**Depression Modifies the Association Between Gluten-Free Diet Adherence and Symptoms in Patients with Celiac Disease: Analysis of a Patient Powered Research Network**

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### Background: In patients with celiac disease, the effect of depression on the relationship between somatic symptoms and dietary adherence is not well understood. We used a newly-created patient powered research network (iCureCeliac™) to explore the effect that depression has on patients’ symptomatic response to a Gluten free diet (GFD).

**Methods**: We identified 519 adults with biopsy-diagnosed celiac disease who answered questions pertaining to symptoms (Celiac Severity Index CSI), GFD adherence (Celiac Dietary Adherence Test CDAT), and a 5-point scaled question regarding depressive symptoms

**Results**: Among 519 patients, 86% were female and the mean age was 41. Of these 519 patients, 46% indicated that they “somewhat,” “quite a bit” or “very much” felt depressed because of their disorder. Depression had a weak-to-moderate correlation with worsened symptoms (r=0.35, p <0.0001) and poorer GFD adherence (r=0.25, p <0.0001). There was a stronger correlation between worsened symptoms and poorer GFD adherence (r=0.6, p <0.0001). In those with a positive depression screen, there was a moderate correlation between worsening symptoms and worsening dietary adherence (r=0.5, p <0.0001) whereas in those without depression, the correlation was stronger (r=0.64, p <0.0001).

**Conclusions**: We found a moderate correlation between more severe celiac disease symptoms and depression and a weaker correlation between poor adherence and depression. Notably, in patients with a positive depression screen, correlation between worsening adherence and worsening symptoms was weaker, suggesting effect modification. Therefore, the presence of depression may mask the relationship between inadvertent gluten exposure and symptoms.