

# Original Article

## Impact of COVID-19 Outbreak on Gastrointestinal Practices in Bangladesh

MN Hasan<sup>1</sup>, SC Das<sup>2</sup>, MAM Sakar<sup>3</sup>, MA Hoque<sup>4</sup>, MNE Azam<sup>5</sup>

### Abstract

**Background:** The COVID-19 pandemic has had a major global impact on most of the fields of medical practice including gastroenterology practice and endoscopy service. This study was conducted among gastroenterologists in Bangladesh to assess the impact of the COVID-19 pandemic on gastrointestinal practices in the country.

**Materials and Methods:** The survey questionnaire, containing 24 questions, was circulated through emails of the gastroenterologists between July 2nd to August 1st, 2020. Filled forms were automatically received into the Survey Monkey system and retrieved in Excel sheet and analyzed.

**Results:** A total of 53 gastroenterologists (male 90.57%) responded to the survey. Weekly outpatient appointments were reduced by 75.8%. Only 26.4% of the gastroenterologists continued regular face-to-face consultations. The weekly number of gastroscopies and colonoscopies performed by the participants were reduced by 89.3% and 83.3% respectively. Three fourths of the gastroenterologist stopped doing endoscopy. Only 50.93 % of the endoscopists used N95 or similar masks.

**Conclusion:** As with the rest of the world, the COVID-19 pandemic has significantly impacted gastroenterology practice and endoscopy service in Bangladesh. Further study may be required to identify the impact of this significantly altered workflow on gastrointestinal disease detection and treatment.

**Keywords:** COVID-19, Gastrointestinal endoscopy, Colonoscopy.

#### Authors:

**Mohammad Naymul Hasan**, MBBS, MD (Gastroenterology), Assistant Professor, Department of Gastroenterology, Shaheed Ziaur Rahman Medical College, Bogura, Email: naymuldr@gmail.com.

**Sukanta Chandra Das**, MBBS, FCPS (Medicine), (MD (Gastroenterology), Assistant Professor, Department of Gastroenterology, Sheikh Hasina Medical College, Jamalpur, Bangladesh, Email: drsukantadmc@gmail.com

**Md. Abdul Mumit Sarkar**, MBBS, MD (Gastroenterology), Assistant Professor, Department of Gastroenterology, Rajshahi Medical College Hospital, Rajshahi, Email: mumitsarkar@gmail.com.

**Mohammad Aminul Hoque**, MBBS, MD (Gastroenterology), Assistant Professor, Department of Gastroenterology, Colonel Malek Medical College, Manikganj, Email: drmahoque@yahoo.com.

**Md. Shamiul Hossain**, MBBS, MD (Gastroenterology), Assistant Professor, Department of Gastroenterology, M Abdur Rahim Medical College, Dinajpur, Email: shamiul34@gmail.com.

**Dr Birendra Nath Saha**, MBBS, MD (Gastroenterology), Associate Professor, Department of Gastroenterology, Shaheed Tajuddin Ahmed Medical College, Gazipur, Email: birensaha5@gmail.com

**Md. Nur-E-Azam**, MBBS, MD (Gastroenterology), Assistant Registrar, Department of Gastroenterology, Shaheed Ziaur Rahman Medical College, Bogura, Email: drazamcmc50@gmail.com.

#### Corresponding Author:

**Mohammad Naymul Hasan**, Assistant professor, Department of Gastroenterology, Shaheed Ziaur Rahman Medical College, Bogura, Bangladesh, Email: naymuldr@gmail.com, Phone: +8801815466643

### Introduction:

Since the coronavirus disease 2019 (COVID-19) first emerged in Wuhan, China, in early December 2019, it has become a global pandemic posing a significant impact on the lives of people around the world.<sup>1</sup> As of 2nd August 2021, there have been 198,778,175 confirmed cases of COVID-19, including 4,235,559 deaths have been reported worldwide by the WHO.<sup>2</sup> COVID-19 virus mainly spreads from person to person via respiratory droplet transmission, which occurs when a person is in close contact with an infected person who is actively coughing or sneezing.<sup>3</sup>

