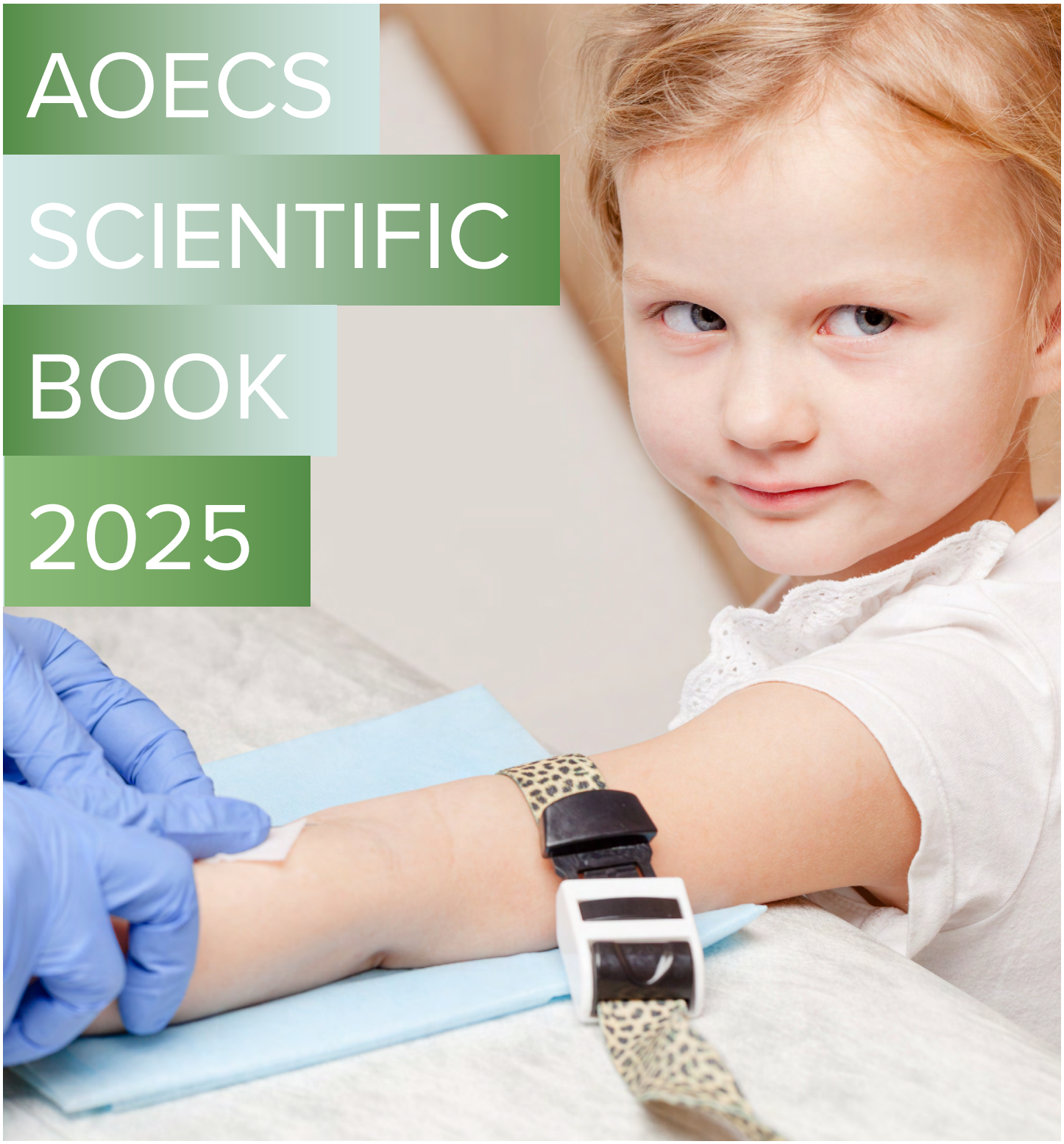
AOECS
Association of European Coeliac Societies

AOECS SCIENTIFIC BOOK 2025



FOREWORD

Coeliac disease and AOECS

Coeliac disease is a chronic, multiple-organ, autoimmune disease that affects genetically predisposed individuals when exposed to the ingestion of gluten.

Over the past 25 years, there has been an increasing prevalence of celiac disease, which affects about 1,3% of the population. Today, the only available treatment is the adherence to a strict and life-long gluten-free diet.

The Association of European Coeliac Societies (AOECS) together with its members is committed to work towards improving the lives of coeliacs and their relatives. We do so by promoting a reliable Food Safety Scheme for pre-packaged gluten-free food; enhancing Gluten-free Eating Out Schemes in different countries; raising awareness among policymakers and promoting sound research and innovation within the coeliacs and gluten-free ecosystems.

As part of these efforts, we are proud to offer this third collection of scientific posters to the public, which were displayed during the 37th AOECS General Assembly held in October 2025, in Brussels, Belgium.

With this posters' exhibition and the subsequent e-book, AOECS aims to spread the word and incentivise research and innovation related to coeliac disease.

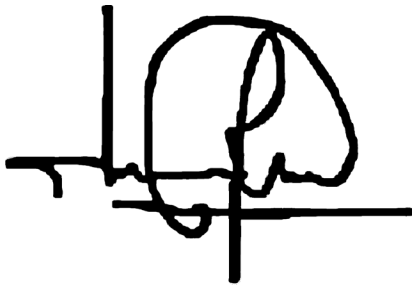
We want to acknowledge the work developed with the support of our member societies in different countries, as well as encourage researchers to continue working in this field.

For this fourth edition 2025, AOECS received 10 scientific abstract and scientific posters which we are delighted to make available to the public in this e-book. Here you will find a diverse range of topics related to basic scientific research and innovative topics such as:

- The promising strategy to reduce immunogenic epitopes by targeted deletions of α-gliadins on chromosome 6D while enhancing breadmaking quality — a rare and valuable dual benefit.
- A thoughtful and well-structured investigation into the psychological factors influencing adherence to a gluten-free diet in individuals with coeliac disease. Bridging psychological theory and clinical practice, with enough potential to start working in holistic care models for coeliac disease.
- A rigorous and methodologically sound psychometric evaluation of the ICECAP-A instrument in patients with coeliac disease, offering a valuable comparison with the widely used EQ-5D-5L.
- The promising preliminary results of a groundbreaking public health initiative in Italy, highlighting the implementation of a national pediatric screening program for celiac disease and type 1 diabetes. Integrating legislative support, paediatrician involvement, and active participation from the Italian Celiac Association (AIC), demonstrating a well-coordinated and impactful approach.

All received posters have been submitted for an independent evaluation conducted by two experts in the field to provide feedback and insight to the authors.

We warmly thank these two experts, Dr Francesco Valitutti and Paula Crespo, PhD, for their invaluable contribution to this project as well as to every author that has submitted their posters to this fourth edition 2025. Their contributions to increase awareness around coeliac disease and proposing innovative approaches are priceless, and we invite them to continue their passionate work in this field.



Veronica Rubio
Secretary General, AOECS

EVALUATION PANEL

The necessity of an evaluator panel

To run independent evaluations of all this promising projects AOECS have work closely with two experts from diferent backgrounds related with the field of coeliac disease and other gluten-mediated disorders to be sure they understands the skills, knowledge and expertise required to ensure a robust evaluation and provide high quality advice to the authors.

We asked the experts that their evaluations might need to cover aspects as the communication skills, clarity of the information, accessibility and explanation. Innovation of the proposal submitted and the impact of the projects in the quality life of coeliacs patients, and their comments were shared with the authors with the aim of giving a proper feedback and with the idea of encouraging them to keep working on this field to make a positive impact in coeliacs quality of life.

