBC-CHP Centre, Mymensingh	Nongovernment
150	PHD Centre, Khulna	Nongovernment
151	Hop Foundation, Cox's Bazar	Nongovernment
152	ICMH Midwifery Institute, Matuail, Dhaka	Nongovernment
153	DWF Midwifery Institute, Patuakhali	Nongovernment
154	Pallabi Nursing Institute, Mirpur, Dhaka	Nongovernment
155	Jemison Redcrescent Nursing Institute, Chattogram	Nongovernment
156	Sahera Hasan Midwifery Institute, Manikgonj	Nongovernment
157	Begum Osman Ara C/N, Chandanaish, Chattogram	Nongovernment

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