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BIBLIOMETRIC STUDY OF THE QUALITY OF CELIAC DISEASE RESEARCH PUBLICATIONS

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Abstract

Celiac disease (CD) is common and occurs in both children and adults. A recent bibliometric study revealed that the journal with the most CD articles was the Journal of Pediatric Gastroenterology and Nutrition followed by the American Journal of Gastroenterology, a predominantly adult journal. In order to assess the quality and complexity of the CD research appearing in these journals used strict published criteria to assess quality of the research in the 30 most recent research articles in each journal. We found that the research reported in these articles were of similar high quality and complexity.

Celiac disease (CD) is an autoimmune disorder affecting genetically predisposed individuals who develop a permanent intolerance to gluten, the main protein found in wheat, barley, and rye.[1] CD was initially described as a pediatric disorder;[2,3] however, currently the disease is, more common in adults than in children.[4-6]

In a bibliometric study, we examined research output by studying the number of publications about CD appearing in PubMed.[7] We noted the journal with the greatest number of celiac disease related publications was the Journal of Pediatric Gastroenterology and Nutrition (JPGN) with an adult gastroenterology journal (American Journal of Gastroenterology, Am J Gastroenterol) second. This prompted us to compare the complexity and quality of research publications, on celiac disease in both journals using the methodology published by Scott et al. [8]

The US National Library of Medicine, National Institutes of Health (<http://www.ncbi.nlm.nih.gov/pubmed/>) was used to identify 30 consecutive articles preceding 12/31/2011 in the both The American Journal of Gastroenterology (Am J Gastroenterol) and The Journal of Pediatric Gastroenterology and Nutrition (JPGN).

We only included original research articles, excluding letters to the Editor, editorials, and abstracts without full articles.[9] After selecting the 30 most recent articles from each journal, each was assessed and analyzed for study topic and scope, funding, study design, and statistical method as described by Scott et al.[8] Study topic and scope included country of origin,[10] number of authors, and whether it was a multi-center collaboration.[11]

Funding analysis determined if the sources of funding were reported, and if so, categorized them into government, private, and pharmaceutical funding.

The study design classified each article by descriptive study (case reports, case series, and cross sectional studies), observational analytical studies (case-control and cohort studies), and clinical trials. Additionally, the outcome of each study was defined as either clinical or physiological. The statistical method reviewed the statistical analysis of each article and evaluated whether p values, confidence intervals, power calculations, multivariable analyses, factor analysis, principal component analysis, and multilevel modeling was reported.

When we compared quality and complexity of research among the 30 most recent research articles on CD in the journals we found no significant difference in any of the parameters we examined.

For the Am J Gastroenterol, 47% of the articles were from either Italy or the United States and for the JPGN, 43% were from the same two top producing countries. Am J Gastroenterol had a higher average number of authors at 8.3 in comparison to 7 for JPGN. For both journals, 12 of the 30 articles were a multicenter collaboration. In the Am J Gastroenterol, 7 of those 12 were international, similar to the JPGN (6/12).

In the Am J Gastroenterol, 73% of the articles reported their sources of funding, 43% being from the government and 30% being privately funded. JPGN reported 53%, of which 37% was funded by the government, 6% privately, and 10% by a pharmaceutical company. This difference was not statistically significant ($p=0.74$)

Of the 30 articles published by the Am J Gastroenterol, 11 were classified as descriptive, 17 observational analytical, and 2 clinical trials. In the JPGN, 15 were descriptive, 14 observational analytical, and 1 clinical trial. Regarding each article having either a physiological or clinical outcome, in both Am J Gastroenterol and PGJN, 22 of the articles were deemed physiological and 8 clinical.

Within the 30 articles, 25 in the Am J Gastroenterol and 18 in the JPGN reported statistical analysis. The Am J Gastroenterol 96% reported p values, 52% reported confidence intervals, 4% used power calculation, 36% multivariable analysis, and 0% reported factor analysis, principal-component analysis, or multilevel modeling. In JPGN 94% reported p values, 55% reported confidence intervals, 11% power calculation, 39% multivariable analysis, and 6% factor analysis, principal-component analysis, or multilevel modeling.