As mentioned, all the authors have recieved a certificate of participation that includes the comments from the evaluators about their contributions.

We want to warmly thank the experts who joined us this time for their contribution to this project, with their support we can see the relevance of the received projects and its quality and the impact of this call for the different authors is bigger every year because appart from raise awareness and share their work, they get a feedback focused and detailed that can encourage them to continue with their priceless research activity.

The scientific posters on display at the 37th Annual Conference in Brussels.

EVALUATION PANEL

Members of the AOECS evaluation panel

Dr Francesco Valitutti

Francesco Valitutti currently works as Senior Researcher- Assistant Professor of Pediatrics at the University of Perugia, Italy. His fields of interest are pediatric gastroenterology and nutrition.

He collaborates with the European Biomedical Research Institute of Salerno (EBRIS). He is member of the European Society for Pediatric Gastroenterology (ESPGHAN), of the Italian society of Pediatrics (SIP) and the Italian Society for Pediatric Gastroenterology (SIGENP).

Paula Crespo, PhD

Paula Crespo holds degrees in Human Nutrition and Dietetics, Food Science and Technology, and a PhD from the University of Valencia. She worked for 10 years at the La Fe Health Research Institute in Valencia, in the Celiac Disease and Digestive Immunopathology research group, participating in national and European projects related to pediatric nutrition, particularly celiac disease and cystic fibrosis.

Currently, she works as Coordinator of the Nutrition and Obesity Unit at the Recoletas Salud Campo Grande Hospital in Valladolid and is a professor at the European University Miguel de Cervantes. She has served as a member of the Spanish Celiac Disease Society and is currently part of the celiac disease interest group of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition.

ACKNOWLEDGMENTS

COUNTRY & SUPPORTING ORGANISATIONS	TITLE	AUTHORS
Belarus - Page 7 National celiac society Harmony without gluten, Minsk. Belarusian State University, Minsk.	Biodegradable Edible Films For Food Packaging And New Dosage Forms – Orally Dispersible Films (Oral Strips) Based On Medicinal Preparations And Biologically Active Substances Of Plant Origin	Lipnitskaya E., Beznosik T.V., Savitskaya T.A., Kimlenko I.M., Grinshpan D.D.
Hungary - Page 8 Károly Rácz Doctoral School of Clinical Medicine, Semmelweis University, Budapest. Department of Health Policy, Corvinus University of Budapest. McGill University Health Centre, Montreal General Hospital, Canada. Department of Internal Medicine and Oncology, Semmelweis University, Budapest.	Psychometric Testing of the ICECAP-A in Patients with Coeliac Disease: A Comparative Analysis with EQ-5D-5L	M. Mercédesz Angyal, Peter L. Lakatos, Valentin Brodszky, Fanni Rencz
Italy - Page 9 Italian Coeliac Association	Celiac Disease and Type 1 Diabetes children screening program, the role of the Italian Celiac Association	Italian Coeliac Association
Kosovo - Page 10 Children's Clinic, University Clinical Center of Kosovo, Republic of Kosovo. Department of Pediatrics, University Medical Center Maribor, Slovenia.	Clinical Presentation in Children with Coeliac Disease in Kosovo	Minire Çitaku, Jernej Dolinsek, Petra Riznik
Portugal - Page 11 Department of Community Medicine, Information and Health Decision Sciences, Faculty of Medicine, University of Porto. RISE-Health, Department of Community Medicine, Information and Health Decision Sciences, Faculty of Medicine, University of Porto.	Characterization of patients registered into the iCureCeliac® database – a descriptive analysis	Portuguese Celiac Association, Tavares S, Dias CC., Ribeiro I.
Spain - Page 12 Coeliac Disease & Gluten Sensitivity Association	Unsuspected causes of non-responsive coeliac disease: three case reports	Esteban B, Serrano-Vela JI.
United Kingdom - Page 13 University of Derby	Coeliac Disease: Emotion and its Regulation on a Gluten-Free Diet	Alice Owen Supervised by: Dr Amy Baraniak, Paul Staples
United Kingdom - Page 14 Nuffield Department of Primary Care Health Sciences, University of Oxford. School of Medicine and Population Health, University of Sheffield.	Coeliac Disease Digital Healthcare For Individuals From Ethnic Minority Backgrounds: Findings From A Realist Evaluation	Cooper, R., Kurien, M., Ariss, S., Wong, G.

ACKNOWLEDGMENTS

COUNTRY & SUPPORTING ORGANISATIONS	TITLE	AUTHORS
USA - Page 15 Celiac Disease Foundation. Celiac Disease Center, University of Chicago.	Navigating Celiac Disease In College: Results From A National Student Survey On Dining, Housing, And Support Services	Weisbrod V., Kowzun E., Donnelly M., Piken E., Geller M., Alvarez C., Verma R.
USA - Page 16 Celiac Disease Foundation	Perception vs. Reality: Public Knowledge and Misconceptions About Celiac Disease	Soin, K.
USA - Page 17 Dept. of Plant Sciences, University of California. California Wheat Commission, Woodland, CA. Celiac Disease Foundation, Woodland Hills, CA. Howard Hughes Medical Institute, Chevy Chase, MD, Davis, CA.	A deletion of wheat alpha-gliadins from chromosome 6D simultaneously eliminates major immunodominant celiac disease epitopes and improves breadmaking quality	Maria G. Rottersman, Wenjun Zhang, Teng Van2, Claudia Carte2, Joshua Hegarty, Xiaoqin Zhang, Marilyn G. Geller, Jorge Dubcovsky

Biodegradable Edible Films For Food Packaging And New Dosage Forms – Orally Dispersible Films (Oral Strips) Based On dicinal Preparations And Biologically Active Substances Of Plant Origin

Submitted by: Lipnitskaya E. N[1], Beznosik T.V.[2], Savitskaya T.A.[2], Kimlenko I.M.[2], Grinshpan D.D.[2]
[1] National celiac society Harmony without gluten, Minsk, Republic of Belarus [2] Belarusian State University, Minsk, Republic of Belarus

Introduction

Celiac disease is a chronic autoimmune disorder requiring strict, lifelong gluten exclusion. However, hidden gluten in medications and packaging poses a risk of immune activation. The study's objective is to develop innovative gluten-free dosage forms — orally disintegrating films (ODFs) — and eco-friendly packaging (BelBioPak), ensuring safety, bioavailability, and high treatment adherence for celiac patients.

Method

ODFs were formulated using GRAS-certified polymers: corn/rice starch, sodium alginate, and PVA. Films were cast using an MSK-AFA-L800-H automatic coater onto Mylar substrates. Functional plant extracts (kumquat, tea, longan, Sophora japonica, pomegranate) were incorporated for flavor, antioxidant, and immunomodulatory properties. Active pharmaceutical ingredients included loperamide hydrochloride (0.143 g per 2×4 cm film) for diarrhea control; iron ascorbate for anemia correction.

