Original Research Article

Clinical practice and research involvement of the gastroenterologists of Bangladesh: a mini appraisal

Abstract

Introduction

The ratio of gastroenterologist specialists according to the patients must be developed in Bangladesh. Besides clinical practice, the significant role to research among registered gastroenterologists has yet to be explored. With the Evaluation of the pattern of procedures practiced by the gastroenterologists of Bangladesh, this study will record the involvement of the practitioners in medical research.

Methods

This online email-based cross-sectional survey was conducted between January 2021 to May 2021. A total of 106 registered gastroenterologists participated in the study. The survey instrument was prepared based on the insight of the previous literature. The survey collected information about their socio-demographic characteristics, current practice of interventions, involvement in research, and the perceived barriers of clinical practice and research work. All the statistical analyses were carried out in SPSS version 26.0. Data were presented with frequency distribution with percentage for categorical data and mean with standard deviation (SD) or median with interquartile range (IQR) for the continuous data.

Results

The gastroenterologists' mean (SD) age was 44.76 (6.43) years, and 92% were male. Their median duration of practice was 7 (range 1-27) years. Around 82% of them were working in the public hospital sector. Esophagogastroduodenoscopy (EGD) (98%) and Colonoscopy (93%)

were the most frequently performed procedures, followed by Endoscopic band ligation (EBL) (77%), endoscopic dilatation (46%), narrow-band imaging (NBI) and esophageal stenting (28%). Lack of advanced training and skilled supporting staff (49%) were the most common barriers to performing the advanced procedures. Almost half of the participants had at least one scientific publication. Lack of funding (69%), adequate research training, and appropriate mentors (59%) were the significant barriers to research involvement. In addition, half of the respondents (49%) also mentioned prolonged involvement in clinical schedules was also a barrier to contributing to research.

Conclusion

Nowadays, it is a matter of hope that, advances interventions are preformed by a remarkable gastroenterologists. Initiatives to decline the barriers, including providing adequate training and technical support, can improve their clinical service and research activities.

Keywords: Gastroenterologist, gastroenterological procedure, endoscopy, research

Introduction

Bangladesh is a lower-middle-income country with near about 161 million, resulting in one of the most densely populated countries in the world (population density 1240 per square kilometer) (1). From the last three decades, Bangladesh has already faced an epidemiological shift, with an observed fall in deaths due to infectious diseases but a rise in non-communicable diseases (2,3). Gastrointestinal disorders, especially malignancies (like esophageal, gastric, colorectal, pancreatic, and liver cancers), contribute to a significant portion of non-communicable disease burden (4).

Recently, the government has taken several initiatives to improve the present morbidness for non-communicable disease. For the prevention and raising social awareness, early diagnosis is followed by appropriate management of malignant diseases. To ensure worldwide health coverage for gastrointestinal diseases, even in rural areas, in 1979, to overcome the arising need of this sector, the specialty of Gastroenterology was firstly established in Bangladesh (5). To fulfill the population's incredible demands, structured training for physicians in this specialty was started at the then Institute of Postgraduate Medical Research (IPGMR). To meet up the national crisis, currently certification of Doctor of Medicine (MD) in Gastroenterology is arranged by Bangabandhu Sheikh Mujib Medical University (BSMMU) and its affiliated medical colleges. Similarly, a postgraduate fellowship in Gastroenterology (termed FCPS) is provided by the Bangladesh College of Physicians and Surgeons (BCPS), an autonomous body that provides certification equivalent to the FCPS. Both the Fellowship and the MD degrees require five-year clinical training and starting its enrollment by a very competitive admission test following a one-year internship. Moreover, several small and more extensive training are ongoing for continuous professional development (6).

After taking all these initiatives, the facilities for screening, early detection, timely intervention, and emergency care for gastrointestinal cases are not widely available and not sufficient according to our country patient pool. A recent nationwide survey of endoscopic facilities reported poor condition of endoscopic care, where most of the procedures were diagnostic rather than therapeutic (7). Moreover, there needs for more trainings of gastroenterologists for

advanced endoscopic procedure are increasing day by days. Though there is yet to be available data on the number of gastroenterologists serving the country, almost five hundred registered members in the Bangladesh Society of Gastroenterologists. Besides clinical practice, their involvement in research has also remained unexplored, although clinical research is the backbone of current evidence-based medicine. Their research activity is mainly limited to the academic thesis or dissertation required for passing the post-graduate examination. Majority of physicians discontinue the research activity during their professional life. The unsatisfactory number of publications in indexed journals reflects their involvement in research activity. Hence, the present study aimed to investigate the pattern of procedures practiced by Bangladesh's gastroenterologists and their participation in medical research.

