Inflammatory Bowel Disease in Developing World: Prevalence, Clinical Presentations, Diagnostic and Therapeutic Challenges

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ABSTRACT

INTRDUCTION: Inflammatory bowel disease (IBD) is a chronic inflammatory disorder of gut, unfortunately true prevalence and initial symptoms presentations of the patients are still unknown in many developing areas of World.

OBJECTIVE: To determine the prevalence, clinical presentations and study the challenges faced during diagnosis and management of patients suffering from inflammatory bowel disease in developing world.

METHODOLOGY: The prevalence of the IBD is calculated. Multiple symptoms and questionnaire were recorded at the time of enrollment. Frequencies of presenting symptoms are measured to determine frequency of diagnosis and follow-up treatment.

RESULTS: The most common presentation of the patients was chronic diarrhea (37.7%) following altered bowel habits (21.8%) and bleeding (18.2%). 51.4% individuals belongs to the middleclass families while 40% in lower class. The ulcerative colitis diagnosed in our study was 35.9% while patients with Crohn's disease were 36.8%. 15.5% of IBD population was smokers. Mayo score resulted in 50.9% individuals with grade 3 and 44.1% showed grade 2 scale. While true love wits score depicts severe results in 53.6% individuals.

CONCLUSION: Rural regions appear to have a higher prevalence of inflammatory bowel diseases than metropolitan areas, as do lower and medium socioeconomic strata.

INTRODUCTION:

IBD incorporate ulcerative colitis (UC) and Crohn's diseases (CD), are two long standing disorders with relapsing and remitting problems that come up short on a lasting helpful therapy and can bring about extensive longterm morbidity. UC is restricted to the colon and fundamentally influences the mucosal and, less significantly, submucosa. CD, then again, can

influence any area of the gastrointestinal tract, from oral cavity to anal canal, and may influence all layers of the gut[1]. While the causes behind the formation of IBD remain unknown, these linked disorders have long been viewed as a problem of our civilizations, with the eastern way of life playing a significant role in their aetiology. IBD is increasing in prevalence in underdeveloped nations and is increasingly being viewed as a worldwide disease[2].

Despite the scarcity of epidemiological data from developing countries, it is now obvious that both the incidence and prevalence of inflammatory bowel disease (IBD) are increasing globally. Younger populations in industrialized cities are disproportionately affected. Additionally, it is well established that IBD is related with a significant increase in the risk of colorectal cancer (CRC), particularly after 8–10 years of active disease[3,4].

AlthoughUC and CD diseases show distinctive pathologic and clinical highlights, their etiology and biopathogenesis stay obscure. CD is discernable from UC clinically by ailment proximal to the colon, perineal sickness, fistulas, histologic granulomas, and full-thickness illness instead of mucosa-submucosa-restricted infection. Granulomas and fistulas are available in up to half of patients with CD. Although susceptibility genes for IBD have been identified (for example, NOD2 gene variants)propels in characterizing explicit natural danger factors incorporate an abundance of aberrant proof proposing that smoking, oral contraceptives, diet, appendectomy, breastfeeding, anti-infection agents, inoculation, diseases, and youth cleanliness may all be included[5,6].

However, none of these factors fully account for the environmental determinants of IBD to far, and the majority of studies report conflicting findings, necessitating future research to better understand the aetiology and biopathophysiology of IBD[7]. IBD is believed to occur as a result of an interplay between a genetically susceptible host and environmental variables that alter the normal gut flora and induce an abnormal mucosal safe framework reaction (counter acting agent antigen response against the typical mucosal obstruction). Ongoing measurements demonstrate that kids and youths have the most elevated commonness of IBD with around 25% to 30% of patients with CD and 20% of patients with UC introducing before the age of 20[8].

Patients with inflammatory bowel disease (IBD) experience considerable social, psychological, and economical consequences, as well as a decreased health-related quality of life[9].Due to the increasing prevalence of inflammatory bowel disease (IBD) worldwide, the economic impact/burden on the healthcare system and the economy as a whole will continue to grow. As a result, it is critical to begin planning for the main needs of patients with inflammatory bowel disease (IBD) in the developing world, notably in terms of correct diagnosis and care, as well as the extra impact of the high cost of emerging medication therapies[10,11].

