

Burden, Trends and Management Capacity of Gastrointestinal and Liver Diseases in India

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Introduction

The digestive tract (GIT) from the mouth to the anus moves food and accumulated secretions. It includes i) The upper gastrointestinal tract consists of the oesophagus, stomach and duodenum, ii) The lower gastrointestinal tract - the small intestine and all the large intestines. Forty percent of adults in the world, suffer from functional gastrointestinal disorders of varying severity, still many people think it's embarrassing to talk about stomach and bowel symptoms. Inflammatory Bowel Diseases (IBD), Gastroesophageal Reflux Disease (GERD), Hiatal Hernia, Duodenal Ulcer, Gastric Ulcer, and Crohn's Disease, are most common Gastrointestinal diseases reported in India. The most common types of liver infection are hepatitis viruses (Hepatitis A, Hepatitis B, Hepatitis C are) Alcoholic cirrhosis and Non-alcoholic fatty liver disease (NAFLD), a condition in which fat builds up in the liver are the common conditions reported in India [2]. GIT disorders can be as classified as acute (acute gastroenteritis, Cholera, etc) and chronic (amoebiasis, IBS etc), and the later are known as Functional gastrointestinal disorders (FGIDs). The symptoms of FGIDs depend upon the portion of the gastrointestinal tract like heartburn or acid reflux if oesophagus is involved, gastritis or indigestion (dyspepsia) if stomach is involved, and chronic constipation, abdominal distension or bloating and irritable bowel syndrome (IBS) if large intestine is involved [6].

Burden of GIL: Gastrointestinal and Liver (GIL) diseases necessitate 25% of all surgical operations and 50% of total consultations. GIT infections or disturbances are the commonest causes of absenteeism and disability in the productive age employees. Twenty million Americans suffer from FGIDs every year. While every child under five years has 3 episodes of acute diarrhoea on an average 40% of Indian adult population suffers from FGIDs (duodenal, gastric ulcers, constipation, bloating of abdomen) including 1 million IBS cases were reported in 2021 in India. It is estimated that IBS forms about 5% of general practitioner's patients, 10% of qualified physicians clients and 50% of Gastroenterology practitioners case load [3].

The routine statistics of GIL condition under ICD 10 classifications is very much under-reported under HMIS as it does not capture the data from private sector. Even the proportions of cause specific fatality rates of GIT infections are around 50% only under Integrated Disease Surveillance program (IDSP). There is no national wide representative evaluated report on the burden of gastrointestinal (GI) and liver diseases in India. Infectious GIT diseases accounted for 454 million of 490 million cases of GI and liver disorders in 2021 [4]. The most common was intestinal nematode infections (364 million 240 million children of 5 - 14 years and rest adults) through soil transmitted Helminths (STH) which include round worm (*Ascaris lumbricoides*), Whip worm (*Trichuris trichiura*) and Hookworm (*Ancylostoma duodenale* and *Nicator Americanus*). The prevalence of STH was 7.70%, *Ascaris lumbricoides* was highly prevalent 6.9% followed by Hook worm 0.7%, and *Trichuris trichiura* 0.2% in 5 - 4 years aged children of Coimbatore district, Tamil Nadu which has one of the best toilet

use rates [8]. 70% of children in 6 - 59 months are anaemic and one of the reasons is hook worm infestation in rural and tribal population [7]. This is attributable to poor sanitation facilities and prevailing open-air defecation. The bi-annual Deworming campaigns started since February 2015 in states with more than 20% prevalence. In February 2021 all states but for MP and Rajasthan had run the campaigns All eligible children were given 400 milligrams (mg) of Albendazole 2 times a day, taken with meals for 28 days (1 cycle). This is followed by not taking albendazole for 14 days, for a total of 3 cycles. For Adults weighing less than 60 kg-Dose is based on body weight and must be determined by their doctor. Prevalence (rates per 100,000) for all infectious diseases showed a decrease over time.

