Irritable bowel syndrome

Bibliographic reference	**Cash et al. (2011)**
Study type	Cross-sectional survey
Study quality	The Joanna Briggs Institute Prevalence Critical Appraisal Tool (http://ijhpm.com/article_2870_607.html) 1. Was the sample representative of the target population? YES 2. Were study participants recruited in an appropriate way? YES (consecutive sample recruited) 3. Was the sample size adequate? YES 4. Were the study subjects and the setting described in detail? YES 5. Was the data analysis conducted with sufficient coverage of the identified sample? YES 6. Were objective, standard criteria used for the measurement of the condition? YES 7. Was the condition measured reliably? YES 8. Was there appropriate statistical analysis? YES 9. Are all important confounding factors/subgroups/differences identified and accounted for? YES 10. Were subpopulations identified using objective criteria? NA Overall risk of bias = LOW
Country	USA
Number of patients	N=492 adult patients with suspected irritable bowel syndrome N=458 asymptomatic individuals
Study population	Inclusion: patients with symptoms suggestive of non-constipated inflammatory bowel syndrome (NC-IBS) who presented to 4 sites from 2003 to 2008 who did not have alarm features suggestive or organic disease (ie. unexplained weight loss, fever, significant GI bleeding or historical features such as family history of a first degree relative with colon cancer, CD, or IBD); patients fulfilled Rome II criteria for IBS based on their responses to a questionnaire administered at the clinic Exclusion: previous diagnosis with co-morbid conditions that could have explained their GI symptoms (ie. CD, colon cancer, IBD, scleroderma, small intestinal bacterial overgrowth, uncontrolled thyroid disease or diabetes), previous GI or intestinal surgery (large or small bowel) (except appendectomy or cholecystectomy); patients with alarm features, women who were pregnant or breast-feeding, patients who had undergone previous diagnostic testing for the IBS symptoms Patient characteristic:

	Suspected IBS (n=492)	Healthy controls (n=458)	p value

<table>
<tr><td></td><td>
<table>
<tr><td>Age (SD)</td><td>40.72 (12.94)</td><td>54.44 (7.81)</td><td><0.0001</td></tr>
<tr><td>Proportion female</td><td>69.92% (344)</td><td>41.27% (189)</td><td><0.0001</td></tr>
</table>
The study also reported that significantly more patients in the suspected IBS group were Hispanic (4.27% vs 1.53%, p=0.01) and significantly more patients in the suspected IBS group were single (ie. not married)(22.15% vs 14.41%, p=0.001; 64.43% vs 74.89% were married, p=0.001)</td></tr>
<tr><td>Control</td><td>Patients who underwent colonoscopy for cancer screening or polyp surveillance (all controls completed the Rome II questionnaire to rule out IBS; patients with IBS symptoms, a history of colorectal cancer or other organic GI disease were not eligible)</td></tr>
<tr><td>Length of follow-up</td><td>n/a</td></tr>
<tr><td>Details of coeliac testing</td><td>Serological tests (any test above the reference range was considered positive):
AGA IgG ELISA (reference range: < 10 U/ml)
AGA-IgA (reference range < 5/U/ml)
anti-human tTGA ELISA (reference range < 4 U/ml)
EMA IgA indirect immunofluorescence assay using monkey oesophagus as the substrate with reference range negative
Total serum IgA by nephelometry (reference range 44-441 mg/dl)

HLA-DQ2 and HLA-DQ8 were determined on PCR amplification and 72 probe hybridizations for the detection of allelic variants using proprietary methods