Excretion of the viruses in feces and fecal transmission of the viruses have also been reported in previous studies.<sup>4</sup> Though the virus mainly involves the respiratory tract, several gastrointestinal symptoms, including diarrhea, vomiting, nausea, abdominal pain, and gastrointestinal bleeding have been reported among a wide range of affected people (3–79%).<sup>5</sup> Endoscopy is an important tool that has a great diagnostic and therapeutic role in gastroenterology.<sup>6</sup> As endoscopy is an aerosol-generating procedure, health-care professionals working in the endoscopy units are at risk of COVID-19 infection from airborne droplets, nasal discharges, conjunctival secretions, contact, and potential for fecal-oral transmission.<sup>7</sup> Therefore, all major gastrointestinal (GI) or GI endoscopy societies have recommended rescheduling or canceling non-urgent procedures except for emergent cases with adequate protection although some variations are noticeable among the different guidelines.<sup>8-12</sup> However, the risk of transmission of the virus could be reduced significantly by the appropriate use of Personal Protective equipment. Recent data show that there is a low risk of SARS-CoV-2 transmission during gastrointestinal endoscopy when adequate protective measures are taken and contact and workload are reduced.<sup>7</sup> The American Society for Gastrointestinal Endoscopy (ASGE) also recommends carrying out endoscopic procedures in negative-pressure rooms.<sup>13</sup> In the above scenario, the number of general endoscopies was dramatically decreased worldwide.<sup>14</sup> In addition, restrictions in endoscopic volumes have led to a reduction in young gastroenterologist trainees' opportunities to participate in GI endoscopy, which ultimately causes a reduction of performance in procedural skills and competency development.<sup>15</sup>

The COVID-19 pandemic has had a major global impact on most of the fields of medical practice including gastroenterology practice and endoscopy service. Like all other parts of the world, Bangladesh is also affected greatly by the COVID-19 pandemic. Reports regarding the impact of the COVID-19 pandemic on gastroenterology practice and

endoscopy service are lacking. Thus, this study was conducted to observe the impact of COVID-19 on gastroenterology practice and endoscopy service in Bangladesh.

### Materials and Methods:

Email addresses of gastroenterologists across Bangladesh were collected from the Bangladesh Gastroenterology Society office database. The survey questionnaire, containing 24 questions assessing the participant's current position, workplace, Knowledge about COVID-19 and gastrointestinal endoscopy, and the impact of the COVID-19 outbreak on gastrointestinal practices, including outdoor patient services and gastrointestinal endoscopy, was circulated through emails between July 2<sup>nd</sup> to August 1<sup>st</sup>, 2020. The purpose of the study was explained in a message before starting the survey, which was attached with the email. Responding to the survey questions was considered consent to participate. All participants were allowed to participate in the survey only once and the results were kept anonymous. A reminder was given twice weekly who were not submitting the form. The filled forms were automatically received into the Survey Monkey system retrieved in an Excel sheet and analyzed. Most questions were closed-ended, and participants were allowed to select one appropriate option. A few questions had the provision of choosing multiple options. No personal data or identifiers linked to any endoscopist or unit were obtained. The study was approved by the Institutional Review Board of Shaheed Ziaur Rahman Medical College, Bogura.

### Results:

A total of 53 gastroenterologists (male 90.57%) responded to the survey. Most (35.7 %) were aged 40 to 49 years. A total 75% of the gastroenterologists worked at government hospitals mostly situated in metropolitan cities (75.47%), 5(9.43%) of the participants were infected with Covid-19 before the study period and were managed at home. Characteristics of the gastroenterologists are given in Table 1.

**Table 1:** Distribution of Gastroenterologists according to demographic characteristics (n=53).

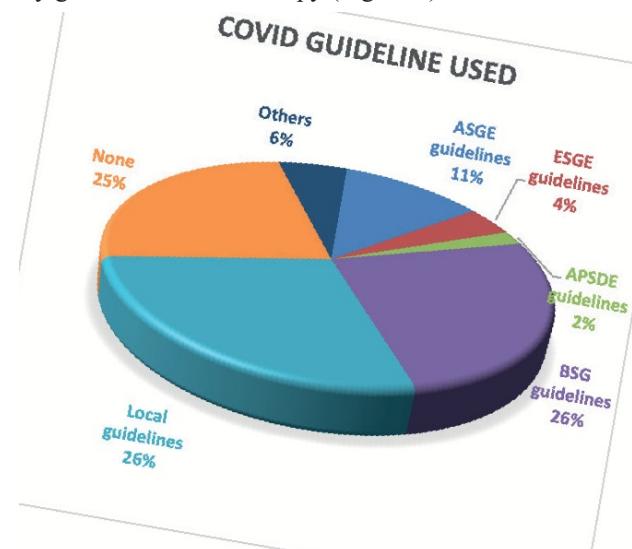
Characteristics	Number (Percentage)
<b>Age</b>	
<30	1 (1.89)
30-39	10 (18.87)
40-49	27 (50.94)
>50	15 (28.3)
<b>Sex</b>	
Male	48 (90.57)
Female	5 (9.43)
<b>Place of work</b>	
Government hospital	44 (83)
Private multi-specialty hospital	5 (9.4)
Private chamber	4 (7.5)
<b>Location of workplace</b>	
Metropolitan city	40 (75.47)
Urban area	11(20.75)
Rural area	2 (3.77)
<b>Infected with Covid-19</b>	<b>5 (9.43)</b>