Methods

This cross-sectional study started from January 2021 to May 2021. The enrolled population was all gastroenterologists with post-graduation degrees and practicing in Bangladesh. A purposive sampling method was used to include the participants. An online survey with a structured questionnaire was used for data collection. All gastroenterologists were emailed the survey link and were requested to fill it up within the following week. If they did not respond, a reminder email was sent one week after the first one. A total of 150 gastroenterologists were emailed the survey form, and finally, 106 practicing gastroenterologists from different hospitals in Bangladesh filled out the survey and were included in the study (response rate 70.7%).

The questionnaire had three parts: (i) socio-demographic characteristics of the participants (for example, age, gender, post-graduation degree and passing year, any further training, duration of practice, and working place); (ii) practice of selected procedures and the perceived barriers of performing the procedures (for example, esophagogastroduodenoscopy, colonoscopy, endoscopic band ligation, endoscopic dilatation, esophageal stenting, endoscopic retrograde cholangiopancreatography, CRE balloon dilatation, hemorrhoid banding, endoscopic mucosal resection, double balloon enteroscopy, endoscopic ultrasound, capsule endoscopy, narrow band imaging, chromo-endoscopy and endoscopic submucosal dissection) and (iii) contribution to research in the term of number of national and international publications and its barriers.

Informed consent was obtained through email before recruiting the participants. Ethical clearance for the study was obtained from the Ethical Review Committee of Shaheed Ziaur Rahman Medical College, Bogura.

Statistical analysis: All the statistical analyses were done in SPSS version 26.0. Frequency distribution with percentage was used to represent the categorical data, and mean with standard deviation (SD) or median with interquartile range (IQR) was used to describe the continuous data, as appropriate.

Results

The mean (SD) age of the gastroenterologists included in the present study was 44.76 (6.43) years, and 98 of them (92.5%) were male. Almost 82% of gastroenterologists had MD degrees, 8.5% had FCPS degrees, and 9.5% had MD and FCPS degrees. They have completed their post-graduation degree between the year of 1994 and 2020. Most of them have completed post-graduation from Bangabandhu Sheikh Mujib Medical University (BSMMU) (59%), followed by BIRDEM (13%) and Dhaka Medical College (9.4%). Their median duration of practice as gastroenterologists was 7 (range 1-27) years. Around 82% of them worked in the public hospital sector, while 32% worked in solely private hospitals or engaged with both types of hospitals. Approximately 27% of the participating doctors attended training abroad, mostly on advanced endoscopic and colonoscopic procedures **(Table 1).**

Table 1: Socio-demographic and training-related characteristics of the gastroenterologists (n = 106) IPGMR-. Institute of Post Graduate Medical Education and Research; BSMMU-Bangabandhu Sheikh Mujib Medical University; BCPS-Bangladesh College of Physicians and Surgeons; BIRDEM-Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders; DMC-Dhaka Medical College; SSMC-Sir Salimulllah Medical College

Esophagogastroduodenoscopy (EGD) and Colonoscopy were the most frequently performed procedures performed by the gastroenterologists (98% and 93%, respectively), followed by Endoscopic band ligation (EBL) (77%), endoscopic dilatation (46%), narrow-band imaging (NBI) and esophageal stenting (28%) **(Table 2).**

Table 2: Procedures practiced by the gastroenterologists

Procedures	Total		Government		Private	
	N	%	n	%	N	%
EGD	104	98.1	86	98.9	33	97.1
Colonoscopy	99	93.4	81	93.1	32	94.1
EBL	77	72.6	61	70.1	28	82.4
Dilatation	49	46.2	38	43.7	17	50.0
NBI	47	44.3	39	44.8	16	47.1
Stenting	30	28.3	23	26.4	12	35.3
ERCP	25	23.6	19	21.8	10	29.4
CRE	24	22.6	19	21.8	9	26.5
Hemorrhoid band	18	17.0	12	13.8	8	23.5
EMR	16	15.1	13	14.9	6	17.6
Double balloon enteroscopy	11	10.4	10	11.5	1	2.9
EUS	9	8.5	8	9.2	2	5.9
Capsule endoscopy	3	2.8	2	2.3	1	2.9