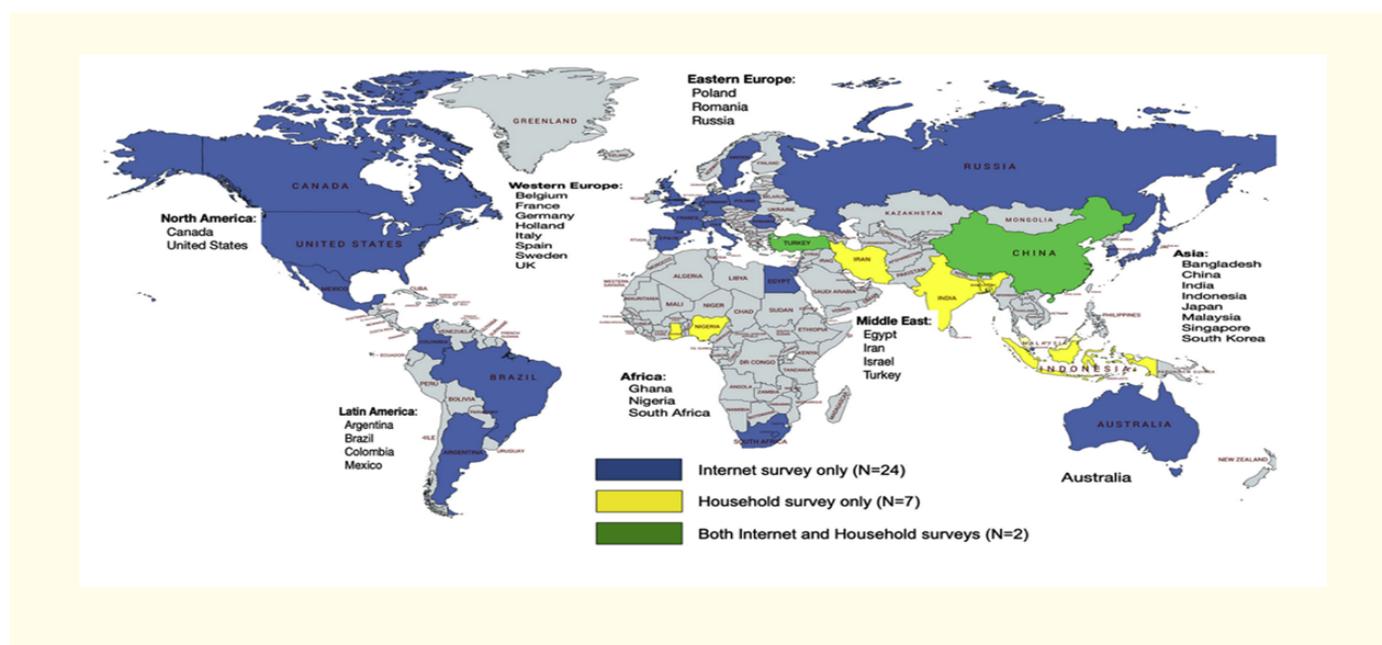
There were 950,000 newly diagnosed liver cancer cases and over 800,000 deaths in 2017, which is more than twice the numbers recorded in 1990. Among lifestyle diseases of India Liver disease follows diabetes and BP. Hepatitis B virus (HBV), hepatitis C virus (HCV), alcohol consumption, non-alcoholic fatty liver disease, are the main causes of this condition. HBV and HCV are the major causes of liver cancer. The average onset age and incidence of liver cancer have gradually increased since 1990's. Around a million liver cirrhosis cases is newly diagnosed every year in India. While some or the other liver disease affect 20-25% of the population, it is the tenth most common cause of death in India. Non-alcoholic fatty liver disease (NAFLD) with a prevalence rate of 9-32% across India is emerging as an important cause of liver disease in India exhibiting higher prevalence in those with overweight or obesity and diabetics or prediabetics.

Trends of GIL

The Global Burden of Disease (GBD) Study using the national data from 1990 to 2017, estimated the age-standardized prevalence, mortality, and disability adjusted life years (DALY) rates of GI and liver diseases inferred that there is a decrease in the overall burden from GI infectious disorders since 1990, but they accounted for the majority of DALYs in 2016. While prevalence and mortality rates for peptic ulcer disease, hernias, appendicitis, and stomach and oesophageal cancer have decreased, an increase in the prevalence and mortality rates for pancreatitis, liver cancer, paralytic ileus and intestinal obstruction, gallbladder and biliary tract cancer, vascular intestinal disorders, colorectal cancer and inflammatory bowel disease, gastritis and duodenitis, cirrhosis and other chronic liver diseases and gallbladder and biliary tract diseases were reported. The fact that despite there was an increase in prevalence but a decrease in mortality for almost all conditions except for pancreatic cancer speaks of the improved GI&L services in the country. Indian gastroenterologists and hepatologists attend to most urban patients with infectious diseases and manage the increasing number of GI and liver diseases, malignancies non-communicable non-malignant conditions, their services are still under-reached those in rural India.

A recent study, published in the journal *Gastroenterology*, of more than 73,000 people in 33 countries collected through web-based questionnaires and face-to-face interviews suggests that the prevalence of FGIDs was higher in women (49%) than in men (37%), and clearly associated with lower quality of life. The prevalence of FGIDs was also strongly associated with high consumption of healthcare, such as visits to the doctor and use of medication, but also surgery [6].

Super speciality diagnostic and management capacity capacities in India



As of early 2022, India can boast of having diagnostic capacities (qualifies human resource, equipment (ERCP, Endoscopy and Colonoscopy and other basic investigations) in all state capitals, (both public and Private sectors), district headquarters with medical colleges (nearly 50%). However, it is beyond the reach of an average Indian as a visit to such specialist costs between 20 - 50,000 INR or US \$ 275-675). India has 100+ Expert Liver Transplant Surgeons, 50+ NABH certified hospitals doing yearly 3000+ Successful Liver transplantations with an Over 90% Success Rate and facilities of Robotic and Laparoscopic Techniques and Expert Post Operative Care across the country mainly in state capitals. The annual report of MH & FW reported 2058 liver transplant from 1 January 2021 to 31 October 2021 as compared 1236 of the same reference periods in 2020 [3]. About 50 - 60% of liver transplant patients in India are from foreign countries as it costs much lower compared to western world. Average cost is about US\$ 5000 - 6000 in government and about 15000, 16000 US\$ in private hospitals.

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