CD was defined as abnormal antibody test result and duodenal mucosal histology demonstrating villous atrophy and/or increased IELs</td></tr>
<tr><td>Results</td><td>Proportion of abnormal serological tests:
<table>
<tr><th></th><th>Suspected IBS (n=492)</th><th>Healthy controls (n=458)</th><th>p value</th><th>OR (95% CI)</th></tr>
<tr><td>Any abnormal serological test</td><td>7.3% (36)</td><td>4.8% (22)</td><td>0.25</td><td>1.49 (0.76, 2.90)</td></tr>
<tr><td>AGA IgG</td><td>4.9% (24)</td><td>3.0% (14)</td><td>0.70</td><td>1.19 (0.50, 2.79)</td></tr>
<tr><td>AGA IgA</td><td>1.6% (8)</td><td>1.8% (0.54)</td><td>0.54</td><td>1.41 (0.47, 4.22)</td></tr>
<tr><td>EMA</td><td>0.6% (3)</td><td>0.4% (2</td><td>0.66</td><td>1.65 (0.17, 15.42)</td></tr>
<tr><td>TTG IgA</td><td>1.2% (6)</td><td>0.4% (2)</td><td>0.15</td><td>3.87 (0.61, 24.74)</td></tr>
<tr><td>Total IgA (low)</td><td>0.6% (3)</td><td>0.7 (3)</td><td>0.93</td><td>0.93 (0.19, 4.62)</td></tr>
</table>
CD was confirmed on biopsy in 0.42% (4) of all study patients:
- 0.41% (2/492) with IBS
- 0.44% control group (2/468)
(p > 0.99; Fisher’s exact test)</td></tr>
<tr><td>Source of funding</td><td>Prometheus Laboratories, La Jolla, CA (who performed the testing) supported a study coordinator, NIH grant for one author</td></tr>
</table>

Conflicts of interest	22 authors have served as consultants to Prometheus Laboratories and another author is on the Speaker's Bureau of Prometheus Laboratories; all other authors have no conflicts of interest
Comments	

Definitions of abbreviations are given at the end of this document.

Bibliographic reference	**Cristofori, F. (2014)**
Study type	Cohort study
Study quality	The Joanna Briggs Institute Prevalence Critical Appraisal Tool (http://ijhpm.com/article_2870_607.html) 1. Was the sample representative of the target population? YES 2. Were study participants recruited in an appropriate way? YES (consecutive sample recruited) 3. Was the sample size adequate? YES 4. Were the study subjects and the setting described in detail? YES 5. Was the data analysis conducted with sufficient coverage of the identified sample? YES 6. Were objective, standard criteria used for the measurement of the condition? YES 7. Was the condition measured reliably? YES 8. Was there appropriate statistical analysis? YES 9. Are all important confounding factors/subgroups/differences identified and accounted for? YES 10. Were subpopulations identified using objective criteria? NA Overall risk of bias = LOW
Patient characteristics	Patients who presented at the paediatric department of University hospital Bari, Italy, for the diagnosis and follow-up of GI disorders consecutively referred for recurrent abdominal pain All children were managed according to the Rome III criteria. 992 children were evaluated; 782 were eligible; and 270 were diagnosed with IBS (201 with dyspepsia; 311 with functional abdominal pain) Exclusion criteria: • Functional gastrointestinal disorders • Gastroesophageal reflux disease • Gastritis • Lactose intolerance • Parasitosis • Inflammatory bowel disease

Co-existing condition	Irritable Bowel syndrome (IBS)
Investigations	Serum concentrations of IgA, IgA tTG, and EMA were tested and a duodenal biopsy was performed in the case of elevated serum antibodies Biopsy specimens were graded according to the Marsh criteria. Final diagnosis of CD was made on the presence of positive antibodies, positive HLA status, and villous atrophy (Marsh 3).
Results	12/270 patients with IBS had CD diagnosis (a further 3 with positive Iga tTG did not have histological evidence of CD). Prevalence = 4.4% (95% CI: 2.5 - 7.6)
Funding	Not listed
Other comments	None

Bibliographic reference	**El-Salhy et al. (2011)**
Study type	Cross-sectional survey
Study quality	The Joanna Briggs Institute Prevalence Critical Appraisal Tool (http://ijhpm.com/article_2870_607.html) 1. Was the sample representative of the target population? YES 2. Were study participants recruited in an appropriate way? NO – Unclear is consecutive sample recruited 3. Was the sample size adequate? YES 4. Were the study subjects and the setting described in detail? YES 5. Was the data analysis conducted with sufficient coverage of the identified sample? YES 6. Were objective, standard criteria used for the measurement of the condition? YES 7. Was the condition measured reliably? YES 8. Was there appropriate statistical analysis? YES 9. Are all important confounding factors/subgroups/differences identified and accounted for? YES 10. Were subpopulations identified using objective criteria? NA Overall risk of bias = MODERATE
Country	Norway
Number of patients	N=968 adults with irritable bowel syndrome