Longobardi et al[7] found that patients with IBD who have been diagnosed for less than 5 years have a higher rate of emergency room visits, hospitalizations, and surgical interventions than non-IBD controls. Additionally, there is a noticeable infrastructure divide between urban and rural population centers in terms of access to care. I cover the global epidemiology of

inflammatory bowel disease (IBD) in this paper and examine the role of the industrializedurbanized environment and developing nations as prospective risk factors for IBD.

METHODOLOGY:

Design: Cross-sectional observational study

Place & duration of study: Department of Gastroenterology Ittefaq Hospital Trust, Lahore.

Sample size: The sample size is calculated using WHO software "Sample Size Determination in Health Studies", keeping 95% confidence interval, 5% margin of error and considering outcome like prevalence of ulcerative colitis as 43% and suggested to enroll **n=220 patients** for study.

Inclusion criteria:

- Both male and female adults age more than 13 years.
- Previously undiagnosed or suspected cases with symptoms suggesting IBD.
- Duration of symptoms > 6 months.

Exclusion criteria:

- Ongoing renal impairment Serum Creatinine > 3mg/dl,
- Electrolyte imbalance
- Acute fulminant colitis or toxic mega colon.
- Suspected perforation or occult perforation.
- Acute intestinal obstruction.
- Bowel surgery within last 6 weeks.

RESULTS:

The mean age of the patients is 46.2 years with an standard deviation of 20.51
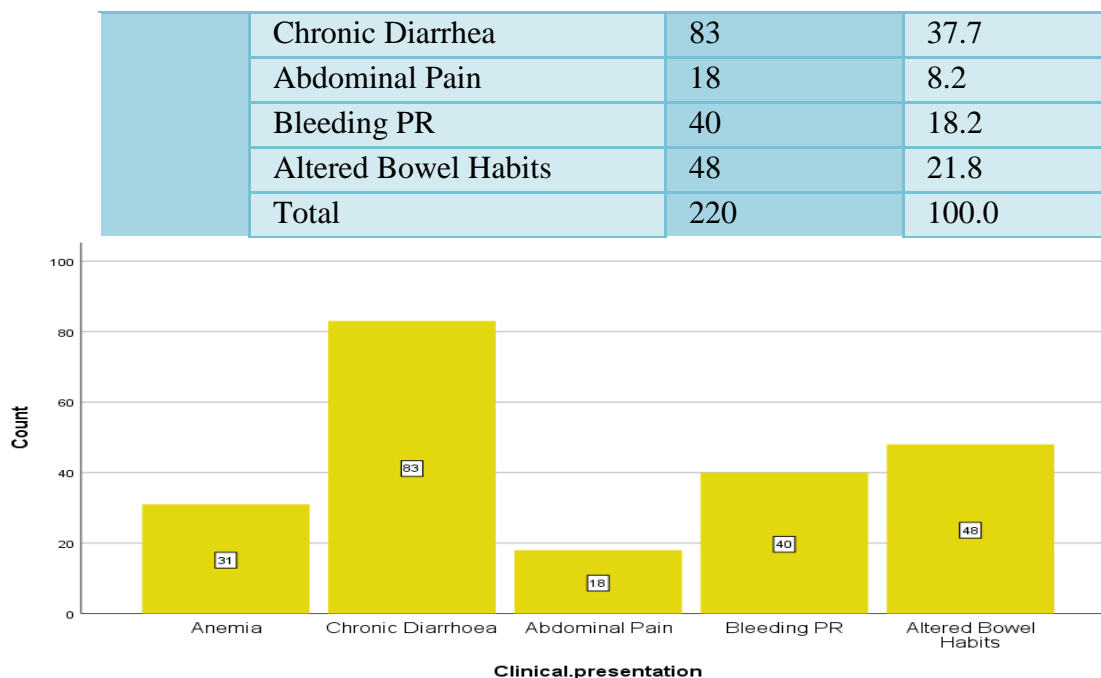
Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	220	12	94	46.20	20.516