Weekly outpatient appointments were reduced by 75.8%. Only 26.4% of the gastroenterologists continued regular face-to-face consultations. A total of 26.41% of the gastroenterologists canceled more than 50% of their appointments and 47.16% of the gastroenterologists closed their outpatient practice. All participating gastroenterologists in this study could perform gastroscopy and colonoscopy. The weekly number of gastroscopies and colonoscopies performed by the participants was reduced by 89.3% and 83.3%, respectively (Table 2).

**Table 2:** Weekly number of patient appointments and procedures by time period and changes over time.

	Time period	Pre-COVID	COVID impacted
<b>OPD appointments</b>			
The average number of OPD appointments per week	186	45	
% reduction in activity compared with pre-COVID	75.8%		
<b>Gastroscopy</b>			
Average number of procedures per week	66	7	
% reduction in activity compared with pre-COVID	89.3%		
<b>Colonoscopy</b>			
Average number of procedures per week	18	3	
% reduction in activity compared with pre-COVID	83.3%		

Of the study participants 11% and 4% followed the British Society of Gastroenterology (BSG) guideline and the American Society of Gastrointestinal Endoscopy (ASGE) guideline for endoscopy, respectively whereas 26.1% of the participants followed local guidelines for endoscopy. Only 5.66% of the participants reported that they did not follow any guidelines for endoscopy (Figure 1).



**Figure 1:** Guidelines followed by the gastroenterologists during endoscopy practice (American Society of Gastrointestinal Endoscopy, ESGE-European Society of Gastrointestinal Endoscopy, APSED- Asia Pacific Society for Digestive Endoscopy, BSG- British Society of Gastroenterology)

Seventy-four percent of the gastroenterologists stopped doing endoscopy, while 22.64% of the gastroenterologists reduced the number of procedures. 13.2% of the gastroenterologists performed only emergency endoscopies. In addition, 5.66% and 15.95% of gastroenterologists increased the time between endoscopies and reduced the number of staff respectively to reduce the spread of infection. While performing endoscopy procedures, 50.93 % of the endoscopists used N95 or similar masks, 37.72% used simple surgical masks, and surprisingly 11.32% used no masks during endoscopy procedures. During the study period, no negative pressure room was available in any Gastroenterology unit. 68.6% of the participants used the manual method for scope disinfection.

## Discussion:

In Bangladesh, the first case of COVID-19 was reported on 7<sup>th</sup> March 2020. Thereafter, the country adopted several measures including a national lockdown to control the spread of COVID-19. In this study, we presented data on the impact of the COVID-19 pandemic on the Gastroenterology practice in Bangladesh.<sup>16</sup> This study revealed a substantial and drastic impact of the pandemic on Gastroenterology activities throughout the country. More than 40% of gastroenterologists stopped their private practice and more than 11% of gastroenterologists canceled 80% of their appointments. The unpredictable nature of COVID-19 has instilled fears among doctors leading to workplace avoidance. A recent study revealed that doctors were afraid of getting infections themselves and transmitting them to their families.<sup>17,18</sup>

In this current study gastroscopies and colonoscopies were reduced by 93% and 92% respectively per week. Similar findings were also reported in the UK, where the number of gastroscopies and colonoscopies was reduced by 90% and 86% respectively.<sup>19</sup> Significant reductions in gastroscopies, colonoscopies, and other endoscopic procedures were also reported in other studies in Italy, the Netherlands, Brazil, and India.<sup>20-23</sup> One of the reasons for performing fewer endoscopy procedures during COVID-19 might be due to decreased patient volume in the hospital due to the nationwide lockdown. Another important reason for the lower number of endoscopies is due to the latest guidelines recommending avoidance of routine endoscopies regarding it a high-risk procedure. In a recent study in India, 34% of endoscopists limited the number of patients and 29 % of endoscopists were advised by the administrators of their centers to limit the number of endoscopies to avoid exposure to healthcare personnel and to conserve resources.<sup>23</sup>