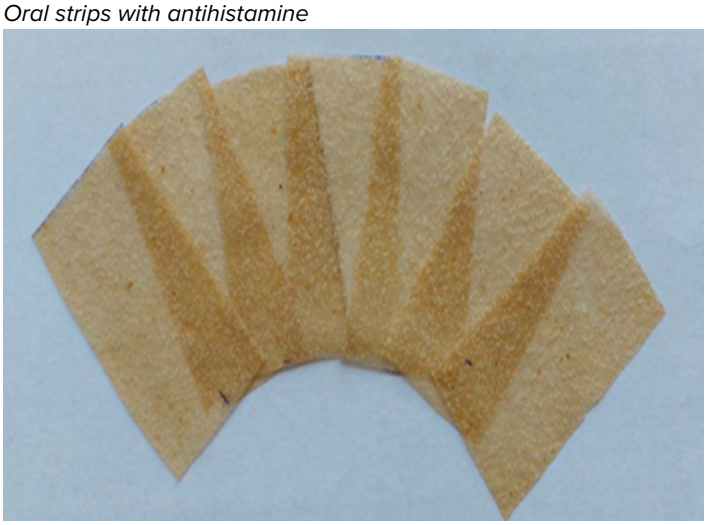
Picture 1

Film with iron ascorbate

Potential inclusion of bronchodilators, antihistamines, and coronary vasodilators for comorbid conditions was also evaluated. A novel biodegradable composite packaging, BelBioPak — dual-layer paper coated with starch-based and synthetic biodegradable polymers — was developed for lactose-free and gluten-free beverages

Picture 2

Oral strips with antihistamine



Results

Homogeneous, rapidly dissolving ODFs with controlled release profiles were successfully produced. Natural extracts enhanced palatability and therapeutic functionality. BelBioPak demonstrated barrier properties comparable to TetraPak: low oxygen, moisture, and UV permeability — while remaining fully biodegradable. The packaging proved compatible with calcium- and vitamin D-fortified dairy and plant-based beverages.

Conclusion

The ODF and BelBioPak technologies address critical challenges for celiac patients: eliminating gluten exposure, simplifying drug administration, correcting nutritional deficiencies, and managing comorbidities. The use of natural polymers and phytoactive components expands therapeutic potential. These innovations enhance safety, convenience, and environmental sustainability — crucial for chronic disease management and responsible healthcare systems.

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Acknowledgements

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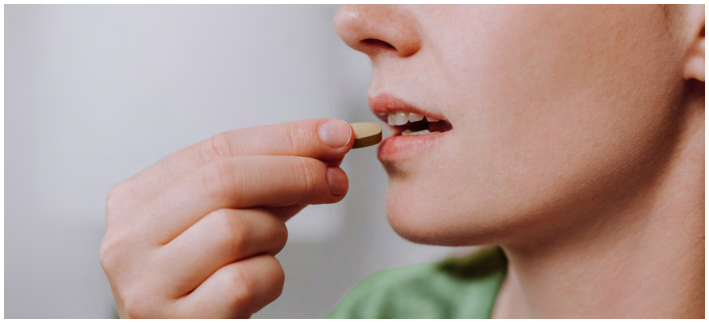


Psychometric Testing of the ICECAP-A in Patients with Coeliac Disease: A Comparative Analysis with EQ-5D-5L

Submitted by: M. Mercédesz Angyal[1,2], Peter L. Lakatos[3,4], Valentin Brodszky[2], and Fanni Rencz[2] [1]Károly Rácz Doctoral School of Clinical Medicine, Semmelweis University, Budapest, Hungary, [2]Department of Health Policy, Corvinus University of Budapest, Budapest, Hungary, [3]McGill University Health Centre, Montreal General Hospital, Canada, [4]Department of Internal Medicine and Oncology, Semmelweis University, Budapest, Hungary

Introduction

Coeliac disease (CD) is a food-related autoimmune condition that primarily affects the small intestine with a global prevalence of 1%. Due to various symptoms and the strict glutenfree diet (GFD), the deterioration in patients' health-related quality of life (HRQoL) is well documented.

Objective

This study aims to assess the psychometric properties of the ICEpop CAPability measure for Adults (ICECAP-A) in patients with CD and compare its performance with the EQ-5D-5L.

Methods

An online cross-sectional survey was conducted among 312 adult CD patients in Hungary, who completed both the ICECAP-A and EQ-5D-5L. The following psychometric properties were assessed: ceiling, convergent validity with the Gastrointestinal Symptom Rating Scale (GSRS) and Satisfaction with Life Scale (SWLS) and known-group validity. Mean ICECAP-A and EQ-5D-5L index values were computed using the Hungarian value sets [1,2]. To allow for comparison with the Hungarian population norms [3-4], ICECAP-A index values were also calculated using the UK value set [5], as this was used in the Hungarian population norm study.

Results

Mean age was 36 years (range 18-80), and 70% were female. On the ICECAP-A, 51% (attachment) to 81% (stability) reported limitations in their capabilities. In comparison 2% (self-care) to 41% (pain/discomfort) of patients reported problems on the EQ-5D-5L. No ceiling effect was observed on the ICECAP-A (7%), in contrast with a high ceiling effect on the EQ-5D-5L (39%) Mean index values of ICECAP-A were lower than the EQ-5D-5L (0.85 vs. 0.92). ICECAP-A correlated strongly with SWLS (rs=0.685), moderately with EQ-5D-5L (rs=0.485) and weakly with GSRS (rs=-0.314). The ICECAP-A differentiated between known groups by general health status and symptoms with large effect sizes (0.189-0.379), while GSRS tertiles and comorbidities with moderate effect size (0.065-0.073). The EQ-5D-5L showed larger effect sizes for health-related and clinical variables, as well as gender. More limitations were reported among CD patients in multiple ICECAP-A items than the general population, particularly in stability (81% vs. 48%) and achievement (78% vs. 57%). Patients reported worse capability well-being across almost all age groups compared to the general population (mean ICECAP-A index 0.76-0.86 vs. 0.84-0.92).

Table 1

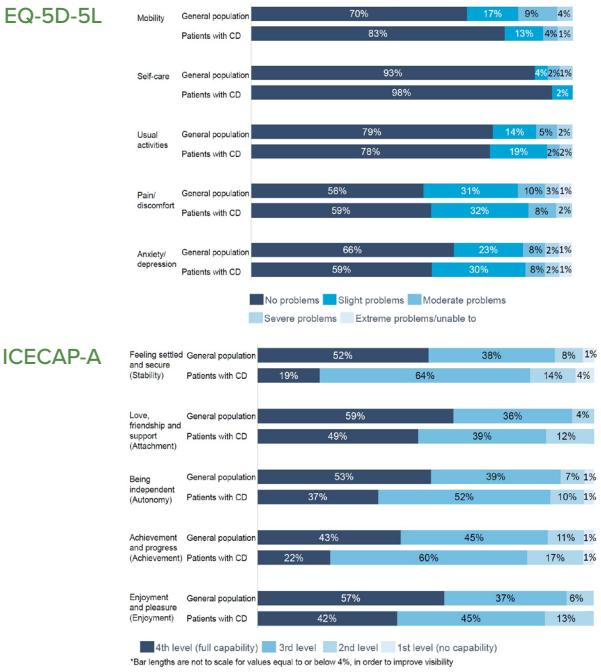
ICECAP-A, EQ-5D-5L index value, and EQ VAS scores by sociodemographic and clinical characteristics.