The number of individuals participated in the study were 122 males and 94 females

GENDER		Frequency	Percent
Valid	M	122	55.45
	F	94	42.72
	Total	220	100.0

The symptoms with which patients reported to the out patient department were:

CLINICAL PRESENTATION		Frequency	Percent
Valid	Anemia	31	14.1

	Chronic Diarrhea	83	37.7
	Abdominal Pain	18	8.2
	Bleeding PR	40	18.2
	Altered Bowel Habits	48	21.8
	Total	220	100.0

History of smoking was found in 34 individuals:

SMOKERS		Frequency	Percent
Valid	Yes	34	15.5
	No	186	84.5
	Total	220	100.0

The patients with inflammatory bowel disease belong to the below socio economic categories:

SOCIO ECONOMIC STATUS		Frequency	Percent
Valid	lower class	88	40.0
	middle class	113	51.4
	upper class	19	8.6
	Total	220	100.0

The recorded duration of symptoms of patients were:

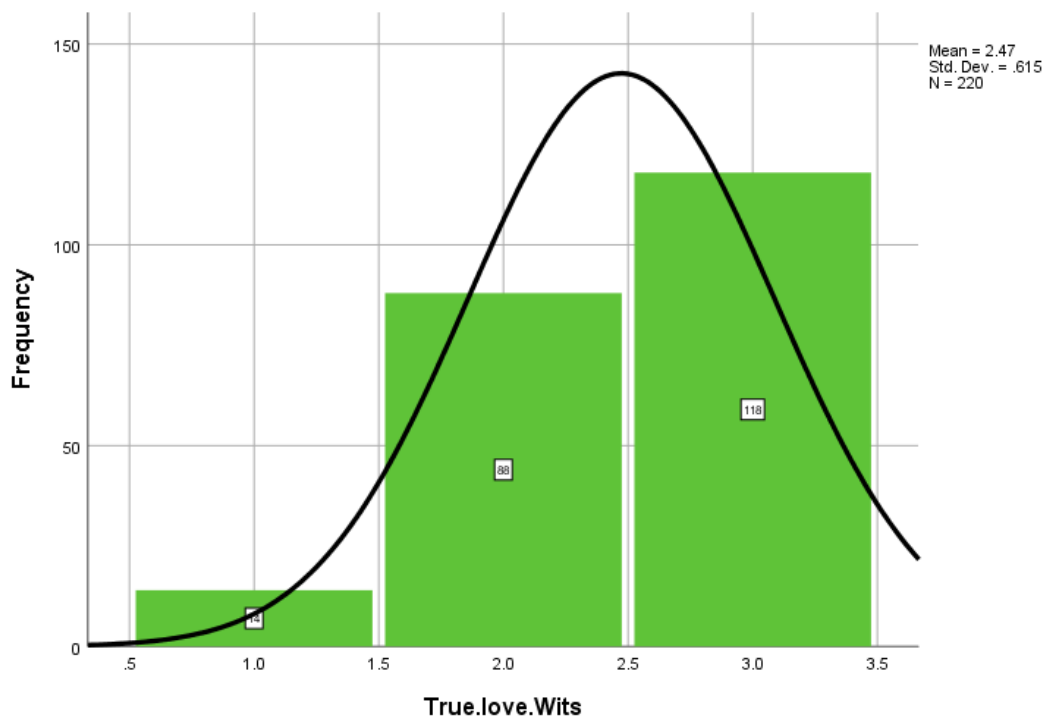| DURATION OF SYMPTOMS		Frequency	Percent
Valid	<6	75	34.1

| | >6 | 145 | 65.9 |
| | Total | 220 | 100.0 |

Family history of IBD showed in 28.6% of participants

FAMILY HISTORY		Frequency	Percent
Valid	Yes	63	28.6
	No	157	71.4
	Total	220	100.0

