

# GENDER DISPARITIES IN SYMPTOMS AND AUTOIMMUNE DISEASE IN CELIAC DISEASE PATIENTS: A POPULATION-BASED STUDY

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## Overview

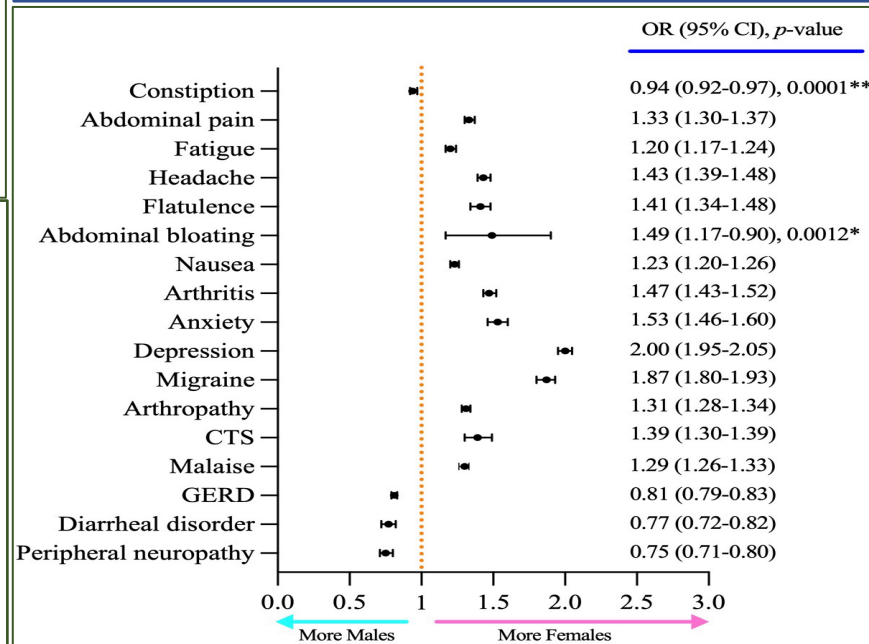
- Celiac disease (CD) is an immune-mediated inflammatory condition characterized by enteropathy after exposure to gluten.
- Previous studies suggest gender-based differences in symptom presentation and associated disorders, but this has yet to be explored on a large scale.
- As such we sought to investigate this area by querying a nationwide database.

## Methods

- Explorys Database.
- Patients (age >18 years) with a diagnosis of CD between 1999 to present.
- Based on gender, the study population was divided into two groups: Female and Male.
- Data on symptoms and autoimmune conditions were gathered.

## Results

- Of the 70,383,890 individuals in the database, we identified 136,690 (0.19%) patients with CD. In the CD cohort, the majority of patients were Caucasian 113,110 (83%), in age between 18-65 years old 97,220 (71%) and predominantly females 102,910 (75%).



B

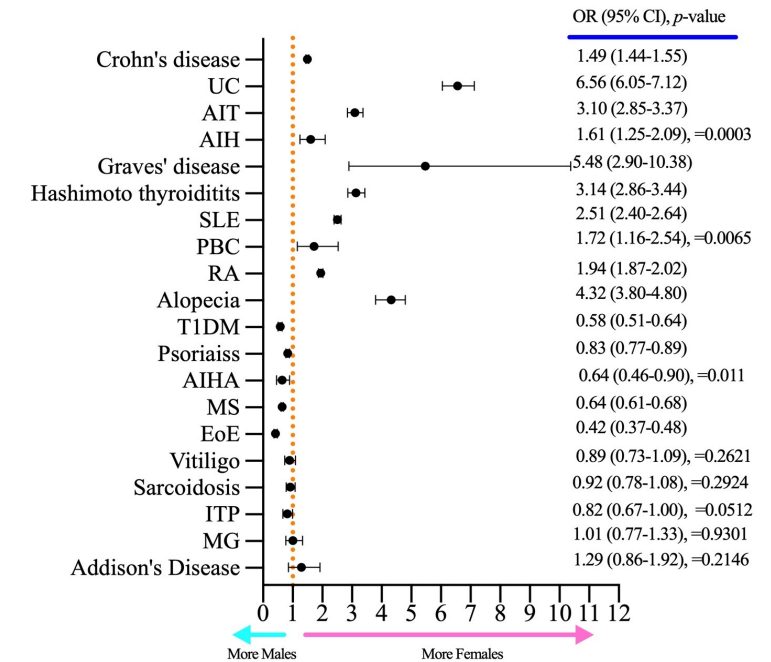


Figure 1: Forest plot of symptoms (A) and autoimmune conditions (B) in gender based-celiac disease patients. All p-values are < 0.0001 unless stated otherwise. Univariate analysis used to calculate OR. OR; odd ratio, CI; confidence interval. Abbreviations: CTS: Carpal tunnel syndrome, UC; ulcerative colitis, AIT; autoimmune thyroiditis, AIH; autoimmune hepatitis, SLE; systemic lupus erythematosus, PBC; primary biliary cholangitis, RA; Rheumatoid arthritis, T1DM; type1 diabetes, AIHA; autoimmune hemolytic anemia, ITP; idiopathic thrombocytopenic purpura, MS; multiple sclerosis, MG;myasthenia gravis EoE; Eosinophilic esophagitis.

## Discussion

- ✓ Significant gender-based disparities were found in this large scale nationwide study of celiac disease patients in the United States.
  - ✓ Females exhibited a wide variety of presenting symptoms.
- ✓ Autoimmune conditions were seen in both genders with high rates of concomitant Crohn's disease, lupus, and rheumatoid arthritis in particular.
  - ✓ These conditions were found at higher frequencies than type 1 diabetes which has a clear shared genetic susceptibility with celiac disease.
  - ✓ Further investigation into these gender differences and their impact on clinical management of celiac disease is warranted.