# THE FREQUENCY OF CELIAC DISEASES AMONG PATIENT WITH SUSPECTED IRRITABLE BOWEL SYNDROME, A CROSS SECTIONAL INSTITUTED BASED STUDY

**Kalim Ullah Khan, Mehwish Ifithikhar, Imran Khan, Aamir Khan, Muhammad Zubair Khan, Said Amin**

## ABSTRACT

**Background**: Celiac disease has been shown to be a chronic intestinal disease which are caused by intolerance to gluten. It is characterized byenteropathy which are immune mediated, associated with mal-digestion and mal-absorption of most nutrients and vitamins. This occurs due to non-digestion of gluten. Its incidence has increased while many remain undiagnosed any may present atypically.

**Objective**: To determine the frequency of celiac disease in patients of suspected irritable bowel syndrome.

**Methodology**: A Cross-sectional study (Descriptive) in Department of General Medicine, Hayatabad Medical Complex, Peshawar from Feb 16, 2016 to Aug 15, 2016.

**Results**: In this study, 289 participantsof irritable bowel syndrome symptoms were studied. Female to male ratio was 0.88:1. The study included age ranged from 18 up to 60 years. Average age was 32.41years+2.78SD. The frequency of celiac disease in patients with suspected IBS shows that celiac disease was found in 51(17.65%).

**Conclusion:** Based on these findings, the irritable bowel syndrome may properly be managed so that to avoid the celiac disease.

**Key Words**: Celiac disease, Chronic diarrhea, Iron deficiency anemia, irritable bowel syndrome

## INTRODUCTION

Celiac disease has been considered to be achronicdisease of intestinal track which can betriggereddue ingestion of gluten containing food, this can be label as Gluten intolerance. This have been explained by the characteristics of immune-mediated enteropathy with bad digestion and thus impaired the absorption of most nutritional vitamins. This occursdue to the consumption of mealswhich contain a higher amount of gluten like wheat, rye and barley[1]. Celiac disease, onceregarded a rare, is now diagnosed in approximately 1% population[2]. Its incidencehas increased; even though most sufferers with the diseaseareundiagnosed[3]. The diseaseis genetically determined, with 10% of first-degree relativesare sufferer along with the 75% of monozygotic twins. Out Of effecteewith celiac disease, 95% are human leukocyte antigen (HLA) -DQ2 or HLA-DQ8positive[4].

The presence of GITsignsrelated to IBS is most commonreason for referral to agastroenterilogist. It is estimated that IBS influences about 10-20% of the US population[5] and comparable prevalence estimates have been mentioned in different countries[6,7]. The social effect of IBS is significant, and in the deterioration of health-related best of existence that sufferers with IBS approve [8-10]. IBS is part of a team of functional GI problems and is characterized with the aid of the lack of bodily abnormalities, biomarkers or reproducible or dependable radiological findings. Numerous diagnostic criteriahave been developed for IBS in atry to simplify and standardize their diagnosis. The Rome Committee, a group of specialists from a multinational consensus on purposeful gastrointestinal disorders, has created every other set of criteria, apparently to improve the excellent of clinical trials in the field of IBS[11]. Since its progress, the Rome criteria for IBS have been ultereda many times, depending on the evolution of the test with regard to the epidemiology, pathology and naturalhistory of the disease[12]. This disease is a gastrointestinal disorderof autoimmunity that sometime produce IBS-like signs and symptoms and has an estimated incidence of 0.7-1% in Western populations[13]. Of suffering of IBS, 7.3% was havingextraordinary outcomes on CD14 tests. The reason of the research is that it will determine the frequency of celiac diseaseamongst sufferers with suspected irritable bowel syndrome. The study will grant us with the nearby extent of the trouble amongpatientspresenting the set of clinicalaspectsstatedbelow and the results of this study. It will supply us anotion to proceed to work further on the lookup with altered clinicalfeatures if it is determined that theoccurrence of celiac disease is low compared with the on-hand literature or is notably high, lead us to maintain the identical suspicious characteristics. It is regardedexceptionally suspect for the subsequent analysis of celiac disease.