Chromo-endoscopy	2	1.9	0	0.0	2	5.9
ESD	1	0.9	1	1.1	0	0.0

The average number of EGDs performed by a gastroenterologist per month was 53.21 in a government setting and 135.52 in a private setting, while the average number of colonoscopies was 13.31 in a government setting and 27.97 in a private setting **(Figure 1).**

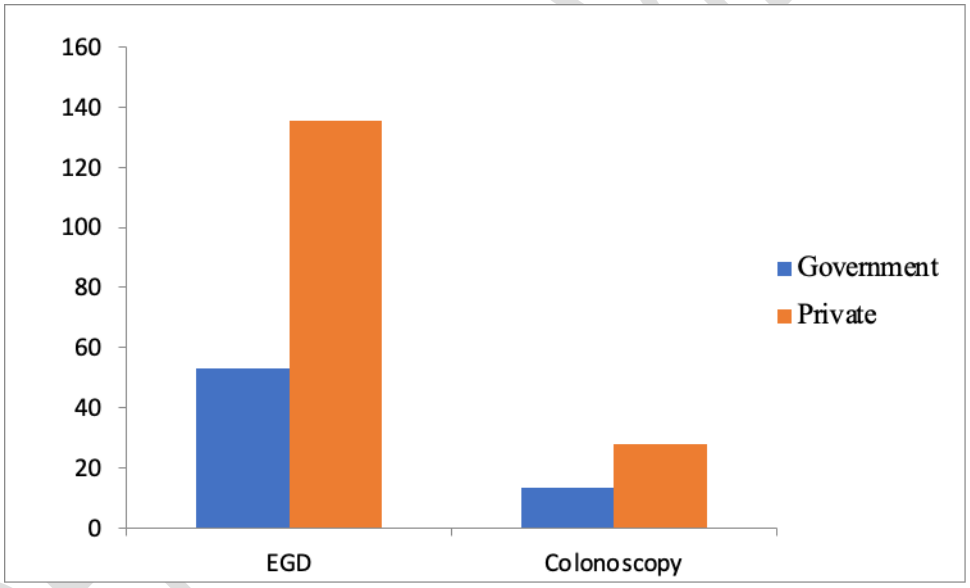

Figure 1: Number of EGD and colonoscopy per month (mean) performed by gastroenterologists in government and private settings.

Procedures like Endoscopic retrograde cholangiopancreatography (ERCP), CRE balloon dilatation, hemorrhoid banding, Endoscopic mucosal resection (EMR), and double balloon enteroscopy were performed by 10 to 24% gastroenterologists. Very few of them performed endoscopic ultrasound (EUS), Capsule endoscopy, Chromo-endoscopy, and Endoscopic submucosal dissection (ESD) (Table 2). Lack of training was identified as the most common barrier to performing the advanced procedures (74%), followed by lack of supporting staff (49%), circumstances (42.5%), and lack of practice (27%) **(Figure 2).**