Characteristics of the patient population			ICECAP-A index value*		P value	Effect size	EQ-5D-5L index value		P value	Effect size	EQ VAS**		P value	Effect size
Variables	N	%	Mean	SD			Mean	SD			Mean	SD		
Total	312		0.85	0.16			0.92	0.13			79.69	18.52		
Gender														
Female	219	70.19%	0.85	0.17	0.540	0.076	0.92	0.14	0.071	0.225	77.87	19.91	0.002	0.334
Male	93	29.81%	0.86	0.15			0.94	0.10			83.99	13.94		
Age (years)														
18-24	59	18.91%	0.87	0.15			0.94	0.11			83.80	14.24		
25-34	98	31.41%	0.87	0.15			0.93	0.12			81.47	16.33		
35-44	73	23.40%	0.85	0.17	0.167	0.021	0.93	0.11	0.070	0.028	81.41	14.96	<0.001	0.068
45-54	68	21.79%	0.82	0.18			0.90	0.15			75.41	23.50		
55+	14	4.49%	0.77	0.17			0.85	0.20			61.79	25.86		
Number of comorbidities														
0	33	10.58%	0.88	0.13			0.98	0.03			89.48	10.77		
1	74	23.72%	0.91	0.09	<0.001	0.073	0.97	0.05	<0.001	0.120	85.58	9.64	<0.001	0.159
2-3	101	32.37%	0.85	0.16			0.93	0.13			82.51	13.66		
4+	104	33.33%	0.79	0.19			0.87	0.16			69.65	24.24		
General health status														
Poor & very poor health	75	24.04%	0.73	0.22			0.82	0.20			61.97	23.80		
Fair health	141	45.19%	0.87	0.13	<0.001	0.189	0.94	0.08	<0.001	0.215	81.19	12.84	<0.001	0.353
Good health	76	24.36%	0.91	0.09			0.97	0.04			89.87	6.95		
Excellent health	20	6.41%	0.92	0.12			1.00	0.01			96.90	4.80		
Symptoms during last week														
No symptoms	90	28.85%	0.89	0.13	0.001	0.379	0.97	0.11	<0.001	0.496	87.67	12.04	<0.001	0.628
Symptoms	222	71.15%	0.83	0.17			0.91	0.13			76.46	19.70		
GSRS* tertiles**														
<= 21	111	35.58%	0.90	0.12			0.97	0.08			86.86	14.01		
22 - 30	99	31.73%	0.85	0.15	<0.001	0.065	0.94	0.06	<0.001	0.134	81.21	13.01	<0.001	0.138
31+	102	32.69%	0.80	0.20			0.92	0.18			70.41	23.08		

*ICECAP-A calculated with the Hungarian value set [3] **Visual Analog Scale, ***Gastrointestinal Symptom Rating Scale
Effect size was calculated using Cohen's d for binary comparisons (e.g. gender) and eta-squared (η^2) for multi-group comparisons (e.g. age groups).

Figure 2 and 3

*Comparison of EQ-5D-5L and ICECAP-A dimension responses between patients with coeliac disease and the general population**



*Bar lengths are not to scale for values equal to or below 4%, in order to improve visibility

Conclusions

This is the first study to validate the ICECAP-A in patients with CD. The ICECAP-A is a valid measure in this population, sensitive to specific symptoms and health status. The ICECAP-A effectively highlights the well-being impact of CD, showing the limitations faced by patients compared to the general population.

Acknowledgements

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Celiac Disease and Type 1 Diabetes children screening program, the role of the Italian Celiac Association

Submitted by: Italian Celiac Association

Introduction

In 2024–2025, Italy launched the first pioneering pilot study on mass screening for celiac disease and type 1 diabetes in children. With the approval of Law 130/2023, Italy became the first country in the world to introduce national legislation mandating mass screening for these conditions in the pediatric population. This innovative step aims to improve early diagnosis and long-term health outcomes for children and their families.

Method

The preparatory pilot project, launched in 2024, involved:

- Over 5,000 children
- Around 400 pediatricians
- Four Italian regions

The Italian Celiac Association (AIC) played an active role in the implementation phase, as a member of the National Observatory established under the new law. AIC supported the law's approval and promoted informed, voluntary participation in the screening process by raising awareness among families and healthcare providers. They also emphasized the importance of clear communication regarding test results, especially advising that a negative antibody test does not eliminate the possibility of developing coeliac disease later in life.

Analysis

The early stages of the pilot project demonstrated broad participation and the logistical feasibility of nationwide screening. Educational efforts and involvement of pediatricians were critical in enabling accurate information flow and ensuring responsible follow-up. The analysis also emphasized the preventive potential of mass screening, especially for asymptomatic or undiagnosed cases.

Picture 1

Awareness promotion material for D1Ce

Picture 2

D1Ce Screen website

Results

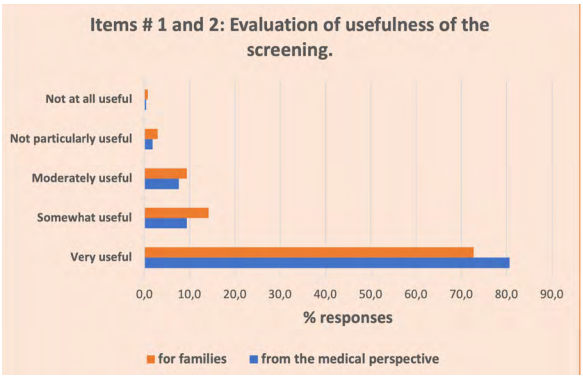
Preliminary findings revealed that 2.8% of participants tested positive for coeliac disease antibodies, underscoring the effectiveness of mass screening in detecting previously unidentified cases. These results highlight the importance of early diagnosis in preventing complications and improving long-term outcomes for affected children.

Conclusion

This pilot study marks a significant milestone in pediatric preventive healthcare, reinforcing the value of early detection and structured public health policies. Italy's pioneering effort provides a model for other countries considering similar initiatives. Continued monitoring and education will be essential to optimize the long-term impact of the screening program.

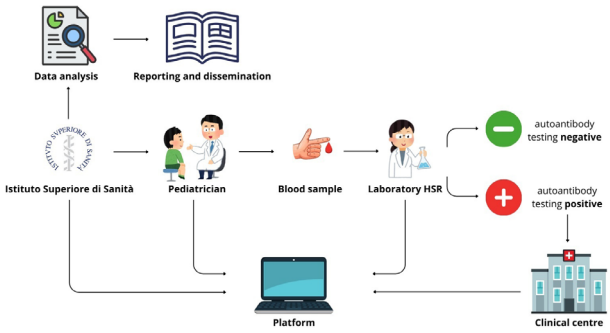
Chart 3

Most PCPs work in municipalities with a population between 10,000 and 50,000 inhabitants, are part of a group medical practice, and have support staff such as a nurse or administrative assistant



Picture 4

D1Ce – Study design



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4. Convegno Nazionale AIC (Next scientific conference)

Clinical Presentation in Children with Coeliac Disease in Kosovo

Submitted by: Minire Çitaku[1], Jernej Dolinsek[2], Petra Riznik[2]
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Introduction

Celiac disease (CD) is a chronic autoimmune disorder triggered by gluten in genetically predisposed individuals. Its clinical presentation varies widely, especially in pediatric populations, where symptoms range from classic gastrointestinal complaints to extraintestinal manifestations. Limited data on the prevalence and clinical presentation of CD in children in Kosovo underscore the need for local research to guide diagnosis and management.

Objective

To describe the clinical presentation, associated symptoms, and diagnostic findings in children diagnosed with coeliac disease in Kosovo

Method

This retrospective study, conducted as part of the CD SKILL project, analyzed pediatric patients diagnosed with coeliac disease in tertiary healthcare centers in Kosovo between 2022 and 2024. Diagnosis was based on serological markers, including tissue transglutaminase antibodies (tTG IgA/IgG) and anti-endomysial antibodies (EMA). Clinical data—such as presenting symptoms, age at diagnosis, and comorbidities—were collected and analyzed.

antibodies (tTG IgA/IgG) and anti-endomysial antibodies (EMA). Clinical data—such as presenting symptoms, age at diagnosis, and comorbidities—were collected and analyzed.

Results

A total of 30 children were diagnosed with coeliac disease during the study period. The gender distribution was 67% female and 33% male. The leading presenting symptoms were:

- Abdominal pain (57.1%),
- Diarrhea (9.5%),
- Weight loss (9.5%),
- Anorexia (9.5%),
- Abdominal distension (4.8%),
- Growth retardation (4.8%)

The median time from symptom onset to diagnosis was 12 months, indicating a delay in recognizing atypical presentations.