Department of Medicne MTI/HMC Peshawar

**Address for correspondence:**
**Dr. Kalim Ullah Khan**
Department of Medicne MTI/HMC Peshawar
Cell no# 03329285524
E-mail: kalim83@yahoo.com

## METHODOLOGY

In this cross-sectional study was performed in the Department of Medicine, Hayatabad Medical Complex, Peshawar, over 6 months of durations, from Feb 16, 2016 to Aug 15, 2016. Total of 289 patients of age range 18 to 60 years old and all the require signs and symptoms which may increase possibility of IBS were included in this study. All those patients who have history of immunodeficiency state, history of taking medications that alter bowel, Previous history of abdominal surgeries, history of pregnancy and breast-feeding, history of Inflammatory bowel disease, history of mal-absorption syndromes, psychiatric or behavioral disease or gastrointestinal and other disorders that may mask the symptoms were our exclusion criteria. Their history and physical examination and appropriate investigations as needed like Full blood count, serum albumin, serum calcium, blood sugar, thyroid function tests and celiac serology, upper GI endoscopy and colonoscopy were performed (if not done in last 5 yrs) to rule out organic gastrointestinal diseases were selected through consecutive sampling from OPD. After stabilization hemodynamicallypatientswere kept empty stomach for at least four hours before endoscopy. The patients were sedated with 10ml intravenous midazolam and a biopsy specimen was taken from the 2nd part of duodenum or jejunm. The specimen preserved in formalin was immediately sent to pathology department of the hospital for histopathological examination to detect celiac disease. All the biopsy reports were done by single experienced histopathologist having minimum of five years of experience. Celiac disease were diagnosed on the bases of increase in intraepithelial lymphocytes > 40/100 enterocytes along with crypt hypertrophy or crypt to villous ratio >1 and increase in the amount of intraepithelial lymphocytes and crypt hypertrophy and variable degree of villous atrophy.

## RESULTS

In this study, 289 patients presenting patients with suspected irritable bowel syndrome had observed, in which 135(46.71%) were male and 154(53.29%) were female patients. Female to male ratio was 0.88:1. (Figure 1)

Patients age was divided in four categories, out of which most presented in younger age i.e. less than or equal to 30 years which were 153(52.9%) while 53(18.3%) patients were in the age range of 31-40 years, 40(13.8%) were of age range 41-50 years and 43(14.9%) presented at age more than 50 years. The study included age ranged from 18 up to 60 years. Average age was 32.41years+2.78SD. (Table 1).

The frequency of celiac disease in our participant with suspected IBS shows that celiac disease was found in 51(17.65%) while 238(82.35%) were found non-celiac disease. (Figure 4).

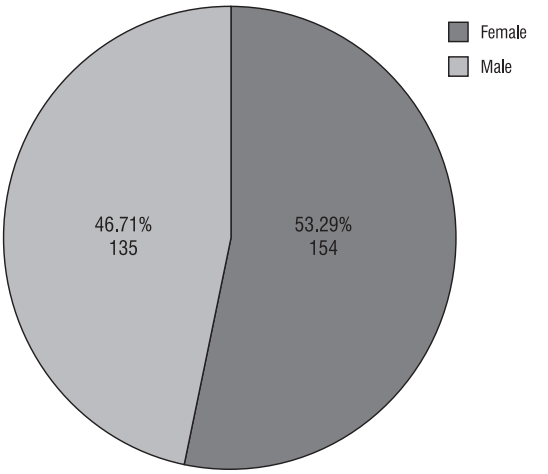


Figure 1: Distribution of the Patients, Gender.