In our analysis we demonstrated that the quality and complexity of celiac disease research in both JPGN and Am J Gastroenterol is comparable based on the similarities between the study topic and scope, funding, study design, and statistical methods. Good clinical research practices can be seen for celiac disease research on both the pediatric and adult levels.

References

1. Green PH, Cellier C. Celiac disease. *N Engl J Med*. 2007; 357:1731–1743. [PubMed: 17960014]
2. Gee S. On the celiac affection. *Saint Bartholomew's Hospital Reports*. 1888; 24:17–20.
3. Dickie WK, Weijers HA, Van de kamer JH. Coeliac disease. 11. The presence in wheat of a factor having a deleterious effect in cases of coeliac disease. *Acta Paediatr*. 1953; 42:34–42. [PubMed: 13050382]
4. Vilppula A, Kaukinen K, Luostarinen L, et al. Increasing prevalence and high incidence of celiac disease in elderly people: A population-based study. *BMC Gastroenterol*. 2009; 9:49. [PubMed: 19558729]

5. Maki M, Mustalahti K, Kokkonen J, et al. Prevalence of celiac disease among children in finland. *N Engl J Med*. 2003; 348:2517–2524. [PubMed: 12815137]
6. Rubio-Tapia A, Ludvigsson JF, Brantner TL, et al. The prevalence of celiac disease in the united states. *Am J Gastroenterol*. 2012
7. Narotsky D, Green PH, Lebwohl B. Temporal and geographic trends in celiac disease publications: A bibliometric analysis. *Eur J Gastroenterol Hepatol*. 2012; 24:1071–1077. [PubMed: 22713511]
8. Scott FI, McConnell RA, Lewis ME, et al. Increasing complexity of clinical research in gastroenterology: Implications for the training of clinician-scientists. *Am J Gastroenterol*. 2012; 107:496–500. [PubMed: 22475957]
9. Chou LF. Medline-based bibliometric analysis of gastroenterology journals between 2001 and 2007. *World J Gastroenterol*. 2009; 15:2933–2939. [PubMed: 19533822]
10. Lewison G, Grant J, Jansen P. International gastroenterology research: Subject areas, impact, and funding. *Gut*. 2001; 49:295–302. [PubMed: 11454809]
11. Hart PA, Ibdah JA, Marshall JB. Internationalisation of high-impact gastroenterology journals, 1970-2005. *Gut*. 2007; 56:895–896. [PubMed: 17519502]

TABLE 1

Most recent 30 articles (end point Jan 2012)	Journal of Pediatric Gastroenterology & Nutrition	The American Journal of Gastroenterology	P Value
Study Topic and Scope			
Percentage from USA or Italy	43%	47%	1.0
Average # of authors	7	8.3	0.15
Multicenter collaboration	Y 12 N 18	Y 12 N 18	1.0
International	6/12	7/12	1.0
Funding			
Reported sources	Y 16, 53% N 14, 47%	Y 22, 73% N 8, 27%	0.11
Type	Government: 11/16, 37% Private: 2/16, 6% Pharmaceutical: 3/16, 10%	Government: 13/22, 43% Private: 9/22, 30%	0.74
Study Design			0.56
Descriptive study (Case reports, case series, and cross sectional studies)	15	11	
Observational analytical studies (case-control and cohort studies)	14	17	
Clinical Trials	1	2	
Physiologic or Clinical Outcome	C 22 P 8	C 22 P 8	
Statistical Method	N = 18	N = 25	
Reported P value	17 (94%)	24 (96%)	1.0
Reported confidence interval	10 (55%)	13 (52%)	0.94
Power calculation	2 (11%)	1 (4%)	0.56
Multivariable analysis	7 (39%)	9 (36%)	0.76
Factor analysis, principal-component analysis, multilevel modeling	1 (6%)	0 (0%)	1.0