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PREVALENCE OF COMPLIANCE TO GLUTEN-FREE DIET IN PATIENTS OF CELIAC DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Society:** AGA**Track:** Stomach and Small Bowel Disorders**Author(s) and Affiliation(s):**

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**Background:** Strict and lifelong gluten-free diet (GFD) is the gold standard of care for patients with celiac disease (CeD). Many patients with CeD have inadvertent gluten consumption despite being on GFD. Assessment of compliance to GFD must be done using objective methods such as celiac dietary adherence test (CDAT), BIAGI score, standardized dietitian evaluation (SDE) or simpler methods as self-reported GFD compliance.

**Methods:** We performed a systematic review and meta-analysis to estimate the pooled compliance of GFD in CeD patients after at least 6 months of initiating GFD. Electronic reference databases were searched from 1<sup>st</sup> January 1990 to 31<sup>st</sup> July 2024. Retrospective, cross-sectional or prospective studies which reported GFD compliance either as a primary outcome or a secondary outcome were included in the analysis. The pooled effect size (95%CI) was calculated using a random effect model. The primary objective was to estimate the pooled prevalence of GFD compliance using objective methods (SDE, CDAT or BIAGI). Secondary objectives were to estimate pooled GFD compliance using self-reported assessment method and assess the variation of prevalence with age (children versus adults) and time. Meta-regression was also performed using relevant variables to study the factors which could affect GFD compliance among CeD patients.

**Results:** Total 106 studies including 44,502 subjects were included in the analysis. None of the studies had high risk of bias. No publication bias was found. Of 106 studies, 71 studies (including 26100 patients) reported GFD compliance using objective methods. Among these studies, the pooled estimate for the proportion of participants compliant to GFD was found to be 64% (95% CI: 60% - 69%,  $I^2 = 98.2%$ ) Studies using BIAGI's method for assessment reported higher GFD compliance 74% (95% CI: 64% - 83%,  $I^2 = 95.6%$ ) which was comparable to pooled prevalence of self-reported compliance (74%; 95% CI: 69% - 78%,  $I^2 = 98.4%$ ). Pooled GFD compliance among adults with CeD (64%; 95% CI: 58% - 69%,  $I^2 = 88.2%$ ) was comparable to the pooled GFD compliance estimated among children (63%; 95% CI: 50% - 75%,  $I^2 = 97.2%$ ). Over the last 3 decades, rates of GFD compliance have not changed significantly. On meta-regression, method of assessment of GFD compliance was the only significant co-variate which affected GFD compliance.

**Conclusions:** About one-third of CeD patients are not compliant to GFD. More research is needed to characterize those individuals likely to be non-compliant for better care in these patients.

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