



Children's Hospital Colorado
Digestive Health Institute



Investigating the Effects of the COVID-19 Pandemic on Quality of Life and Anxiety and Depression-Related Measures of Psychosocial Wellbeing Among Pediatric Patients with Celiac Disease

Reema Amin BA², Edwin Liu MD¹ & Monique Germone PhD, BCBA¹

¹ Department of Pediatrics, Digestive Health Institute, University of Colorado School of Medicine, Aurora, CO

²University of Colorado School of Medicine, Aurora, CO



Introduction

- Celiac disease (CD) is a chronic autoimmune disease wherein intestinal damage occurs upon ingestion of gluten.⁵
- CD has been associated with poorer psychosocial functioning and an increased rate of psychiatric disorders in children, including mood disorders.¹
- Mental health services were ranked as one of the highest acuity needs for children and caregivers during the COVID-19 pandemic.²
- We examined the impact of the COVID-19 pandemic on children with CD to understand the intersectionality of pandemic-related factors and psychosocial impact of chronic disease.

Methods

- Participants:** 607 charts were reviewed; 157 pre-pandemic (PedsQL n=88, RCADS n=69) and 450 mid-pandemic (PedsQL n=259, RCADS n=193) (tables 1 and 2).
- Design:** Retrospective data from medical charts of patients seen in a tertiary celiac clinic at a Children's Hospital for time periods correlating with pre-pandemic (Aug. 2016 to July 2019) and mid-pandemic (Nov. 2020 to July 2022).
- Measures:** Caregiver-and patient-reported scores on 2 questionnaires:
 - Revised Children's Anxiety and Depression Scale (RCADS)**⁶; 47 questions, 6 subscales
 - Higher T-score values indicating increased symptoms of depression/anxiety (T<65 normal, T>65 borderline, T>70 clinically significant)
 - Pediatric Quality of Life, Core Scales (PedsQL)**⁵; 23 questions, 4 subscales
 - Scored 0-100, with higher scores indicating better quality of life
- Analysis:**
 - Wilcoxon Rank Sum test for numeric variables (non-parametric t-test)
 - Fisher's exact test for categorical variables (non-parametric Chi-squared test)

Results

Table 1: RCADS demographic data comparison

| | Pre-pandemic | Mid-pandemic | p-value |
|--------------------------------------|--------------------|----------------------|---------|
| Race (% white) | 94 | 86 | 0.513 |
| Ethnicity (% non-Hispanic) | 97 | 89 | 0.753 |
| Sex of child (% female) | 67 | 64 | 0.213 |
| Median ADI | 11 (range 4-59) | 16.5 (range 2-88) | 0.337 |

Table 2: PedsQL demographic data comparison

| | Pre-pandemic | Mid-pandemic | p-value |
|--------------------------------------|--------------------|--------------------|---------|
| Race (% white) | 91 | 85 | 0.244 |
| Ethnicity (% non-Hispanic) | 98 | 90 | 0.309 |
| Sex of child (% female) | 69 | 62 | 0.817 |
| Median ADI | 12 (range 4-70) | 16 (range 1-88) | 0.057 |