COVID-19 is thought to be highly contagious and as many as 44 % of transmissions were reported to occur through asymptomatic carriers in China.<sup>24</sup> So, even the COVID-19-infected asymptomatic persons coming for endoscopies could also transmit the disease, which justifies labeling endoscopies as a high-risk procedure. In the current study, 5(9.43%) of the participants were infected with COVID-19 before the study period. In a recent study in Brazil, 1.7 %

of participants had serologic or swab confirmation of COVID-19 and 1 % stated that the infection was secondary to endoscopic procedures performed in infected patients.<sup>21</sup> In our survey, we observed that 50.93% of respondents used N95 or equivalent masks but a large portion of endoscopists used simple surgical masks (37.72%) while performing endoscopic procedures. 11.32% used no masks at all during endoscopy procedures. In an international survey of endoscopists, 57.1% of the endoscopists used N95 respiratory masks during endoscopy procedures which is comparable to our survey results.<sup>14</sup> In other surveys conducted in different countries 65%, 74.7%, and 86% of participants used N95 masks for endoscopy in their centers in the USA, India, and Africa, respectively. The main reason for this might be due to the limited availability of N95 or equivalent masks in country.

Several International guidelines are available for practicing endoscopy to reduce viral transmission. However, recommendations of those guidelines are hard to follow in a developing country like Bangladesh with limited resources, including limited PPE including N95 masks, lack of negative pressure endoscopy rooms, overcrowding of government centers, and limited resources in privately owned smaller endoscopy units. In our study, 43% of the endoscopists followed one or both of the international guidelines whereas 26% of the endoscopists followed the local endoscopy guideline. One-fourth (25%) of the endoscopists did not follow any guidelines during endoscopy practice.

The study had a few limitations- i) the sample size was relatively small and may not be representative of gastroenterologists of the entire country (ii) The study only covered the impact of Covid-19 on the outpatient department, impact on the inpatient department were not considered (iii) Impact of reduced number of endoscopy procedure on gastrointestinal disease detection and treatment were not observed.

## Conclusion:

As with the rest of the world, the COVID-19 pandemic has significantly impacted gastroenterology practice and endoscopy service in Bangladesh. Only half of the endoscopists used N95 or similar masks during endoscopy procedure due to lack of availability making them more vulnerable to exposure to the virus. Further study may be done to identify the impact of this significantly altered workflow of the endoscopy unit on gastrointestinal disease detection and treatment.

Conflicts of Interest: There is no conflict of interest.