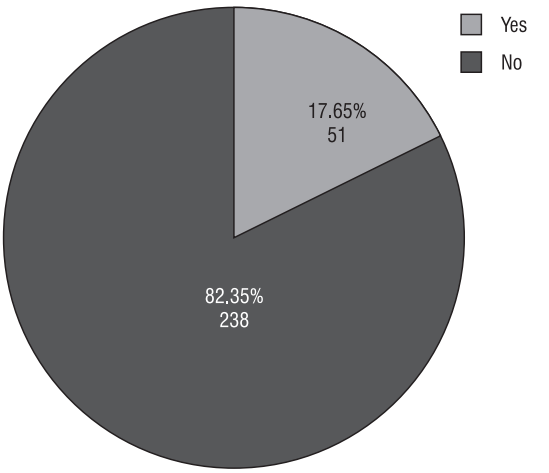


Figure 4: Distribution of Celiac Disease:

**Table 1: Distribution of the Participant, Age**

| | Frequency | Percent | Mean+SD |
|---|---|---|---|
| ≤30 | 153 | 52.9 | 32.41+2.78 |
| 31 – 40 | 53 | 18.3 | |
| 41 – 50 | 40 | 13.8 | |
| ≥51 | 43 | 14.9 | |
| Total | 289 | 100.0 | |

Age wise distribution of celiac disease shows that celiac disease was found in majority at younger and adolcent age group. Celiac disease was 14(26.4%) in 31-40 years of age while 39(73.6%) were not Celiac disease, 22(14.4%) patients were correctly diagnose as Celiac disease in age groups of less than or equal to 20 years. 131(85.6%) were not Celiac disease, 9(22.5%) Celiac disease were observed in the age range of 41-50 years while 31(77.5%) were not Celiac disease and 6(14%) cases have Celiac disease diagnosis in age range of more than 50 years of age while 37(86%) were

**Table 2: Age Wise Distribution of Celiac Disease**

| | | Celiac Disease | | Total | p-value |
|---|---|---|---|---|---|
| | | Yes | No | | |
| Age in years | ≤30 | 22 (14.4%) | 131 (85.6%) | 153 (100.0%) | 0.173 |
| | 31 - 40 | 14(26.4%) | 39 (73.6) | 53 (100.0%) | |
| | 41 - 50 | 9 (22.5%) | 31 (77.5%) | 40 (100.0%) | |
| | 51+ | 6 (17.6%) | 37 (86.0%) | 43 (100.0%) | |
| Total | 51(17.6%) | | 238 (82.4%) | 289 (100.0%) | |

**Table: 3 Distribution of Celiac disease, Gender.**

| | | Celiac Disease | | Total | p-value |
|---|---|---|---|---|---|
| | | Yes | No | | |
| Sex | Female | 31 | 123 | 154 | 0.152 |
| | | 20.1% | 79.9% | 100.0% | |
| | Male | 20 | 115 | 135 | |
| | | 14.8% | 85.2% | 100.0% | |
| | | 51 | 238 | 289 | |
| Total | | 17.6% | 82.4% | 100.0% | |

not Celiac disease. (Table 2). The majority of females i.e. 31(20.1%) were celiac disease while 123(79.9%) were not celiac disease and 20(14.8%) celiac disease were noted in male patients while 115(85.2%) were not celiac disease. This shows that gender have role over the celiac disease in patients with suspected IBS. (Table 3).

