

Gluten-Free Food: Not Just For Celiac Disease

Literature Review

Laura Graham

Lakeview College of Nursing

## GLUTEN-FREE FOOD: NOT JUST FOR CELIAC DISEASE

### **Gluten-Free Food: Not Just For Celiac Disease**

Gluten-free food is becoming more popular in the United States. Is this because there is a rise in gluten-related disorders, or are people choosing a gluten-free diet? Some people believe that eliminating gluten from their diet is healthy. According to Beyond Celiac, 18 million Americans have gluten sensitivity, which is six times more than Americans with celiac disease (Beyond Celiac, n.d.). Diagnosing gluten sensitivity is difficult because there is not a specific test used. Gluten sensitivity is not an immunoglobulin E or an autoimmune reaction, so there are no tests or biomarkers to identify gluten sensitivity (Gluten Intolerance Group, 2019). The diagnosis of gluten sensitivity is more difficult than the diagnosis of celiac disease. People should get a proper diagnosis of gluten sensitivity before they eliminate gluten from their diet.

### **Diagnosis of gluten related disorders: Celiac disease, wheat allergy and non-celiac gluten sensitivity**

More people are purchasing gluten-free products. It is unclear if it is because of an increase in gluten sensitivity or if people are removing gluten from their diet because they believe it is healthier. In a study performed by the National Health and Nutrition Examination Survey in the United States, the prevalence of self-prescribed gluten-free diet of children aged six years or older was 0.5% (Elli et al., 2015). Some believe that removing gluten from their diet will make them healthier. The market for gluten-free products is constantly growing. This rise in the purchase of gluten-free products may be due to people taking gluten out of their diet without a proper diagnosis of a gluten disorder.

### **Key Points**

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Gluten sensitivity is believed to be affecting more people each year. “The self-reported prevalence of NCGS was 13% in a United Kingdom population questionnaire-based survey, with less than 1% subjects having a medical diagnosis of the condition” (Elli et al., 2015, p. 7114). NCGS is non-celiac gluten sensitivity, is a condition that causes symptoms that are triggered by eating gluten; it is not autoimmune, like celiac disease or an allergy. The self-reported prevalence of NCGS may be due to the fact that it is a rule-out process, or that people are self-diagnosing themselves because they believe taking gluten out of their diet will be healthier.

### **Assumptions**

Too many people are eliminating gluten from their diet without being properly diagnosed with a gluten disorder, such as celiac disease, wheat allergy, or gluten sensitivity. NCGS is a “diagnosis of exclusion” after celiac disease, wheat allergy, and non-wheat-related disorders have been ruled out (Elli et al., 2015). It is possible that people do not want to go through the elimination process of getting diagnosed with gluten sensitivity. Diagnosing NCGS may be costly as well. In order to rule out celiac disease, the patient will need blood testing and an endoscopy (Mayo Clinic, 2019). People also may be falsely self-diagnosing themselves because they believe eating a gluten-free diet (GFD) is healthier.

### **Deficit/Conclusion**

The demand for gluten-free products is rising. “Gluten-related disorders are emerging as a relevant clinical entity along with the increasing popularity of the GFD” (Elli et al., 2015, p. 7116). The link between the demand for gluten-free products and people clinically diagnosed with gluten-related disorders is still unclear. Healthcare workers need more research on the

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differences among gluten-related disorders to better understand the relationship between the demand for gluten-free products and patients clinically diagnosed with gluten-related disorders.

### **Non-celiac gluten sensitivity: All wheat attack is not celiac**

There is a rise in sales of gluten-free products in the United States. It is difficult to determine if the rise in sales is due to peoples' choice, or if there is an increase in cases of NCGS, or if people are self-diagnosing themselves with NCGS. According to Igbinedion et al. (2017), estimations for the projected sales of gluten-free products are expected to reach two billion dollars in 2020. Igbinedion et al. (2017) state 1% of the population in the United States diagnosed with celiac disease and a suggested 6% of the population with NCGS. The rise in sales could be due, in part, to the misconception that cutting gluten out of one's diet is a healthy lifestyle choice.

### **Key Points**

The diagnosis of NCGS is difficult because there is a lack of biomarkers, so the diagnosis requires a "rule-out" method of other gastrointestinal disorders with similar symptoms. Since the diagnosis is challenging, many people are diagnosing themselves with NCGS. Igbinedion et al. (2017) list common symptoms of NCGS, including bloating, abdominal pain, epigastric pain, diarrhea, and constipation. These symptoms are similar to other gastrointestinal disorders, such as celiac disease and irritable bowel syndrome, making the diagnosis difficult. Igbinedion et al. (2017) propose a diagnostic work-up for NCGS, which involves excluding celiac disease and wheat allergy, starting patients on a gluten-free diet for a six week period to monitor symptoms, and confirming the diagnosis of NCGS in patients who respond to the gluten-free diet, which

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involves the reintroduction of gluten into their diet. A new diagnostic tool would be helpful for the diagnosis of NCGS because the current diagnostic tool may be uncomfortable for the patients.