Figure 1: Patient-reported RCADS scores

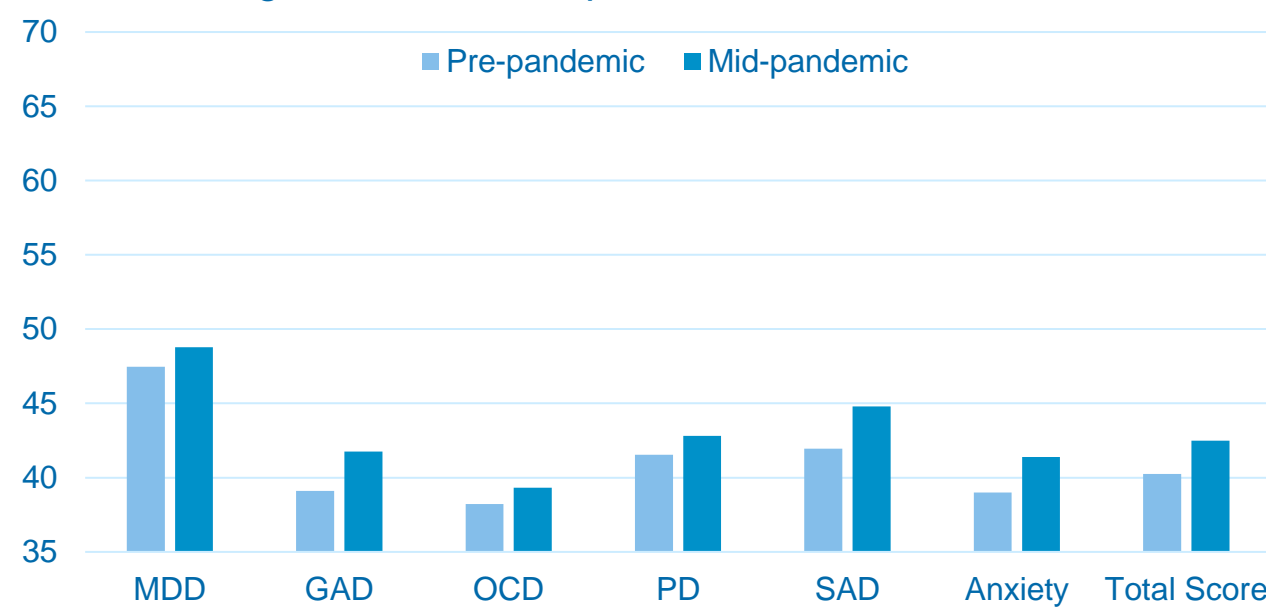


Figure 2: Caregiver-reported RCADS scores

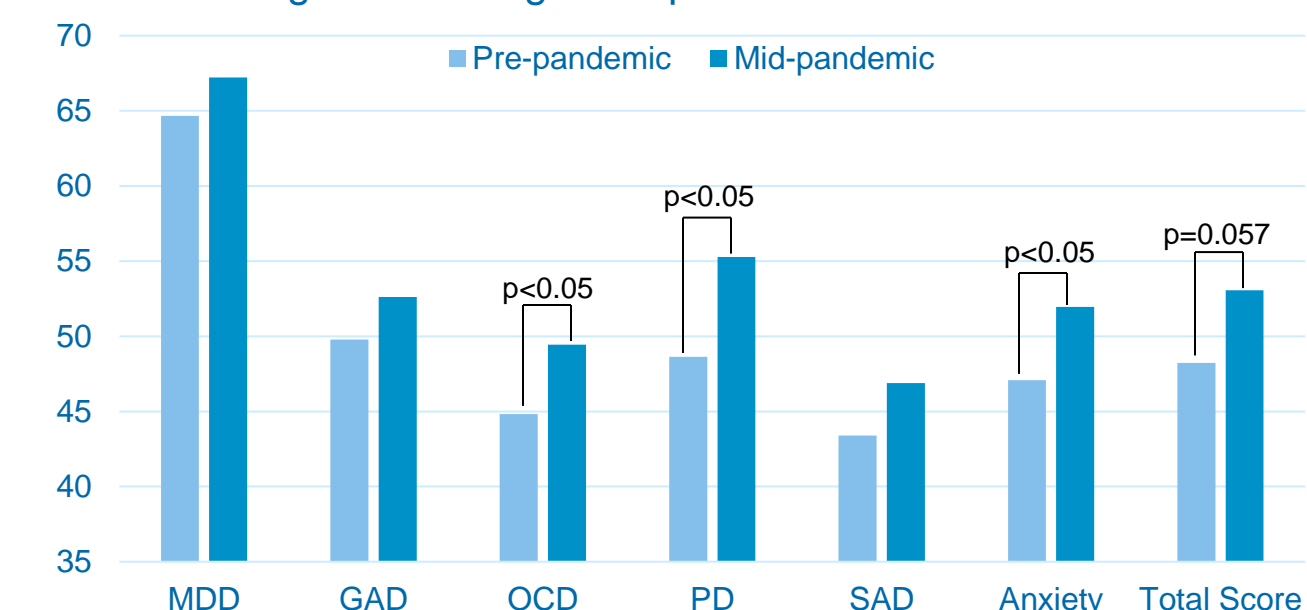


Figure 3: Patient-reported PedsQL scores

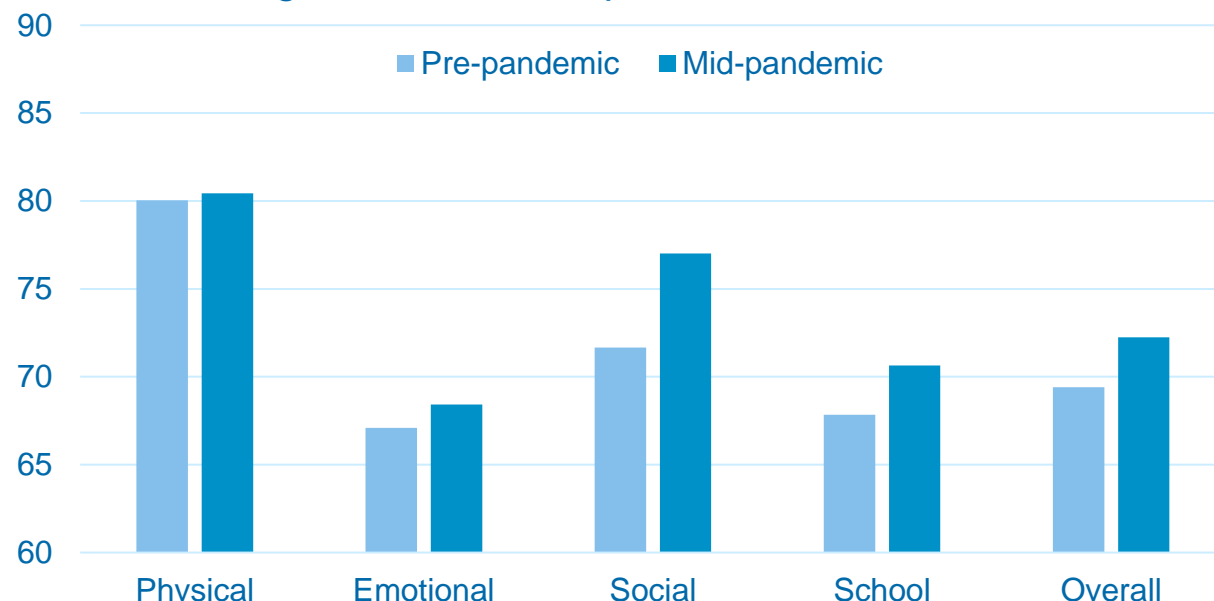
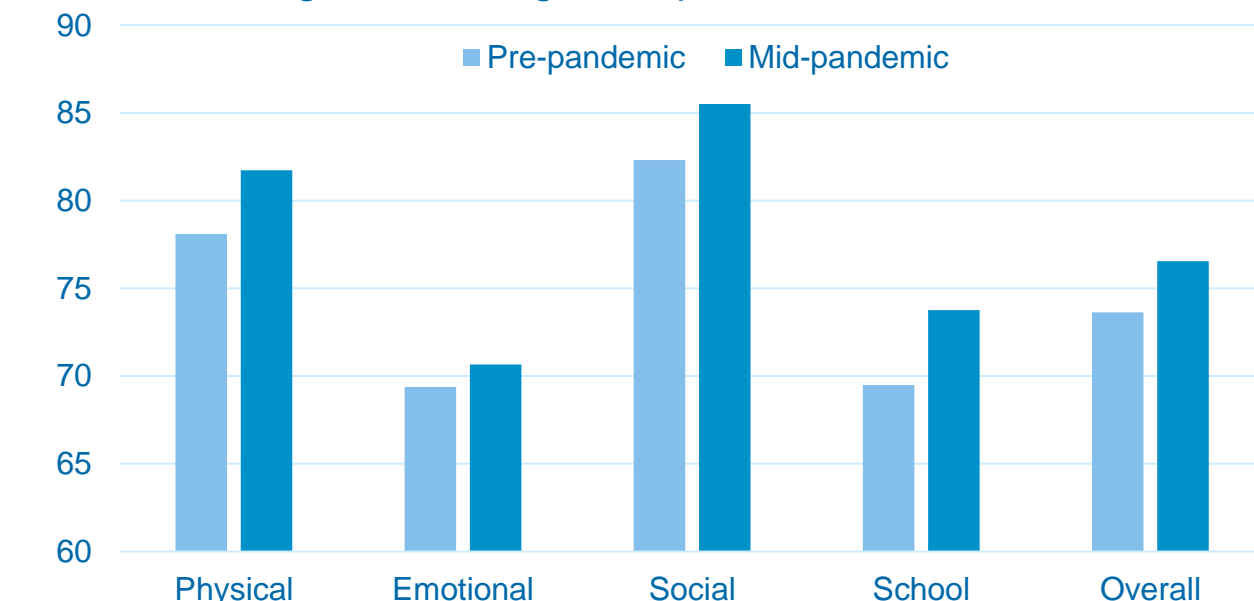


Figure 4: Caregiver-reported PedsQL scores



References

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Conclusions

- Many symptoms remained relatively similar during the pandemic, with some insignificant improvements in quality-of-life measures.
- Increase in panic disorder, obsessive-compulsive symptoms, and overall anxiety and depression score that caregivers noted, but were not reflected in patient answers to the RCADS.
- Results suggest a need for closer monitoring and evaluation of mood disorders in younger patients with CD during times of increased psychosocial stress, but it is possible that pandemic-related interventions mildly improved quality of life.

Limitations

- Comparison of two independent response groups
- More research is needed to reach and serve patients and families from underrepresented and underserved communities, as median ADI was low (indicating higher SES)
- No comparison of early pandemic (2020) vs return to public spaces/removal of pandemic interventions (2021-2022).
- Difficulty to analyze caregiver projection on survey results, as past studies have also shown increased care-giver proxy scores on RCADS.^{3,4}

Future Research

- Parental levels of anxiety, depression, and quality of life to assess projection of caregiver emotional state in the mid-pandemic response set.
- Investigation into improved quality of life measures during pandemic.
- Comparison of symptoms with return to in-person settings and decreased pandemic-related measures in place.

Acknowledgments

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