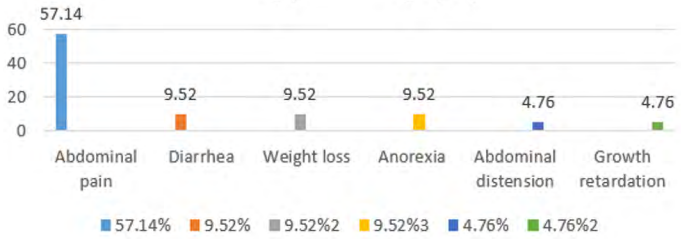
Table 1

Diagnostic Delays in Children with Celiac Disease by Clinical Presentation and sex.

Clinical Presentationm,	Sex	n (Patients)	% of Total	Mean Delay (mo)	Median Delay (mo)	Delay Range (mo)
Classical	Female	8	27%	11.5	11.0	6 – 18
	Male	3	10%	9.7	10.0	5 – 14
Non-classical	Female	7	23%	15.8	16.0	10 – 22
	Male	3	10%	17.0	16.5	12 – 23

Chart 2

The leading presenting symptoms



Conclusions

This study underscores that children diagnosed with coeliac disease in Kosovo predominantly exhibit classic gastrointestinal symptoms such as abdominal pain and diarrhea, while a significant number also present with extraintestinal signs like anorexia and growth retardation. Findings emphasize the clinical variability of coeliac disease, which continues to contribute to diagnostic delays—particularly in cases with atypical or subtle symptoms. Timely identification remains a challenge and highlights the urgent need for enhanced clinical vigilance and continuing education among healthcare providers. Strengthening the capacity of primary and tertiary care professionals to recognize diverse presentations of CD is vital in improving early diagnosis and reducing long-term health consequences. Furthermore, systematic population-based research is essential to determine the actual prevalence of coeliac disease in Kosovo's pediatric population and to inform the development of evidence-based national screening protocols and dietary management strategies.

Challenges in Kosovo

Cultural and Dietary Factors:

Kosovo, like many countries, may have dietary habits (such as a high intake of bread, pasta, and other gluten-containing foods) that could lead to underdiagnoses or delayed recognition of the disease.

Healthcare Awareness:

Medical professionals in Kosovo may be less familiar with coeliac disease, especially given its relatively recent recognition as a significant health issue in some regions. This could contribute to delays in diagnosis, particularly for milder or atypical presentations.

Awareness and Diagnosis:

Over the past few years, with increasing global awareness of coeliac disease, healthcare providers in Kosovo may be more attuned to the condition, but gaps still remain in early recognition and diagnosis.

Dietary Adjustments:

In urban areas of Kosovo, there may be increased availability of gluten-free food products and awareness about the condition. However, rural areas might face more challenges in terms of food availability

Acknowledgements

This retrospective study, conducted as part of the CD SKILL project.

Contact

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Characterization of patients registered into the iCureCeliac® database – a descriptive analysis

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Introduction

Coeliac disease (CD) occurs in about 1% of people in most populations (1). The disease has many clinical manifestations, ranging from severe malabsorption to minimally symptomatic or non-symptomatic presentations (2). An Observational Mix-Methods Study. The following variables will be described: Number of patients, sex, age, diagnose date, race, type of disease and number of patients with one or more comorbidities.

Method

A descriptive cross-sectional analysis was performed using data from the iCureCeliac® database. Patients with a gluten related diseases were included. The variables extracted for characterization were number of patients, sex, age, race, type of disease, and presence of one or more comorbidities. Data analysis was conducted using IBM SPSS Statistics applying descriptive statistics (absolute and relative frequencies for categorical variables, and measures of central tendency and dispersion for continuous variables).

Results

The iCureCeliac® database includes 15,584 patients, of whom 82.4% are female. The mean age is 39.2 years (SD = 17.6). Regarding the race, among respondents, (22.1%), 92.5% are white. For the disease type, only 21.4% provided an answer: 83,7% reported CD, and 0.6% Refractory CD. Regarding comorbidities, among the 35% respondents, prevalence ranged from 47.1% to 0.3%. The most frequent conditions were anaemia (47.1%), acid reflux (43.7%), Emotional Problems (35.6%), Chronic Diarrhoea (31.2%), Bladder Infections (27.2%), arthritis (27.1%), Asthma/Emphysema (24.1%), High Cholesterol (19.9%), Thyroid Disease (19.8%), and Hight Blood Pressure (19.4%).

Conclusions

The iCureCeliac® database represents a large cohort of patients with coeliac disease, predominantly female and with a mean age of 39 years. A considerable proportion of patients did not provide information on race or disease type, highlighting potential gaps in data completeness. Among respondents, anaemia, acid reflux, and emotional problems were the most frequently reported comorbidities, followed by chronic diarrhoea, arthritis, and asthma. These findings underline the complexity of the clinical profile of patients with coeliac disease and support the need for further studies to explore the burden and patterns of comorbidities in this population.

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Unsuspected causes of non-responsive coeliac disease: three case reports

Submitted by: Esteban B, Serrano-Vela JI. Coeliac Disease & Gluten Sensitivity Association Madrid, Spain.

Introduction

It is estimated that up to 30% of patients with coeliac disease (CD) do not respond to the gluten free diet (GFD) due to mistakes in the election of safe gluten free options in the market, cross contact with gluten traces at home or outside, an unbalanced GFD or comorbidities [1]. The aim of the present work is to report selected cases of non-responsive CD.

Method

Three reports were selected among cases with persistence of symptoms, positive serum antibody levels or enteropathy despite the GFD who attended our service of GFD revision. Eating habits, including frequency, quantity and quality of the gluten free products consumed for one week, were evaluated and recommendations were provided accordingly.

Results

Case 1.

10-year-old female diagnosed in August 2020. DSG revised in June 2023 due to persistence of low positive IgA TG2 and EMA antibodies. No transgressions identified. Regular consumption of oat gluten-free products and a small piece of wheat bread with wine every Sunday for the communion. Elimination of those products was recommended. A new blood test in October 2023 showed negative antibody levels.

Case 2.

8-year-old female diagnosed in May 2017, mother with CD. DSG revised in February 2022 due to high (>200) IgA TG2 antibodies and Marsh 3C. No transgressions identified. An ultra strict GFD was recommended. High IgA TG2 antibodies persisted in November 2022. An ultra-strict GFD and dairy free diet was recommended. IgA TG2 tested much lower (38) in March 2023 and negative in September 2023.

Case 3.

49-year-old female diagnosed in March 2017 with positive IgA TG2 and IgA DGP antibodies and Marsh 3B. DSG revised in April 2024 due to abdominal pain (right side), persistence of IgA DGP antibodies and Marsh 1. Ready to start an immunosuppressive treatment under refractory CD suspicion. No transgressions identified. Regular consumption of oat gluten free products and barley gluten free beer. Elimination of those products and an ultra-strict GFD was recommended. A stool test in May 2024 showed a parasite, Diantamoeba fragilis, treated with drugs. Expecting evolution.

Conclusion

Common causes of non-responsive CD come from poor eating habits, more than from transgressions to the GFD. Nutritional counselling is essential to get a good adherence to the GFD and prevent complications and unnecessary medical tests and treatments.

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Coeliac Disease: Emotion and its Regulation on a Gluten-Free Diet

Submitted by: Alice Owen, University of Derby. Supervised by: Dr Amy Baraniak, Paul Staples

Introduction

Coeliac disease, affecting 1-2% of the population, is triggered by gluten consumption (Taavela et al., 2023).