The true love wits score showed the following results:
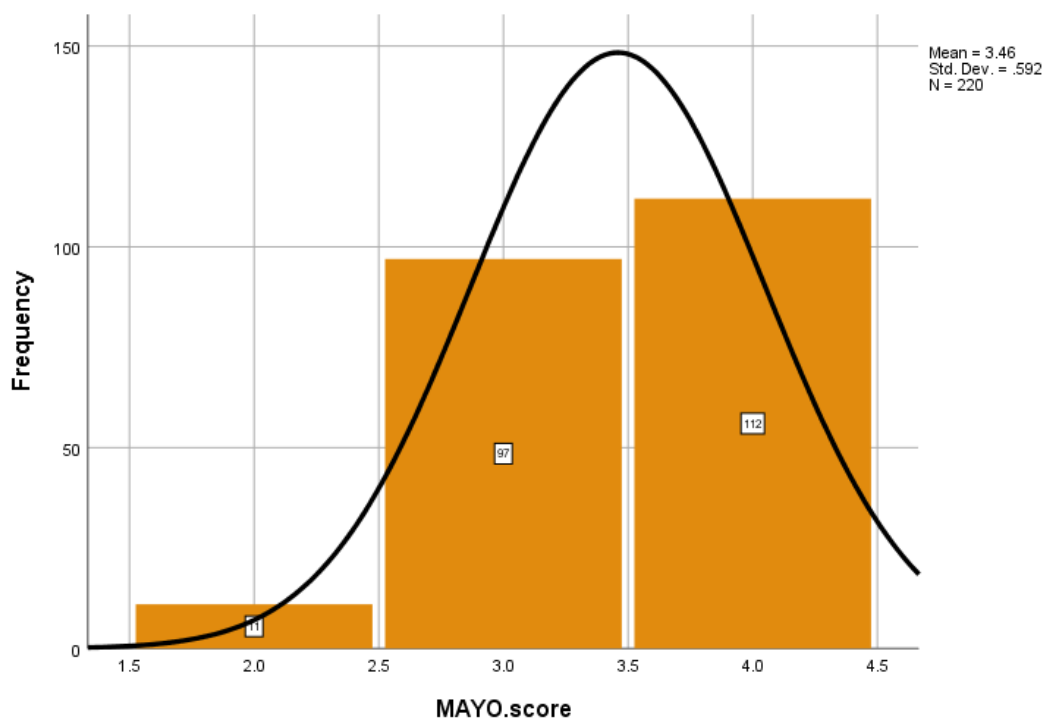
TRUE LOVE WITS		Frequency	Percent
Valid	Mild	14	6.4
	Moderate	88	40.0
	Severe	118	53.6
	Total	220	100.0

The mayo score results the following scale:

MAYO SCORE		Frequency	Percent
Valid	1	11	5.0
	2	97	44.1
	3	112	50.9
	Total	220	100.0

The histopathology severity was seen in following individuals:

HISTOLOGY SEVERITY		Frequency	Percent
Valid	Mild	18	8.2
	Moderate	106	48.2
	Severe	96	43.6
	Total	220	100.0

Final diagnosis showed patients with ulcerative colitis(35.9%) and crohn disease(36.8%)

FINAL DIAGNOSIS		Frequency	Percent
Valid	UC	79	35.9

CD	81	36.8
Malignancy	16	7.3
TB	44	20.0
Total	220	100.0

DISCUSSION:

Recent findings indicate that the incidence and prevalence of inflammatory bowel disease (IBD) have been growing in Asia. Wei et al. conducted an epidemiologic study of inflammatory bowel disease (IBD) in Taiwan from 2008 to 2018. They discovered an increase in the incidence of CD from 0.19/100,000 to 1.78/100,000 and UC from 0.61/100,000 to 7.62/100,000. These findings may be explained by urbanization, lifestyle modifications, food, and better diagnostic techniques such as endoscopy with highly selected biopsies with histopathologies. As a result, IBD has become a significant issue for Asian people[15,16].