**Acknowledgments:** The authors would like to thank the gastroenterologists who actively participated in this study.

**References:**

- Zhu N, Zhang D, Wang W, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med* 2020; 382: 727–733. doi:10.1056/nejmoa2001017
- Khalil MM, Mahbub-Uz-Zaman K, Hossain AS, Ahmed F, Chowdhury MFK, Khan ST, Miah MSA, Khaleque N, Kibria MG, Ahmed F, Khan AM. Adverse Events Following COVISHIELD Vaccination Among Adult Population in Bangladesh. *SN Compr Clin Med*. 2021;3(11):2207-2213. doi: 10.1007/s42399-021-01021-z. Epub 2021 Jul 31. PMID: 34368624; PMCID: PMC8324453.
- Parasher A. COVID-19: Current understanding of its Pathophysiology, *Clinical presentation and Treatment*. Postgrad Med J 2021; 97: 312–320. doi:10.1136/postgrad-medj-2020-138577
- Guo M, Tao W, Flavell RA, et al. Potential intestinal infection and fecal-oral transmission of SARS-CoV-2. *Nat Rev Gastroenterol Hepatol* 2021; 18: 269–283. doi:10.1038/s41575-021-00416-6
- Tian Y, Rong L, Nian W, et al. Review article: gastrointestinal features in COVID-19 and the possibility of fecal transmission. *Aliment Pharmacol Ther* 2020; 51: 843–851. doi:10.1111/apt.15731
- Nguyen VX, li Nguyen VT, Nguyen CC. Appropriate use of endoscopy in the diagnosis and treatment of gastrointestinal diseases: Up-to-date indications for primary care providers. *Am J Clin Hypn* 2011; 53: 345–357. doi:10.2147/IJGM.S14555
- Repici A, Aragona G, Cengia G, et al. Low risk of COVID-19 transmission in GI endoscopy. *Gut* 2020; 69: 1925–1927. doi:10.1136/gutjnl-2020-321341
- Guda NM, Emura F, Reddy DN, et al. Recommendations for the Operation of Endoscopy Centers in the setting of the COVID-19 pandemic – World Endoscopy Organization guidance document. *Dig Endosc* 2020; 32: 844–850. doi:10.1111/den.13777
- Repici A, Maselli R, Colombo M, et al. Coronavirus (COVID-19) outbreak: what the Department of Endoscopy should know. *Gastrointest Endosc* 2020; 92: 192–197. doi:10.1016/j.gie.2020.03.019
- Gralnek IM, Hassan C, Beilenhoff U, et al. ESGE and ESGENA Position Statement on Gastrointestinal Endoscopy and the COVID-19 pandemic. *Endoscopy* 2020; 52: 483–490. doi:10.1055/a-1155-6229
- Chiu PWY, Ng SC, Inoue H, et al. Practice of endoscopy during COVID-19 pandemic: Position statements of the Asian Pacific Society for Digestive Endoscopy (APSD-DE-COVID statements). *Gut* 2020; 69: 991–996. doi:10.1136/gutjnl-2020-321185
- Sultan S, Lim JK, Altayar O, et al. AGA Rapid Recommendations for Gastrointestinal Procedures During the COVID-19 Pandemic. *Gastroenterology* 2020; 159: 739–758.e4. doi:10.1053/j.gastro.2020.03.072
- Calderwood AH, Day LW, Muthusamy VR, et al. ASGE guideline for infection control during GI endoscopy. *Gastrointest Endosc* 2018; 87: 1167–1179. doi:10.1016/j.gie.2017.12.009
- Alboraei M, Piscoya A, Trung Q, et al. The global impact of COVID-19 on gastrointestinal endoscopy units: An international survey of endoscopists. *Arab J Gastroenterol*. 2020;21:156-161. doi: 10.1016/j.ag.2020.08.008.
- Pawlak KM, Kral J, Khan R, et al. Impact of COVID-19 on endoscopy trainees: an international survey. *Gastrointest Endosc*. 2020;92:925-935. doi: 10.1016/j.gie.2020.06.010.
- Anwar S, Nasrullah M, Hosen MJ. COVID-19 and Bangladesh: Challenges and How to Address Them. *Front Public Heal* 2020; 8: 1–8. doi:10.3389/fpubh.2020.00154
- Malik S, Ullah I, Irfan M, et al. Fear of COVID-19 and workplace phobia among Pakistani doctors: A survey study. *BMC Public Health* 2021; 21: 1–9. doi:10.1186/s12889-021-10873-y
- Kumar J, Katto MS, Siddiqui AA, et al. Predictive Factors Associated With Fear Faced by Healthcare Workers During COVID-19 Pandemic: A Questionnaire-Based Study. *Cureus* 2020; 12: 8–12. doi:10.7759/cureus.9741
- Rutter MD, Brookes M, Lee TJ, et al. Impact of the COVID-19 pandemic on UK endoscopic activity and cancer detection: A National Endoscopy Database Analysis. *Gut* 2021; 70: 537–543. doi:10.1136/gut-jnl-2020-322179
- Maida M, Sferrazza S, Savarino E, et al. Impact of the COVID-19 pandemic on Gastroenterology Divisions in Italy: A national survey. *Dig Liver Dis* 2020; 52: 808–815. doi:10.1016/j.dld.2020.05.017
- Arantes VN, Martins BC, Seqatto R, et al. Impact of coronavirus pandemic crisis in endoscopic clinical practice: Results from a national survey in Brazil. *Endosc Int Open* 2020; 08: E822–E829. doi:10.1055/a-1183-3324
- Lantinga MA, Theunissen F, Ter Borg PCJ, et al. Impact of the COVID-19 pandemic on gastrointestinal endoscopy in the Netherlands: Analysis of a prospective endoscopy database. *Endoscopy* 2021; 53: 166–170. doi:10.1055/a-1272-3788
- Goenka MK, Afzalpurkar S, Ghoshal UC, et al. Impact of COVID-19 on gastrointestinal endoscopy practice in India: a cross-sectional study. *Endosc Int Open* 2020; 08: E974–E979. doi:10.1055/a-1181-8391
- He X, Lau EHY, Wu P, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nat Med* 2020; 26: 672–675. doi:10.1038/s41591-020-0869-5