

## Original Article

## Colonoscopy: A Clinical Audit of Indications and Diagnosis. A 5-year Data Analysis in a Tertiary Care Centre.

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### Abstract

**Objective:** This clinical audit is performed to evaluate the indications for lower GI endoscopy, assess the diagnostic yield, and identify the prevalence of lower GI diseases in a tertiary care center.

**Methods:** This study of 295 patients was done at Department of Medicine/Gastroenterology, Ghurki Trust Teaching Hospital Lahore. A dedicated team, including experienced Gastroenterologist/Endoscopists, nurses, and data analysts, undertook a comprehensive review of lower GI endoscopy records. Comprehensive criteria for indications, and disease diagnoses was established, as per clinical guidelines. Data was analyzed using SPSS Statistics version 24.

**Results:** Out of 295 patients, 177 (60%) were males and 118 (40%) were females. Mean age of male patients was 46 (17-68) years while the mean age of female patients was 42(19-62) years. The commonest age group in males and females was 51-60 years. While in age group of 20-30 a significant number of patients were seen. Bleeding PR was the most common primary indication for most of LGIE (n=105/295) (35.5%) followed by Diarrhea (n=101/295) (34.2%). Normal LGIE was the most common outcome in males (29.3%) and females (33.0%) while Hemorrhoids was the second common pathology in males (17.5%) while Non-specific Colitis (22%) in females. Diverticulitis was the least common pathology in both male and female patients.

**Conclusion:** This clinical audit contributes to a more informed and evidence-based approach to LGIE. Bleeding PR and Diarrhea work-up were the most common indications and normal exam was the predominant finding. By evaluating indications, diagnostic efficacy, and diagnosis, we aim to optimize the utilization of colonoscopy, enhance diagnostic precision, and improve patient outcomes for those with lower GI disorders.

**Keywords:** Endoscopy, LGIE, Bleeding PR, Diarrhea

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### Introduction

Colonoscopy is an important investigation in the assessment of colonic diseases<sup>1</sup> and represents the gold standard diagnostic procedure for colorectal cancer screening and diagnosis, with a sensitivity of 95%.<sup>2</sup> Its utilization is enhanced due to its therapeutic benefits in the form of polypectomy, dilatation, electrocoagulation, EMR/ESD and stent placement.<sup>3</sup> Indications for colonoscopy include colorectal cancer screening in persons over the age of 50 years, family history of colorectal cancer, familial adenomatous polyposis (FAP), hereditary nonpolyposis colon cancer (HNPCC), and blood per rectum or blood mixed in stool.<sup>4</sup> Colonoscopy is associated with various complications as well. One of the most serious complications associated is intestinal perforation which may

lead to spillage of gut contents into the abdominal cavity, with a high mortality rate as high as 5%.<sup>5</sup> Technical knowledge and experience of procedure is a big reason for this but certain risk factors such as the size of polyp, anticoagulants usage, comorbidities, and use of certain drugs including aspirin/clopidogrel or NSAIDs may also influence the outcome of the procedure.<sup>6</sup>

Previously available studies from Pakistan have discussed the findings of colonoscopy in tertiary care hospital settings. Ghurki Trust Teaching Hospital is also a tertiary care hospital but is unique in the sense that it caters to the rural areas of Lahore. Rural areas are different from urban areas in the form of dietary habits and daily lifestyles. So, in this study, we determined the indications and findings of patients referred to GTTH from a rural

background. This may give a good database for planning of future resources and fund allocation for this cohort of patients.

## Methods

This was a retrospective review of the records of all patients who underwent LGIE in the gastroenterology ward of GTTH from Dec 2018-Dec 2023. The data variables collected for each patient were age, gender, indications, and endoscopic findings. Olympus endoscope system was used as a standard for Colonoscopy. Procedures were performed after 48 hours of preparation on clear fluids and PEG solution. Informed written consent was obtained. Procedures were done under propofol cover, mostly out-setting patients who either came to outdoor department or referrals from other private clinics. Biopsy and Polyp removal was done as needed. Patients were observed for approximately one hour post procedure for any complication.

SPSS version 24 was used for data entry and analysis. Descriptive variables were expressed as frequencies and percentages. Alarm symptoms were recognized as bleeding PR, weight loss, and severe iron deficiency anemia. The probability of picking up a positive finding on LGIE was expressed as Odds ratio (OR) with 95% confidence intervals. The level of significance was set at  $p < 0.05$ .

## Results

During the study period of five years, 295 patients were selected for colonoscopy. Out of these patients 177(60%) were male and 118 (40%) were female. Mean age of Male patients was 46 (17-68) years while mean of female patients was 42(19-62) years. The commonest age group in males was 21-30 years and 51-60 years.

Bleeding PR was the most common primary indication for most of LGIE (n=105/295) (35.5%) followed by Diarrhea (n=101/295) (34.2%). Normal LGIE was the most common outcome in males (29.3%) and females (33.0%) while Hemorrhoids was the second common pathology in males (17.5%) while Non-specific Colitis (22%) in females. Diverticulitis was the least common pathology in both male and female patients.