When IBD categories were compared for prevalence, UC appeared to be more widespread than CD (202/100,000 vs. 146/100,000). In our investigation, we discovered that the UC and CD ratios were comparable. Numerous cohort studies demonstrate that females outnumber males in CD and males outnumber females in UC. Worldwide, the sex distribution of IBD has continually been markedly different. According to earlier studies, IBD is a male-predominant disease in Asia. Additionally, we discovered a male predominance in our current investigation (55.45% males and 42.72% females). These rates were greater than those found in earlier Asia-Pacific studies, which found that male patients accounted for 59.6 percent of CD cases and 57.7 percent of UC cases. Male patients, on the other hand, accounted for 73% of CD cases in a Korean study[15,16,17].

In our study, the most common clinical presentation in patients of inflammatory bowel disease was chronic diarrhea (37.7%), altered bowel habits (21.8), bleeding PR (18.2%). 8.2% reported with abdominal pain and the least complaint recorded was anemia in IBD patients.
In terms of IBD diagnosis, the highest age of onset for CD was between 20 and 30 years, while for UC, it was between 30 and 40 years. Our patients were diagnosed with 46.2 years of mean with a standard deviation of 20.5. A consistent trend was identified in which individuals with CD were diagnosed at a younger age than patients with UC[20]. Nonetheless, no significant difference in age was observed between patients with CD and those with UC. The explanation for this could be due to the tiny quantity of our patients. While the patients reporting to the out patient department recorded with symptoms of more than 6 months(65.9%) in our investigation1[8,19].
While smoking is an established preventive factor against UC, it is also a risk factor for CD. Cigarette smoking prevalence was also associatedwith lower pay levels in America, Europe, and Asia. Birrenbach and Bocker revealed a wide scope of cigarette utilization pervasiveness rates in patients with inflammatory bowel disease (CD: 39–72 percent, UC: 11–23 percent) and discovered that nonsmokers were more prevalent in UC patients than in CD patients. Our

investigation discovered that 15.5 percent of patients with IBD were current smokers, which was significantly higher. In Asia, men are more likelyto smoke than ladies. This expanded smoking rate in patients with CD might have added to the bigger number of male patients in our investigation; however, additional research is necessary to substantiate this hypothesis. Smoking was found to be a protective factor against UC in several Asian cohort studies[20,21,22].

While going through the severity of histology in our study, 48.2% of population showed moderate results whereas, 43.6 demonstrated severe histopathology. Mayo score depicted 50.9% with grade 3 and 44.1% individuals showed grade 2 scale. We discovered muchless information on alcohol use than on tobacco use among people with infection (IBD) in the English literature24. alcohol utilization was demonstrated to be less predominant in our outcomes than in prior investigations (39.5 percent truly drinking and 46.9 percent binge drinking). Also, the proof showing that alcohol consumption fuels inflammatory bowel disease (IBD) remains ambiguous. Alcohol is a sulphur and sulphate generator, raising the concentration of faecal hydrogen sulphide (a toxin to colonocytes) in some studies. Patients with inflammatory bowel disease (IBD) in Asia have a lower positive family history rate (0.0–3.4%) than those in Western nations (10–25%). Our study's rate of positive family history of inflammatory bowel disease (28.6 percent) was consistent with other Asian publications. However, recent Asian studies have indicated an increased prevalence of positive family history in IBD patients, which may be due to increased awareness of IBD[25,26,27].

Eaden et al.[28] reported that the cumulative rate was 2%, 8%, and 18% in the first, second, and third decades, respectively. Our study found a 7.3 percent prevalence of malignancy in patients with inflammatory bowel disease (IBD), which is comparable to prior Asian studies. This low CRC incidence may be explained by the comparatively brief follow-up period in many Asian studies. As a result, we intend to continue to monitor our patients.

CONCLUSION:

As a result, IBD has developed into a worldwide disease. Really focusing on patients with IBD can be risky because of the illness' heterogeneity and the absence of consensus in numerous ranges of management. Medical care frameworks in most of developing nations face huge difficulties, as they much of the time need standard clinical oversight and research center appraisals important for patient checking, and will progressively battle to manage the cost of costly therapy (clinical and careful) to meet these patients' clinical requirements.

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