## DISCUSSION

Epidemiological research conducted in other part of the world in different IBSpatients has shown that the large proportion ofepidemiology of celiac disease is significantly underestimated. Greater suspicion of celiac disease determines a higher diagnostic rate[15] [16]. Others studiesreportedabout the diagnostic rate in defined geographical areas varies widely[17] [18]. Celiac disease is more likely diagnosed frequently in women[19]. The age atdiagnosis time varies considerably.It may be partial if the reporting institute focuses on an adult or childrengroups patients. A steady increase in age during diagnosis is evident in majority of populations[20]. An alternationin the presentation far from the typicalmalabsorbentresulted in a dramatic improvement in the diagnostic rate are evident at different points where data are presentsfor long time. Celiac disease is prevalent in many different populationswhich includeScandinavian,Italian,Irish,Spanish,Jewish and Palestinian. it has been reported that about 1 in 300 people inEuropean populationcan eventually develop celiac disease[21]. it can occur in any age both in childhood, juvenileor in adulthood. it is increasingly diagnosed even in elderly patients up to 20% of patients are over 60years at diagnoses [22-24].Some authors who areagree withour results the presentation of Celiacdisease in children is with usually diarrhea, swelling and poor development. But vomiting,anorexia, constipation and irritability are also common. Adolescents often have extraintestinal manifestations such as short stature neurological symptoms or anemia[25]. sanders et al. anti-gliaden antibodies measured IgAIgG and endomysium in 300 participants with suspected IBS along with 300 symptomatic controls withequal age/sex. positive tests were followed by endoscopic biopsies of duodenum. sixty-six 22% participants of suspected IBS had a positive test and 14 4.7% had histologicallyconfirmed celiac disease compared to two 0.7% of controls[26]. Another research from Iran conducted by Shahbazkhani et al showed that 12 11.4% of 105 patients with ibs showed celiac disease[27]; a frequency close to our findings at Hormozgan although we had no control group. other researchers also believe in testing patients with ibs for celiac disease. in a systematic review conducted by cash et al it was concluded that given the relatively high probability of celiac disease testing. routine serological tests can be justified in patients who meet the clinical criteria for ibs[28]. El-salhy and his colleagues recently reported a prevalence of 0.4% of histopathology-proven disease in 968 participants with NorwegianIBS in which all met the Rome iii criteria for ibs-d[29]. In the study by Katz et al. the celiac diseaseprevalence in Caucasians in the America[30]was 0.8% while Walker and his colleagues showedprevalence ofceliac disease almost 2% in a Swedish population[31]. we concluded the celiac diseaseoccurance in our participants is greater than shown by the latest systematic review meta-analysis describing the celiac disease occurance in patients with ibs[32]

## CONCLUSION

The school age group have a high prevalence of celiac disease and is asymptomatic. Many patients are still undiagnosed despite in the improvement in diagnostics tests. So the primary screening program is recommended in all school age children and also close relative of celiac disease patients. In IBS the celiac disease is sometime unrecognized so the screening test should also be implemented in patients with symptoms of IBS.