Adhering to a lifelong gluten-free diet (GFD) is the only effective treatment for managing health outcomes, with variable compliance rates (Muhammad et al., 2019).

Previous research highlights associations between negative emotional states, emotional eating, and adherence to a GFD on an Australian sample (Kerswell & Strodl, 2015).

Objective: To explore how negative emotional states and emotional eating mediate adherence to a gluten-free diet and whether emotion regulation strategies moderate these relationships.

Method

Participants: 82 adults with Coeliac Disease, aged 19-65 (M = 36.6, SD = 12.08), of whom 79.3% were female.

Design: Cross-sectional questionnaire.

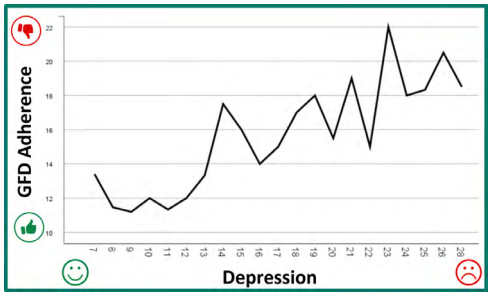
Measures: Illness perceptions (IPQ-R; Moss-Morris et al., 2002), Emotional regulation (ERQ; Gross & John, 2003), Negative emotional states (DASS-21; Lovibond & Lovibond., 1995), Emotional eating (EES; Koball et al., 2012), and GFD adherence (CDAT; Leffler et al., 2009).

Analysis

Bivariate tests, Multiple linear regression, Mediation and Moderation analyses.

Chart 1

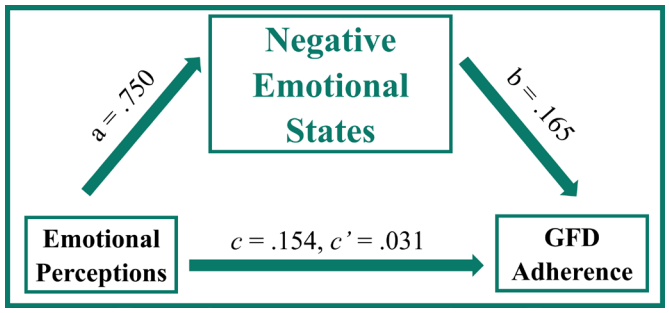
Depression predicts GFD adherence



Line graph showing higher levels of depression significantly predict lower adherence to a gluten-free diet.

Chart 2

Emotional perceptions of coeliac disease and dietary adherence: mediated by negative emotional states, and moderated by emotional regulation



Mediation pathways between emotional perceptions of Coeliac disease and gluten-free diet adherence through negative emotional states.

Results

Adherence predictors: Negative emotional states F (3,78) = 18.385, p = <.001), specifically levels of depression (t = 4.128, p = <.001) significantly predicted adherence to a gluten-free diet. Anxiety (t = .129, p = .898) and stress (t = 1.343, p = .183) did not (Chart 1).

Mediation analysis: Emotional perceptions of Coeliac disease are linked to gluten-free diet adherence, with this relationship partially mediated by negative emotional states (b = .124 95% BCa CI [.066, .184]), but not by emotional eating (b = .001 95% BCa CI [-.015, .012]) (Chart 2).

Moderation analysis: Cognitive reappraisal (b=.0191, 95% CI [-.0188, .0578], t = 1.0063, p=.3187), and expressive suppression (b=.0474, 95% CI [-.0055, .1003], t = 1.7825, p=.0786) did not moderate the relationship between emotional perceptions and negative emotional states individually. The combined effect was significant b=.0343, 95% CI [.0027, .0659], t = 2.1619, p=.0337.

Conclusion

Depression is a significant predictor of GFD adherence. Anxiety and stress may not play a significant role in predicting GFD adherence. Negative perceptions of Coeliac disease worsen GFD adherence through negative emotional states, but not through emotional eating. Psychological interventions focusing on cognitive reappraisal and expressive suppression may not be effective in improving GFD adherence.

Continuation - What's next?

1. Revaluating Health Services

Improving Dietary Adherence in Coeliac Disease should develop interventions that address emotional challenges:

Targeting depression

Improving emotional perceptions of Coeliac Disease

2. Future Research

Exploration of specific mechanisms that moderate the relationship between emotional perceptions and negative emotional states.

Development of scales that measure:

Coeliac Disease Symptom Severity

Intentional non-adherence to a GFD

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Coeliac Disease Digital Healthcare For Individuals From Ethnic Minority Backgrounds: Findings From A Realist Evaluation

Submitted by: Cooper, R[1], Kurien, M[2], Ariss, S[2], and Wong, G[1]

[1] Nuffield Department of Primary Care Health Sciences, University of Oxford [2] School of Medicine and Population Health, University of Sheffield

Introduction

Treatment for coeliac disease (CD) comprises lifelong adherence to a gluten free diet (GFD). UK clinical guidelines recommend individuals with CD receive dietary support and advice[1]. However, this dietary support is not provided equally to everyone [1]. Furthermore, some individuals, such as those from ethnic minority backgrounds are more likely to report poorer experiences of healthcare[2]. Such unfair and avoidable differences in health are known as health inequalities. The transition of healthcare systems to using digital health technologies (DHTs)[3] offers potential to address this through enabling interventions to be tailored to users' needs. To develop an explanation of how CD DHTs work we conducted a realist synthesis, resulting in an Initial Programme Theory (IPT). Our realist synthesis uncovered a scarcity of evidence around CD DHTs and inequalities. To test and refine our IPT we conducted an inequalities focused realist evaluation of CD DHTs. This abstract presents a subset of the realist evaluation which focused on individuals with CD from ethnic minority backgrounds.

Method

With help from Coeliac UK, we recruited individuals with CD from ethnic minority backgrounds from Coeliac UK's list of members (who had consented to being contacted for research purposes). We ran one focus group and three individual interviews, following the RAMESES II realist interview schedule[4].

Results

Most individuals reported they had received dietary advice from a dietitian (either face-to-face or online). However, regardless of the delivery mode, most individuals reported this focused on a western diet and thus lacked relevance to the individual's own diet. Reports ranged from finding this not useful, to resulting in continued unintentional gluten consumption (e.g. eating wheat noodles), owing to the misperception that gluten was largely in western foods. We used this data to refine our IPT into a Programme Theory (PT), which presents theoretical explanations of how CD DHTs work for individuals from ethnic minority backgrounds. We found that inequalities are likely to be widened when an individual with CD receives dietary information focused on dietary advice which does not align with the diet they follow.

Conclusion

To avoid inequalities, we recommend the development of dietary advice for non-Western diets. In addition healthcare professionals should take steps to identify individuals for whom western GFD advice is not relevant. We suggest that providing culturally tailored GFD dietary advice and support may reduce inequalities in individuals with CD from ethnic minority backgrounds.