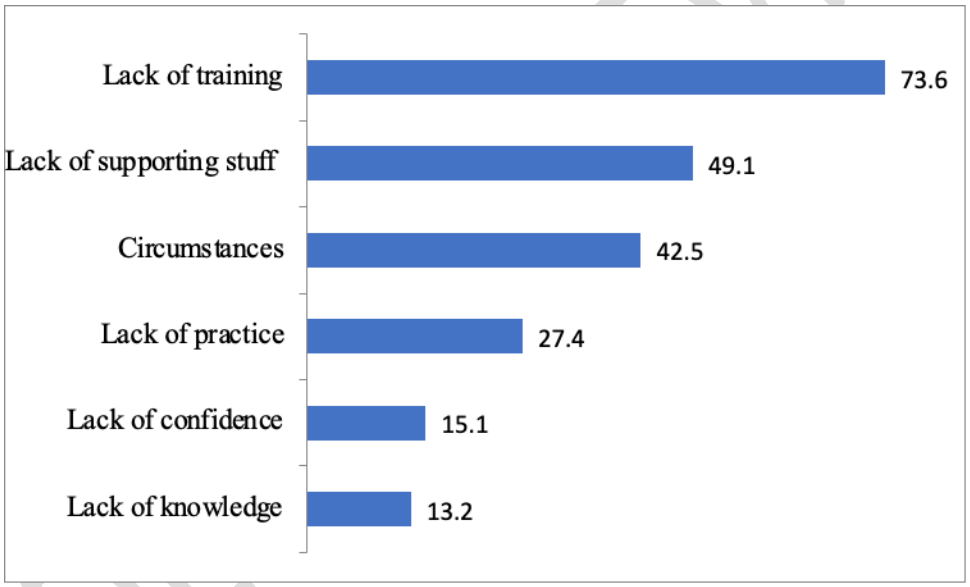

Figure 2: Perceived barriers to performing procedures by the gastroenterologists (%)

Only 5% of the participating gastroenterologists had academic degrees in research, while 29% had formal training. Around 27% of participants had no publication, while almost 75% had no international publication. Nearly half of the participants had 1 to 5 publications in national journals. Only 18 participants had more than five publications in national journals, and only one had more than five in international journals. Almost 22% of participants had presented a paper at one or more international conferences **(Table 3).**

Table 3: Research-related characteristics among the gastroenterologists (n = 106)

Characteristics	N	%
Research training		
Yes	31	29.2
No	75	70.8
Center of research training		
BMRC	12	38.7
ICDDR, B	4	12.9
Bangladesh Society of Gastroenterologists	8	25.8
Others	7	22.6
Research degree		
MPH	2	1.9
Master's in medical education	2	1.9
Others	1	0.9
None	101	95.3
Scientific publication		
National journals, median (range)	2 (0-40)	
0	29	27.3
1-5	59	55.7

>5	18	17.0
International journals, median (range)	1 (0-20)	
0	79	74.5
1-5	26	24.6
>5	1	0.9
International conference, median (range)	1 (0-8)	
0	83	78.3
1-5	20	18.9
>5	3	2.8

Lack of funding was the most identified barrier to research in our study (69%), followed by lack of training (59%), lack of mentor (53%), lack of time (49%), lack of practice (43%) and lack of knowledge (39%) **(Figure 3).**

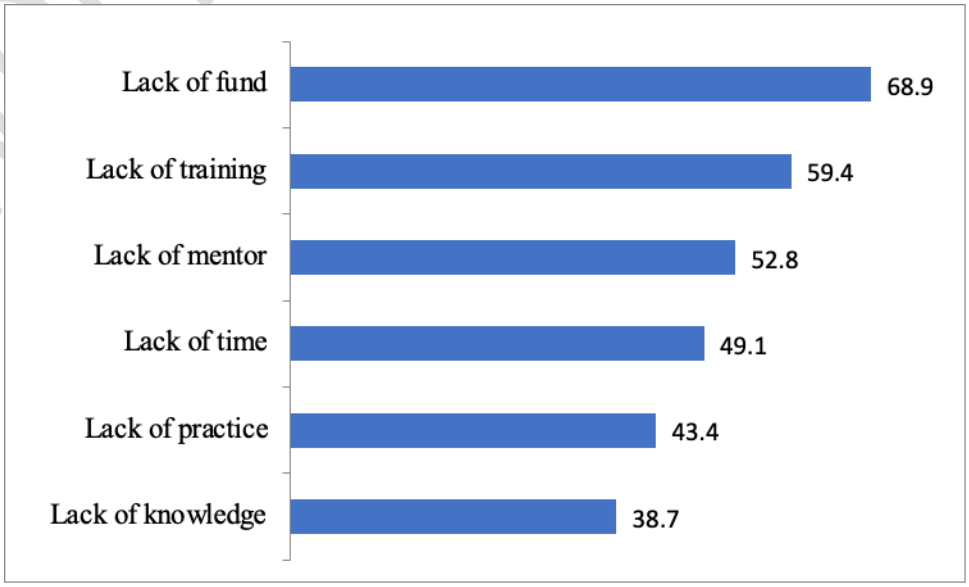

Figure 3: Perceived barriers of research by the gastroenterologists (%)