**Table 1:** Comparison of Gender with reference to age

Age Range (years)	Male (n)	%	Female (n)	%
10-20	17	9.6	11	9.3
21-30	40	22.5	24	20.3
31-40	33	18.6	23	19.4
41-50	26	14.6	18	15.2
51-60	30	16.9	24	20.3
>60	31	17.5	18	16.1
Total	177	60 %	118	40 %

**Table 2:** Indication among patients

Indications	Number of patients n		Total	Percentage %
	Male	Female		
Anemia Work up	09	05	14	4.7 %
Abdominal Pain	38	40	78	31.8 %
Diarrhea	59	42	101	34.2%
Bleeding PR	58	47	105	35.5%
Altered Bowel habit	07	05	12	4.06%
Constipation	18	12	30	10.1%
Weight loss	21	11	32	10.8%
Malignancy workup	07	06	13	4.4%
Multiple Complaints	45	33	78	26.4%

**Table 3:** Endoscopic outcomes among patients

Endoscopic Findings	Number of patients n		Total	Percentage %
	Male	Female		
Inflammatory Bowel Disease	15	14	29	9.8 %
Growth Colon	15	17	32	10.8 %
Non-Specific Colitis	28	26	54	18.3%
Hemorrhoids	31	08	39	13.2%
Diverticulosis	02	01	03	1.01%
Polyps	11	02	13	04.4%
Solitary rectal Ulcer	16	16	32	10.8%
Normal Lower GI Exam	52	39	81	27.4%

## Discussion

All major GI guidelines advocate colonoscopy for screening of Colorectal Carcinoma in patients older than 50 years. Colonoscopy is also used for screening families with Familial Adenomatous Polyposis FAP, Hereditary Non-polypoid Colon Cancer HNPCC, and workup of occult blood in the stool of patients under the age of 50<sup>2</sup>. Its importance is further enhanced when it is used for its therapeutic potential.<sup>3</sup> In this study we evaluated patients with lower GI symptoms in a tertiary care centre which mainly attracts patients from rural suburbs of Lahore and Qasur District. No study in previous literature was found where colonoscopy findings were evaluated with this intent.

In our study, males (60%) were the most common patients who underwent colonoscopy. This demographic feature was consistent with the finding of Betes M et al.<sup>7</sup> and Imperial T et al.<sup>8</sup>. These studies also showed more male patients undergoing Colonoscopy, with Lower GI symptoms. In an Iranian study<sup>9</sup> more female patient's cohort was studied but the difference was just 4% i.e 52% female and 48 % male. In a study from Sindh Pakistan 56% of studied population were males which is close

to our data.<sup>10</sup>

Another important observation was that most patients in our study were between 50-60 years old, in both genders. It means that most of GI disorders present in middle and late groups. While only 17% patients were more than 60 years old. It is in quite agreement with study by Bowles, et al<sup>11</sup> where age range was 14.1% of them were more than 60 years old.

Two most common indications of colonoscopy in our study were Evaluation of Diarrhoea and PR bleed. It is in close agreement with study done by Mohammad et al<sup>10</sup> where the major indication of evaluation was also Bleeding PR. It all depends on the centre where procedure is being done. In studies which were done in centres where more patients were referred from Oncology departments, indications were evaluation of primary source or workup for anaemia, like a study done at King Hussain Medical Center of Jordan.<sup>12</sup>

Endoscopic findings in our study showed marked agreement to previous work. Our most common finding was a normal colonic examination. Which means that in spite of various indications it was a negative procedure. These negative results are as valuable as the positive observations, providing relief to both the patient and physician. However, our results were more similar to Amjad et al<sup>13</sup> and Bowels et al<sup>11</sup> studies where normal colonoscopies were 38% and 42%. Our normal endoscopy findings were in 27 %. Although it is less than previous mentioned work but still than it was the most common finding. Second most common finding was non specific colitis, followed by Growth Colon, Rectal Ulcer and IBD with an average of 10% each, while Hemorrhoids were present in 13%, usually in combination with other findings. Our finding was in agreement with study by Thiis Evensen et al<sup>14</sup> where hemorrhoids were found in 12 % of studied population while it was in contrast to the work done by Muhammad et al<sup>10</sup> where 32.5 % patients had Hemorrhoids. This variation may be due to dietary habits and the lifestyle of studied population.

Our study to the best of our knowledge is a first from the Punjab rural area, providing useful data of indications and findings regarding pathologies found in colonoscopies. The study has its own limitations in terms of a small sample size and retrospective design. Further prospective large scale multi-center trials will be needed to consolidate the findings available from rural Punjab areas of Pakistan on colonoscopy findings.

## Conclusion

Our clinical audit contributes to evidence-based approach to LGIE. Bleeding PR and Diarrhea work-up were the most common indications and normal exam

was the predominant finding. By evaluating indications, diagnostic efficacy, and diagnosis, we aim to optimize the utilization of colonoscopy, enhance diagnostic precision, and improve patient outcomes for those with lower GI disorders.

**Conflict of Interest:** *None*

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