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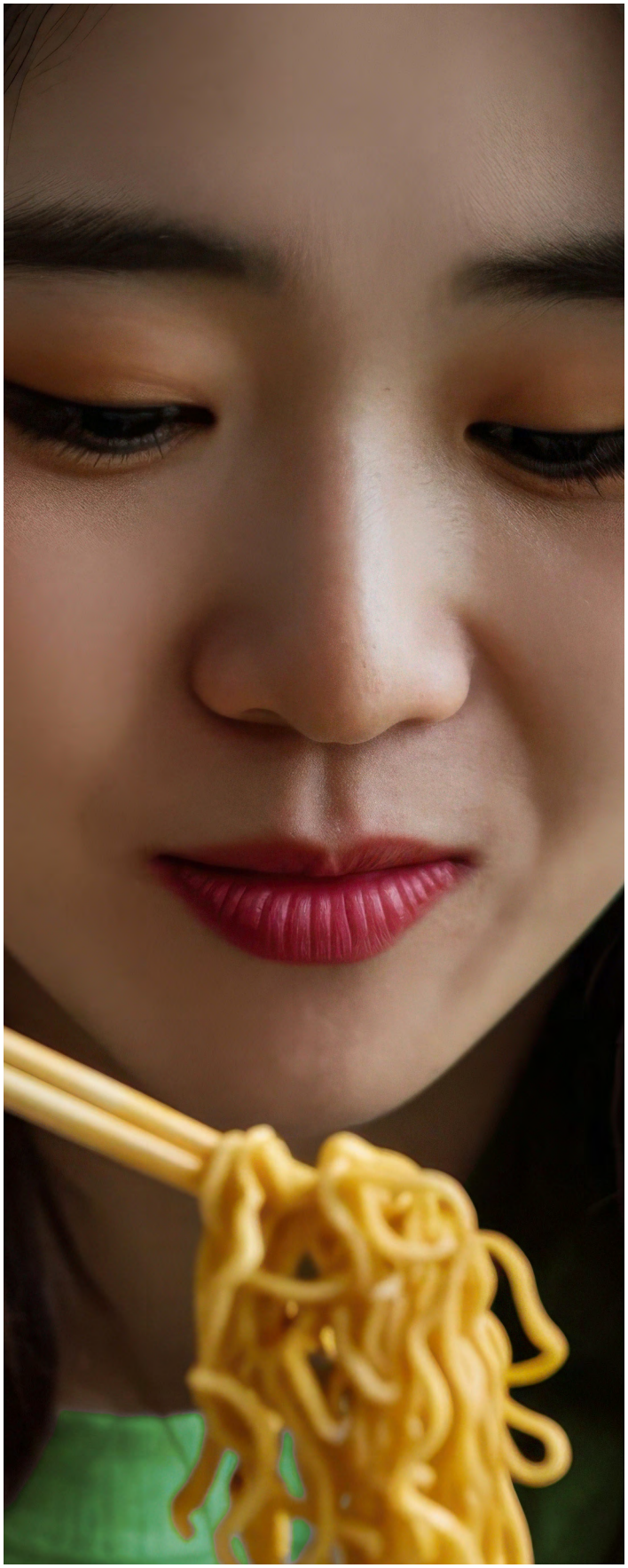

Navigating Celiac Disease In College: Results From A National Student Survey On Dining, Housing, And Support Services

Submitted by: Weisbrod V[1], Kowzun E[1], Donnelly M[1], Piken E[1], Geller M[1], Alvarez C[2], Verma R[2]
[1] Celiac Disease Foundation, [2] Celiac Disease Center at University of Chicago

Introduction

College presents unique challenges for students with celiac disease, a chronic autoimmune disorder requiring strict lifelong adherence to a gluten-free diet. Despite increased awareness of food allergies and dietary restrictions, limited data exist how students with celiac disease navigate campus life.

Materials and Methods

The Celiac Disease Foundation conducted a national survey between March 14 and April 2, 2025. The 35-question survey explored student experiences with dining accommodations, housing, support services, social experiences, and mental health. Responses were solicited via the Foundation's email and social media platforms.

Results

A total of 324 students attending colleges or universities in the United States completed the survey. Survey respondents represented diverse academic settings, with 54% attending public universities, 41% private institutions, and 5% community colleges. A majority (58%) lived in on-campus housing, and 55% participated in a college meal plan. However, campus dining posed significant challenges:

Dining Safety and Confidence:

53% reported gluten exposure in campus dining halls. Confidence in dining safety was low with only 7% reported feeling "very confident" food was gluten-free, while 60% were either "not very confident" or "not confident at all."

Dining Hall Use and Satisfaction:

Nearly half of students rarely or never used the dining hall, citing lack of variety, poor quality, and inconvenience. Over 60% expressed dissatisfaction with the variety of gluten-free options available.

Mental Health and Food Access:

63% experienced frequent stress or anxiety related to managing celiac disease on campus. Nearly 90% of students endorsed skipping meals due to the absence of safe gluten-free options, and 53% avoided social events out of concern for food safety.

Disability Accommodations and Support:

Only 32% of students had registered with their school's disability services for celiac-related accommodations. Among them, just 20% found the office "very helpful" in securing safe housing or meal accommodations. Common accommodations included kitchen access, private housing, and extended time on assignments or exams.

Perceived Campus Support:

Only 4.4% of students felt their campus community clearly understood or were very supportive students with celiac disease.

Conclusion

College students with celiac disease face persistent barriers to safe, inclusive participation in campus life. These include inadequate gluten-free dining options, lack of housing accommodations, and insufficient institutional support. The high rates of gluten exposure, meal-skipping, and associated stress underscore the need for policy-driven solutions to ensure equal access to food, health, and education for this vulnerable population. Institutions of higher education must improve gluten-free safety protocols, housing flexibility, and clear disability accommodations to support the well-being of students with celiac disease.

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Perception vs. Reality: Public Knowledge and Misconceptions About Celiac Disease

Submitted by: Soin, K.

Introduction

Celiac disease (CeD) is a chronic autoimmune disorder triggered by gluten consumption that affects roughly 1 in 100 people worldwide. Despite its impact, public awareness of CeD remains limited. This study explored the general population's knowledge of CeD and aimed to educate participants by providing explanations after survey completion.

Method

This study used a Google Forms survey with 20 questions (multiple choice and free response) to assess public knowledge and misconceptions about CeD. A total of 162 respondents ages 13 and older completed the survey.

Analysis

Although a majority of the participants claimed to have a general understanding of CeD or better, the results revealed significant knowledge gaps.

Chart 1

Awareness of CeD Symptoms

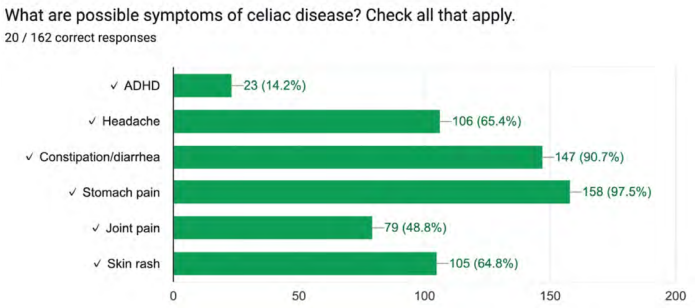


Chart 1 illustrates participants' awareness of CeD symptoms, highlighting a trend: while the majority of the participants acknowledged digestive symptoms, fewer identified symptoms like joint pain (48.8%) or ADHD (14.2%).

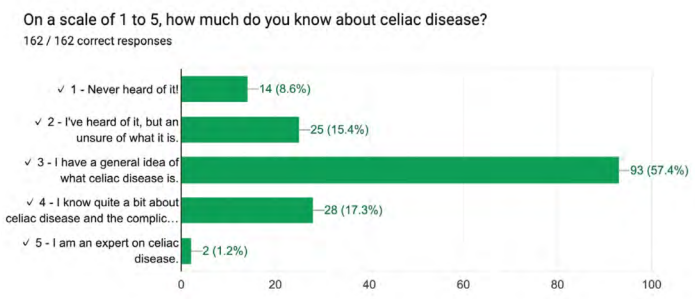
These findings highlight that public knowledge of CeD remains limited and skewed by misconceptions.

Results

Out of all respondents, 57.4% claimed to have a general understanding of CeD, 24% were unsure or had never heard of it, and 18.5% reported above-average knowledge.

Chart 2

Self-rated awareness of CeD



As shown in Chart 2, the bar graph represents how the participants rated their awareness of CeD. Respondents rated their knowledge from a scale of 1 to 5, with 1 being the least and 5 being the most.