Discussion

Bangladesh's health system's resilience to meet the population's healthcare needs has become an important issue due to the prominent changes in increasing the challenges of controlling of non-communicable disease. Though taking significant steps, the government is trying to cope with the transition, it still needs to catch up to (8). Facilities for screening, early detection, and treatment of non-communicable diseases, especially malignant ones, are not widely available in the country. For example, a recent nationwide survey about endoscopic facilities reported that most facilities do not perform advanced diagnostic and therapeutic procedures for gastrointestinal diseases. Moreover, emergency endoscopic procedures like endoscopic ligation in variceal bleeding or Mallory–Weiss tears are not performed in most centers (7). All these realities significantly compromise the quality of patient care and increase the morbidity and mortality of the patients. Under these circumstances, the present study provides baseline data on the service provided by the gastroenterologists of the country.

Among the gastroenterologists included in our study, only eight percent were female, while almost half of the registered physicians in the country are female (9). It is a matter of concern because they need to prioritize the specialty for their career and require attention to abolish the barriers. Female specialists are necessary to reduce the gender disparity in healthcare-seeking behavior, especially in the conservative societies of the country.

Our study found that most gastroenterologists perform regular procedures like EGD, colonoscopy, EBL, endoscopic dilatation, and stenting. Advanced techniques like ERCP, EMR, double balloon enteroscopy, EUS, capsule endoscopy, chromo-endoscopy, and ESD are performed by a few practitioners. These findings echo a recent study on the situation of endoscopy facilities in the country, which reported that gastroscopy and colonoscopy were done in most of the facilities. In contrast, ERCP and EUS were done only in a few facilities (7). The study also reported that most centers performed only diagnostic gastroscopy. A significant disparity between the government and private facilities was found in the case of the number of procedures. Though a more substantial portion of our participants worked in government hospitals, more procedures were performed in private settings. Lack of adequate training and

supporting staff was identified as the most common barrier to achieving the advanced techniques in our study. These allegations of the gastroenterologists are legitimate, as only one-third of our study participants had advanced training in endoscopic procedures. Besides, it is reported that half of majority of the endoscopy centers did not have registered endoscopy nurses or expert staff (7).

In the case of medical research, the contribution of our gastroenterologists is nothing extraordinary. Almost one-fourth of the participants had no scientific publications, while nearly three-fourths had no publications in international journals. Only 22% of participants had presented a paper in one or more international conferences. Our gastroenterologists' research experience is much poorer compared to the developed countries. For example, more than 72% of the gastroenterologists in the USA are involved in research activities (10). The rate is almost 86% among the gastroenterologists of Saudi Arabia (11). However, similar findings were revealed in a study conducted among post-graduate residents of India, which reported that half of the physicians participated in research projects, though only four percent had scientific publications (12). An Australian study reported that most of their physicians assign limited time to research, and 27% of them were actively involved in a project during the study time. Almost one-third of them did not have any previous experience of participation in RCTs (13).

Our study's most identified research barriers were lack of funding, adequate training, mentors, and a busy clinical schedule. Similar barriers, including uncompensated research costs, lack of specialized training and support, insufficient research time, and lack of interest, were also reported as the significant barriers to involvement in clinical research by gastroenterology specialists or physicians from other specialties of other countries (10–12). Moreover, doctors perceive few rewards and little peer-group influence regarding participation in the clinical research (13). Policymakers should pay attention to reducing these constraints to increase the research productivity of the practicing gastroenterologists of Bangladesh.

The present study provides an insight into the current status of clinical practice and research involvement of the gastroenterologists of Bangladesh. However, several limitations of the study would be worth mentioning. The inclusion of our study participants was not based on probability sampling, which can induce biased results. Moreover, most gastroenterologists are in their mid-

career, so that senior practitioners may be potentially excluded. Furthermore, involvement in research activities could have been explored more thoroughly.

Conclusion

Several gastroenterologists are practicing regular and advanced interventions, though their research involvement could be better. After identifying these several obstacles, they should be addressed to improve their clinical practice and research productivity.