### **Assumptions**

The rise in sales of gluten-free products indicates more people are self-diagnosing NCGS or people are choosing to remove gluten from their diet because some believe a gluten-free diet is a healthy lifestyle choice. However, taking gluten out of the diet may not be a healthy lifestyle choice, as many are led to believe. Gluten-containing whole grains contain B vitamins, magnesium, and iron (Harvard T.H. Chan School of Public Health, 2019). People should not take gluten out of their diet as a lifestyle choice because they may develop vitamin and mineral deficiencies. Self-diagnosing NCGS is also not recommended. Igbinedion et al. (2017) explain there are clinical trials exploring other treatments options for NCGS, including using probiotics and the use of the enzyme AN-PEP. If a person is considering a gluten-free diet, they should consult their primary care provider to discuss the positives and negatives of a gluten-free diet.

### **Deficit/Conclusion**

Since the diagnosis of NCGS is a long and difficult process, more research should be conducted on diagnostic tools for NCGS. The current diagnostic process may cause distress to the patients because reintroducing gluten into their diet may cause unpleasant symptoms (Igbinedion et al., 2017). Other diagnostic tools can be created when researchers and healthcare providers understand NCGS better. After more research is conducted to understand NCGS better, researchers may find preferable management techniques as well. Getting the proper diagnosis of

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NCGS will help people in the United States save money on gluten-free products because they won't self-diagnose or take gluten out of their diet without consulting a care provider.

### **Non-coeliac gluten sensitivity – A new disease with gluten intolerance**

Non-coeliac gluten sensitivity (NCGS) is a recently recognized disorder of gluten intolerance. A patient with gluten intolerance can be diagnosed with NCGS if they do not have the antibodies typically present in celiac disease or wheat allergy and if they do not have lesions in the duodenal mucosa, which is a characteristic of celiac disease (Czaja-Bulsa, 2015). The prevalence of NCGS is unknown because many patients self-diagnose and start a gluten-free diet without consulting their healthcare provider. According to Czaja-Bulsa (2015), some authors believe the amount of people with NCGS is higher than people diagnosed with celiac disease and wheat allergy. Since patients are self-diagnosing, the prevalence of NCGS is difficult to determine because the patients are not receiving a proper diagnosis from their healthcare providers.

### **Key Points**

NCGS has similar symptoms to celiac disease and irritable bowel syndrome, making it challenging to diagnose. Celiac disease and wheat allergy must be eliminated before there can be a diagnosis of NCGS. In NCGS, there are no biomarkers to make the diagnosis easier; only half of the patients observed had the IgG antigliadin antibodies (Czaja-Bulsa, 2015). Using antibodies to diagnose NCGS is not reliable because not all of the patients had the IgG antigliadin antibodies. The diagnosis of NCGS is confirmed by a food provocation test, which is performed as an open or a blind test. In an open test, the symptoms are objective, and in a blind test, the

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symptoms are subjective. In NCGS, the symptoms will occur hours or days after gluten consumption, and with a wheat allergy, the patient will experience symptoms within two hours of consuming gluten (Czaja-Bulsa, 2015). The diagnosis of NCGS requires ruling out celiac disease and wheat allergy.

### **Assumptions**

Some believe gluten is unhealthy, which leads to people cutting gluten from their diet without consulting their healthcare providers. However, Mayo Clinic (2017) states that few clinical studies have researched the benefits of a gluten-free diet among people without celiac disease or NCGS. There is not enough evidence supporting the theory that some believe to be true, that a gluten-free diet will help with weight loss or improve their overall health.

Whole-grain bread and other products containing gluten are good sources for iron, calcium, fiber, thiamin, riboflavin, niacin, and folate (Mayo Clinic, 2017). Before cutting out gluten from one's diet, they should consult their healthcare provider because their nutrient intake may change, and a gluten-free diet may be harmful, not helpful, for a person without celiac disease, wheat allergy, or NCGS.

### **Deficit/Conclusion**

The symptoms of NCGS overlap many other gastrointestinal disorders because the symptoms are similar. The diagnosis of NCGS requires the elimination of celiac disease and wheat allergy and a food challenge. The food challenge reintroduces gluten into a patient's diet, which may be stressful and uncomfortable for the patient. According to Czaja-Bulsa (2015), standards for the food challenge have not been developed. More research needs to be conducted for the diagnosis

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of NCGS, so the diagnosis is easier to conduct for the care providers, and so the diagnostic tests are less stressful and uncomfortable for the patients.

### **Conclusion**

Gluten-intolerant disorders may be on the rise judging from the increase in sales of gluten-free food. Statista Research Department (2018) projects that the market for gluten-free foods in 2020 is expected to be 7.59 billion U.S. dollars. Celiac disease, wheat allergy, and NCGS are different disorders with similar symptoms. However, celiac disease and wheat allergy are fairly easy to diagnose with a skin prick test or intestinal biopsies. NCGS is difficult to diagnose because celiac disease and wheat allergy must be ruled out first. NCGS has similar symptoms to celiac disease, including gastrointestinal issues occurring after the consumption of gluten. The treatment for celiac disease and NCGS are the same, removing gluten from the diet. However, NCGS patients have more flexibility to experiment with gluten-containing food (Harvard Health Publishing, 2014). Some people are not properly diagnosed with NCGS before removing gluten from their diet. It is understandable for people suffering from NCGS to adopt a gluten-free diet without going through the lengthy and potentially painful diagnosis of NCGS. Until there are better ways to diagnose NCGS, it will be difficult to determine if this gluten disorder has increased to the same degree as sales of gluten-free products or if people are purchasing gluten-free foods because they believe a gluten-free diet is healthier.

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