Common misconceptions included believing CeD is an allergy (19%), that it damages the stomach (>25%), or that it can be outgrown (>20%).

Conclusions

These results indicate that while many people believe they have a general understanding of CeD, misconceptions remain widespread. Myths about gluten-free diets, symptom recognition, and who CeD affects can delay diagnosis and increase stigma. These findings highlight the need for expanded education to reduce stigma and improve early diagnosis.

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A deletion of wheat alpha-gliadins from chromosome 6D simultaneously eliminates major immunodominant celiac disease epitopes and improves breadmaking quality

Submitted by: Maria G. Rottersman[1], Wenjun Zhang[1], Teng Vang[2], Claudia Carter[2], Joshua Hegarty[1], XiaoqinZhang[1], Marilyn G. Geller[3], and Jorge Dubcovsky[1,4]

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Introduction

Wheat (Triticum spp.) gluten is made of protein subcomponents called gliadins and glutenins, which confer valuable end-use characteristics to wheat products but also include peptide sequences (epitopes) that can elicit celiac disease (CeD) in genetically predisposed individuals. The onset of CeD in these individuals can be affected by the amount and duration of the exposure to the CeD-epitopes. Our long-term aim is to determine if a reduction of wheat immunodominant CeD-epitopes can reduce the incidence of CeD. Alpha-gliadins are one of the protein subunits of gluten. The α-gliadins are particularly abundant within the gluten protein matrix and are especially toxic to individuals with CeD. Genes coding for α-gliadins are localized in clusters on the short arms of chromosomes 6A, 6B, and 6D at the GLI2 locus

Methods

We generated gamma radiation mutants that eliminate complete groups of linked α-gliadin proteins with CeD-epitopes. Immunodominant epitopes are concentrated in α-gliadins from chromosomes 6A and 6D, so we combined both deletions (6AD).determined by mixograph, farinograph, and baking tests.

We performed replicated field experiments at UC Davis in 2021 and 2022 including the four α-gliadin deletion combinations in a recombinant inbred line (RIL143) (WT, 6A, 6B, 6D, & 6AD) and tested their effects on multiple breadmaking quality parameters determined by mixograph, farinograph, and baking tests.

We incorporated our 6D deletion into UC- Central Red, a hard red spring wheat variety with high yield and excellent breadmaking quality. The UC-Central Red lines were grown in the field for two seasons (2022 and 2023) and assayed for end-use quality.

Results

No significant penalties in total grain yield relative to the control RIL143 were detected for the lines carrying deletions in 6D, 6B, or 6AD. The only significant change was a 19% decrease in yield in the RIL carrying the deletion on chromosome 6A relative to the RIL143 control. No significant reductions in grain yield were detected in the high-yielding UC-Central Red background between the isogenic lines with and without the 6D deletion.

In both the RIL143 and UC-Central Red genetic backgrounds, the deletion of α-gliadin gene clusters on chromosome 6D was associated with highly significant increases in gluten strength. The larger percent increases in gluten strength observed in RIL143 relative to UC-Central Red are likely due to the significantly higher breadmaking quality of UC-Central Red relative to RIL143. No negative effects were associated with the presence of the 6D deletion alone. These results indicates that the 6D deletion can improve gluten strength in both poor and good breadmaking quality wheat varieties.

Figure 1

*Field evaluation of RIL143 and UC-Central Red sister lines with and without GLI2 deletions. Power transformations were used to restore normality of residuals when the Shapiro-Wilk test showed lack of normality. (A- D) RIL143 and sister lines with 6A, 6B, 6D, and combined 6A-6D deletions were evaluated in 2021 (5 blocks) and 2022 (5 blocks). Adjusted means were compared using Dunnett tests. (E-H) UC- Central Red and its sister line with the GLI-D2 deletion were evaluated in 2022 (6 replications) and 2023 (6 replications) and analyzed using an ANOVA with years as blocks. Bars are least-square means for the combined years, and error bars are standard errors of the means (s.e.m.). ns= not significant, * = P <0.05.*

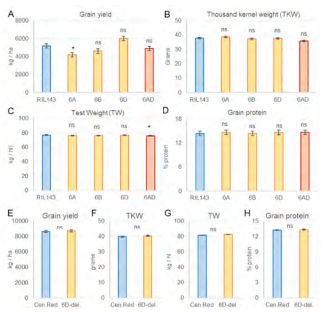
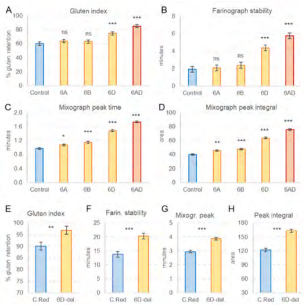


Figure 2

*Breadmaking quality evaluation of RIL143 and UC- Central Red sister lines with and without GLI2 deletions. Power transformations were used to restore normality of residuals when the Shapiro-Wilk test showed lack of normality. (A-D) RIL143 and sister lines with 6A, 6B, 6D, and combined 6A-6D deletions were evaluated in 2021 (5 samples per genotype) and 2022 (4 samples per genotype). Adjusted means were compared using Dunnett tests. (E-H) UC- Central Red and its sister line with the GLI-D2 deletion were evaluated in 2022 (6 replications) and 2023 (6 replications) and analyzed using an ANOVA with years as blocks. Bars are adjusted least-square means across years and error bars are standard errors of the adjusted means (s.e.m.). ns= not significant, * = P<0.05, **= P<0.01, *** = P<0.001.*



A genomic comparison among the α-gliadins present in chromosomes 6A, 6B, and 6D revealed that the α-gliadins in chromosomes 6A and 6B all have six cysteine residues (CYS), whereas two of the α-gliadins in 6D have seven CYS. Gliadins with even numbers of CYS form monomeric proteins with intramolecular disulfide bonds and, therefore, are not connected by covalent bonds to the gluten protein matrix. By contrast, the presence of uneven number of CYS results in free CYS that can covalently bind to the polymeric glutenins. Since these gliadins have the unique attribute of a free CYS, it has been suggested that they can act as covalent gluten "terminators" that limit the size of the gluten polymer. We performed a proteomics study and demonstrated that the 7–CYS gliadins are preferentially linked to the gluten polymer, whereas the 6-CYS gliadins are preferentially in the soluble phase. Taken together, the following four arguments support the hypothesis that the 7-CYS a-gliadins can act as chain terminators, and have a negative effect on gluten strength and breadmaking quality.

- The presence of 7-CYS gliadins only in the D genome.
- The stronger effect of the 6D deletion on gluten strength relative to the 6A and 6B deletions.
- The demonstration that the 7-CYS gliadin are preferentially incorporated into the gluten polymer.
- The published literature showing that the 6D deletion has a positive effect on the abundance of large gluten macropolymers

Conclusion

The deletion of α-gliadins on chromosome 6D showed beneficial effects on gluten strength and breadmaking quality. In addition, no reductions in grain yield were associated with this deletion in a recombinant inbred line and commercial line over two years each of field trials. The incorporation of α-gliadin and other gliadin deletions into commercial wheat varieties can be used to test if the reduction of CeD-epitopes delays the onset of the disease and reduces the incidence of CeDat a population level. Taken together, these results indicate that the 6D alpha-gliadin deletion is a useful breeding tool that may simultaneously reduce CeD toxicity and improve breadmaking quality.

Figure 3

Final bread loaves from UC-Central Red WT (Gli-D2+, control) and Gli-D2-

CONTACT

If you have any questions regarding the content in this brochure, please contact us at **helpdesk@aoecs.org**, or visit our webpage **www.aoecs.org**

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