Declarations:

Ethics approval and consent to participate: An approval of the study protocol was obtained from the ethical committee of Shaheed Ziaur Rahman Medical College, Bogra, before the commencement of the study. Informed written consent was obtained from each patient before recruitment.

Consent for publication: Not applicable.

Availability of data and materials: Patient-level data will be available on request from the corresponding author.

References

1. Population density (people per sq. km of land area) - Bangladesh | Data [Internet]. [cited 2021 Jul 2]. Available from: https://data.worldbank.org/indicator/EN.POP.DNST?locations=BD

2. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012 Dec 1;380(9859):2095–128.

3. Karar ZA, Alam N, Streatfield PK. Epidemiological transition in rural Bangladesh, 1986-2006. Glob Health Action. 2009;2(1).

4. Hussain SA, Sullivan R. Cancer control in Bangladesh [Internet]. Vol. 43, Japanese Journal of Clinical Oncology. Jpn J Clin Oncol; 2013 [cited 2021 Jul 2]. p. 1159–69. Available from: https://pubmed.ncbi.nlm.nih.gov/24163419/

5. Hasan M, Ak Azad Khan. Development of gastroenterology in Bangladesh. Vol. 12, Journal of Gastroenterology and Hepatology (Australia). Blackwell Publishing; 1997.

6. Hawkes N, Dave U, Rahman M, Richards D, Hasan M, Rowshon AHM, et al. The role of national specialist societies in influencing transformational change in low-middle income countries - reflections on the model of implementation for a national endoscopy training programme in Bangladesh. Clin Exp Gastroenterol [Internet]. 2021 [cited 2021 Jul 2];14:103–11. Available from: /pmc/articles/PMC7997947/

7. Rahman M, Rahman M, Dave U, Hossain M, Kibria M, Nuruzzaman M, et al. PWE-142 State of The Endoscopy Services in Bangladesh- First Nationwide Survey. Gut [Internet]. 2016 Jun 1 [cited 2021 Jul 2];65(Suppl 1):A208.1-A208. Available from: https://gut.bmj.com/content/65/Suppl_1/A208.1

8. Rawal LB, Kanda K, Biswas T, Tanim MI, Poudel P, Renzaho AMN, et al. Non-communicable disease (NCD) corners in public sector health facilities in Bangladesh: A qualitative study assessing challenges and opportunities for improving NCD services at the primary healthcare level. BMJ Open [Internet]. 2019 Oct 1 [cited 2021 Jul 2];9(10). Available from: https://pubmed.ncbi.nlm.nih.gov/31594874/

9. Mohiuddin AK. An extensive review of patient health-care service satisfaction in Bangladesh. Adesh Univ J Med Sci Res [Internet]. 2020 Jul 23 [cited 2021 Jul 2];2(1):5–16. Available from: http://aujmsr.com/an-extensive-review-of-patient-health-care-service-satisfaction-in-bangladesh-2/

10. Dev AT, Kauf TL, Zekry A, Patel K, Heller K, Schulman KA, et al. Factors influencing the participation of gastroenterologists and hepatologists in clinical research. BMC Health Serv Res [Internet]. 2008 Oct 8 [cited 2021 Jul 2];8(1):1–11. Available from: http://www.biomedcentral.com/1472-6963/8/208

11. AlSardi M, AlAskar D, Alsahafi M, AlAmeel T, Al Sulais E. Barriers to research

productivity among gastroenterologists and hepatologists in Saudi Arabia. Saudi J Gastroenterol [Internet]. 2021 [cited 2021 Jul 2];27(2):73. Available from: /pmc/articles/PMC8183365/

12. Pawar DB, Gawde SR, Marathe PA. Awareness about medical research among resident doctors in a tertiary care hospital: A cross-sectional survey. Perspect Clin Res [Internet]. 2012 [cited 2021 Jul 7];3(2):57. Available from: /pmc/articles/PMC3371549/

13. Caldwell PHY, Craig JC, Butow PN. Barriers to Australian physicians' and paediatricians' involvement in randomised controlled trials. Med J Aust [Internet]. 2005 Jan 1 [cited 2021 Jul 7];182(2):59–65. Available from: https://onlinelibrary.wiley.com/doi/full/10.5694/j.1326-5377.2005.tb06576.x