## REFERENCES


1. Klinink MI, wolfgang J. Goethe-University, Theodor-Stern-Kai. Orhanet J rare diseas. 20010;3:1186-95
2. Setty M, Hormaza L, GuandaliniS. Section of Gastroenterology, Hepatology and Nutrition, Department of Pediatrics, University of Chicago, Chicago, Illinois, USA. 2008;12(5):289-98.
3. NIH Consensus Development Conference on Celiac Disease. [Cited on: 2011, Jan 1]. Available on: consensus.nih.gov/2007/2007CeliacDisease118html.htm.
4. Maki M, Mustalahti K, Kokkonen J. Prevalence of celiac disease among children in Finland. N Engl J Med. 2011;348(25):2517-24
5. Ringel Y, Sperber AD, Drossman D. Irritable bowel syndrome. Annu Rev Med. 2011;52:319–38.
6. Wilson S, Roberts L, Roalfe A, et al. Prevalence of irritable bowel syndrome: a community survey. Br J Gen Pract. 2012;54(504):495– 502.
7. Hillilä MT, Färkkilä MA. Prevalence of irritable bowel syndrome according to different diagnostic criteria in a non-selected adult population. Aliment PharmacolTher. 2010;20(3):339–45.
8. Spiegel BM, Harris L, Lucak S. Developing valid and reliable health utilities in irritable bowel syndrome: results from the IBS PROOF cohort. Am J Gastroenterol. 2009;104:1984–91.
9. Longstreth GF, Wilson A, Knight K. Irritable bowel syndrome health care use and costs: a US managed care perspective. Am J Gastroenterol. 2011;98:600–7
10. Leong SA, Barghout V, Birnbaum HG. The economic consequences of irritable bowel syndrome: a US employer perspective. Arch Intern Med. 2013;163:929–35.
11. Kellow JE. Introduction: a practical evidence based approach to the diagnosis of functional gastrointestinal disorders. Am J Gastroenterol. 2010;105:743–46
12. Manning A, Thompson W, Heaton K. Towards a positive diagnosis of the irritable bowel syndrome. Br Med J. 2009;2(6138):653–4
13. Tjon JML, van Bergen J, Konig F. Celiac disease: how complicated can it get? Immunogenetics. 2010;62:641–51
14. Brooks D. Cash, Joel H. Rubenstein, Patrick E. Young, The prevalence of abnormal celiac antibodies and celiac disease in patients with suspected irritable bowel syndrome: a prospective multi-center US study, Gastroenterol. 2011 Oct; 141(4):1187–93.
15. Logan RFA, Tucker G, Rifkind EA. Changes in clinical features of coeliac disease in adults in Edinburgh and the Lothians 1960–1979. Br Med J. 1981;286:95–7.
16. Swinson CM, Levi AJ. Is coeliac disease under diagnosed? Br Med J. 1980;281:1259–60.
17. Ascher H, Kristiansson B. The highest incidence of celiac disease in Europe: the Swedish experience. J Pediatr Gastroenterol Nutr. 1997;24:S3–6.
18. Auricchio S, Greco L, Troncone R. What is the true prevalence of coeliac disease? Gastroenterol Int. 1990;3:140–2.
19. Ciacci C, Cirillo M, Sollazzo R, Savino G, Sabbatini F, Mazzacca G. Gender and clinical presentation in adult celiac disease. Scand J Gastroenterol. 1995;N30:1077–81.
20. Gumaa SN, McNicholl B, Egan-Mitchell B, Connolly K, Loftus BG. Coeliac disease in Galway, Ireland 1971–1990. Ir Med J. 1997;90:60–1.
21. Greco L, Di Donato F, Ansaldi N. Analysis of incidence trends: an example from the Italian cohort. In: Auricchio S, Visakorpi JK, eds. Common food intolerances 1, epidemiology of celiac disease. Basel, Switzerland: Karger;1992.p.25–34.
22. James MW, Scott BB. Coeliac disease: the cause of the various associated disorders? Eur J Gastroenterol Hepatol. 2001;13:1119-21
23. Catassi C, Ratsch IM, Fabiani E, Rossini M, Bordicchia F, Candela F, et al. Coeliac disease in the year 2000: exploring the iceberg. Lancet. 1994;343:200-3
24. Green PH, Jabri B. Coeliac disease. Lancet. 2003;362:383-91
25. D'Amico MA, Holmes J, Stavropoulos SN. Presentation of pediatric cellliac disease in the United States: prominent effect of breastfeeding. Clin Pediat. 2005;44:249-58
26. Sanders DS, Carter MJ, Hurlstone DP, Pearce A, Ward AM, McAlindon ME, et al. Association of adult celiac disease with irritable bowel syndrome: A case-control study in patients fulfilling the RomII criteria reffered to secondary care. Lancet. 2001;358:1504-8.
27. Shahbazkhani B, Forootan M, Merat S, Akbari MR, Nasserimogadam S, Vahedi H, et al. Celiac disease presenting with symptoms of irritable bowel syndrome. Aliment PharmacolTher. 2003;18:231-5.
28. Cash BD, Schoenfeld P, Chey WD. The utility of diagnostic tests in irritable bowel syndrome patients: A systematic review. Am J Gastroenterol. 2002;97:2812-9.

29. El-Salhy M, Lonholt-Beck B, Gunderson D. The prevalence of celiac disease in patients with irritable bowel syndrome. Mol Med Report. 2011;4(3):403–5.

30. Katz KD, Rashtak S, Lahr BD. Screening for celiac disease in a North American population:sequential serology and gastrointestinal symptoms. Am J Gastroenterol. 2011 epub ahead of print.

31. Walker MM, Murray JA, Ronkainen J. Detection of celiac disease and lymphocytic enteropathy by parallel serology and histopathology in a population based study. Gastroenterol. 2010;139:112–9.

32. Ford AC, Chey WD, Talley NJ. Yield of diagnostic tests for celiac disease in individuals with symptoms suggestive of irritable bowel syndrome: systematic review and meta-analysis. Arch Int Med. 2009;169:651–8.