Study population	Inclusion: patients referred to the gastroenterology section of the Stord Helse-Fonna Hospital between December 2005 and December 2010 and that satisfied the Rome III criteria for IBS; those between 18 and 60 without organic gastrointestinal disease or clinical significant system disease Exclusion: pregnant women, those who had undergone abdominal surgery (except appendectomy, caesarean section or hysterectomy), patients with a history of mental retardation Mean 32 years old (range 18-59) 95% females
Control	n/a
Length of follow-up	n/a
Details of coeliac testing	Histopathological examination on gastroscopy and immunohistochemistry Anti-tTG IgA with mouse anti-human leucocytes CD45 (Dako, no.IS751) and second layer with biotinylated mouse anti-IgG (Dako)
Results	All but 7 had normal histology on biopsy. - 6 had Marsh 1 but subsequent biopsy after 3-6 months and 8 new biopsies revealed 3 were normal on histology and negative anti-tTG IgA an 3 with Marsh I had similar second biopsies and positive anti-tTG IgA - 1 had Marsh 3b Overall 4 patients (0.4%) were diagnosed with CD (1 had Marsh 3b and 3 had Marsh 1; aged 24, 20, 36 and 38 years)
Source of funding	Helse-Fonne grant
Conflicts of interest	Not reported
Comments	

Definitions of abbreviations are given at the end of this document.

Bibliographic reference	**Sanders et al. (2001)**
Study type	Case control
Study quality	The Joanna Briggs Institute Prevalence Critical Appraisal Tool (http://ijhpm.com/article_2870_607.html) 1. Was the sample representative of the target population? YES 2. Were study participants recruited in an appropriate way? NO – Unclear is consecutive sample recruited 3. Was the sample size adequate? YES 4. Were the study subjects and the setting described in detail? YES 5. Was the data analysis conducted with sufficient coverage of the identified sample? YES 6. Were objective, standard criteria used for the measurement of the condition? YES

	7. Was the condition measured reliably? YES 8. Was there appropriate statistical analysis? YES 9. Are all important confounding factors/subgroups/differences identified and accounted for? YES 10. Were subpopulations identified using objective criteria? NA Overall risk of bias = MODERATE
Country	UK
Number of patients	N=300 adults with IBS N=300 healthy matched controls
Study population	Inclusion: consecutive patients who fulfilled Rome II criteria for IBS
Controls	Age and sex matched healthy controls
Length of follow-up	None
Details of coeliac testing	IgG AGA, IgA AGA, EMA Biopsy if serologically positive
Results	22% (66) had positive serology 4.7% (14) of these patients had biopsy-confirmed CD vs 0.67% (2) controls who had both positive serology and biopsy-confirmed CD OR 7.0 (95% CI 1.7-28.0) (p=0.004)
Source of funding	
Conflicts of interest	
Comments	

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Bibliographic reference	**Sanders et al. (2003)**
Study type	Cross-sectional data
Study quality	The Joanna Briggs Institute Prevalence Critical Appraisal Tool (http://ijhpm.com/article_2870_607.html) 1. Was the sample representative of the target population? YES 2. Were study participants recruited in an appropriate way? NO – Unclear is consecutive sample recruited 3. Was the sample size adequate? YES 4. Were the study subjects and the setting described in detail? YES 5. Was the data analysis conducted with sufficient coverage of the identified sample? YES

	6. Were objective, standard criteria used for the measurement of the condition? YES 7. Was the condition measured reliably? YES 8. Was there appropriate statistical analysis? YES 9. Are all important confounding factors/subgroups/differences identified and accounted for? YES 10. Were subpopulations identified using objective criteria? NA Overall risk of bias = MODERATE
Country	UK
Number of patients	N= 1200 volunteers (123 with IBS)
Study population	Inclusion: volunteers over the age of 16 years who were recruited from January 1999 to June 2001 from 5 GP practices in South Yorkshire were screened for CD; those with IBS fulfilled the ROME II criteria for IBS
Controls	None
Length of follow-up	n/a
Details of coeliac testing	IgG/IgA AGA (ELISA) and EMA (indirect immunofluorescence using monkey oesophagus substrate and fluorescein isothianate conjugate-conjugated anti-human IgA [alpha chain specific, monkey absorbed] antibody) If positive for IgA AGA, EMA, or IgG if IgA deficient, biopsy was performed (using revised Marsh classification)
Results	3.3% (4/123; 95% CI 0.1-0.6%) of participants with IBS had biopsy-confirmed CD
Source of funding	Action Research
Conflicts of interest	The primary author is a training fellow for the Action Research
Comments	Study reported the overall prevalence of CD; patients were followed up to determine the affects of a GFD but this was not excluded here

Definitions of abbreviations are given at the end of this document.