BURDEN–CIC (Better Understanding and Recognition of the Disconnects, Experiences, and Needs of Patients with <u>Chronic Idiopathic Constipation</u>) Study: A Severity Analysis John Horn,¹ Lucinda A. Harris,² Eamonn M.M. Quigley,³ Michele Kissous-Hunt,⁴ Joel Cavallo⁵

Background

- Chronic idiopathic constipation (CIC) is a common gastrointestinal (GI) disorder, affecting ~14% of the population.^{1,2}
- CIC is characterized by infrequent stools and straining and can be accompanied by abdominal symptoms such as bloating and discomfort,³ which can impact patients' experiences with disease and treatment.⁴
- It has been reported that constipation symptom severity is significantly associated with health-related quality of life (HRQOL), productivity losses, and healthcare utilization in patients with CIC.^{5,6}
- Treatment of constipation can be challenging, and many CIC patients cite dissatisfaction with both over-the-counter (OTC) and prescription treatments.⁷
- The BURDEN–CIC Study was designed to better understand the experiences, attitudes, and unmet needs of patients with CIC.

Objective

• This analysis assesses the impact of CIC severity on HRQOL, productivity, personal activities, and level of treatment satisfaction in a representative sample of the US population to further define the treatment needs of patients.

Methods

• The BURDEN–CIC Study utilized two author-developed online surveys: one for adult patients with CIC (IRB-approved) and one for healthcare professionals (HCPs) who treat CIC patients. The analysis herein focuses on the patient questionnaire.

Patient Questionnaire

- BURDEN–CIC recruited adult (≥18 years) patients suffering with CIC. Patients eligible to participate were either formally diagnosed with CIC by an HCP (diagnosed group) or fulfilled Rome IV criteria for CIC, as determined in the Screening Section of the questionnaire (undiagnosed group).
- Patients were not eligible to participate in BURDEN–CIC if they had irritable bowel syndrome with constipation, inflammatory bowel disease, diverticulitis, diverticulosis, spastic colon, celiac disease, or cancer of the GI tract, or if they had regularly taken an opioid (narcotic) within the past 3 months.
- Enrolled patients completed an online, self-administered questionnaire, with answer types including dichotomous, multiple-choice, and open-ended questions, as well as Likert rating scales (1-5 or 1-7).

CIC Severity

- Patients were categorized as having "more severe" CIC if they had: (1) productivity impacted by CIC symptoms (≥ 1 day in a typical month), OR (2) personal activity impacted by CIC symptoms (≥ 1 day in a typical month), OR (3) an emergency room visit for CIC-related symptoms (≥ 1 visit in the past year), OR (4) a current prescription treatment for CIC.
- Productivity: performing at work/school or doing household chores, etc.
- Personal activity: participating in a social event, sporting event, family activity, hobby, etc.
- Patients were categorized as having "most severe" CIC if they fit all 4 criteria for "more severe" CIC (see preceding).

Statistical Analysis

• The patient sample was weighted to correct for any biases in sampling or non-response and to reflect Current Population Survey demographic benchmarks.

Results

Table 1. CIC Patie

Female

- Age, yrs, mean (SD) Age at Symptom Onset,
- Race / Ethnicity White / non-Hispanic
- Black / non-Hispanic Mixed / non-Hispanic Other / non-Hispanic

Highest Education Leve High school – no g High school – diplom College – no graduati College – graduation College – post-gradu

Note that percentages may not total 100% due to rounding.

All Patients



ER=emergency room.

¹University of Washington Medicine Pharmacy Services, Seattle, WA, USA; ⁴Mount Sinai GI, New York, NY, USA; ⁵Synergy Pharmaceuticals Inc., New York, NY, USA; ³Houston, TX, USA; ⁴Mount Sinai GI, New York, NY, USA; ³Houston Methodist Hospital, Houston, TX, USA; ⁴Mount Sinai GI, New York, NY, USA; ³Houston Methodist Hospital, Houston, TX, USA; ⁴Mount Sinai GI, New York, NY, ⁴Mount Sinai GI,

ient Demographics								
	Total Patients N=1223	"More Severe" Patients N=847	"Most Severe" Patients N=175					
	69%	68%	56%					
	49.1 (18.0)	52.4 (18.7)	50.3 (17.8)					
et, yrs, mean (SD)	44.9 (17.7)	43.5 (17.4)	34.1 (15.2)					
ic	65%	61%	33%					
C	13%	14%	15%					
ic	3%	2%	_					
C	3%	3%	6%					
	16%	19%	46%					
vel								
aduation	7%	6%	4%					
ma/GED	27%	30%	38%					
ation	26%	28%	30%					
n	28%	28%	23%					
luate	12%	9%	4%					

• A total of 1223 patients with CIC completed the survey. Demographics were similar between the total population and the "more severe" subgroup, but the "most severe" subgroup patients were younger at CIC symptom onset and had a smaller proportion of white and a higher proportion of Hispanic respondents.

 Of the entire CIC patient population, 63% of patients were classified as having "more severe" CIC and 10% were classified as having "most severe" CIC.

Figure 1. Comparative Impact of CIC on HRQOL Measures for "More Severe" and

 Many patients indicated that CIC reduced productivity, reduced engagement in personal activities, and increased visits to the emergency room.



- Increasing CIC severity was associated with an increased number of days/month impacted for both productivity and personal activities.
- Despite prescription CIC treatment, CIC still impacted personal activities ~7 days/ month and productivity ~8 days/month.
- For patients indicating that symptoms interfered with productivity, CIC resulted in missing work/school an average of ~2 days/month in the "more severe" patients and nearly 5 days/month in the "most severe" patients.





- Higher percentages of patients with "most severe" CIC reported feeling stressed, embarrassed, depressed, and lacking confidence. The severity groups were similar in reporting feeling *frustrated* and *fed up*.
- Patients with "most severe" CIC were less than half as likely to feel accepting of their CIC or feel *in control* of their condition compared to the "more severe" group.
- likely to feel *in control* of their condition.

Table 2. Patient Agreement on reelings Towards CIC Symptoms					
Patient Statements	All CIC Patients	More Severe Patients	Most Severe Patients		
I feel unclean: feel like toxins are building up inside me	26%	34%	45%		
I feel embarrassed that I spend a lot of time sitting in the bathroom	23%	30%	52%		
My constipation symptoms make me feel like I am "not normal"	22%	30%	43%		
I find myself avoiding situations where there wouldn't be a bathroom nearby	20%	27%	56%		
My constipation symptoms prevent me from enjoying my daily activities	18%	26%	51%		
My constipation symptoms cause me to stay home more often	17%	24%	63%		
It is very difficult to plan things as I never know when my constipation symptoms will act up	15%	23%	44%		
I have to plan my days around when I'd have to go to the bathroom	15%	22%	42%		

• "Most severe" CIC patients were about twice as likely as "more severe" patients to agree that CIC prevents them from enjoying their daily activities and socializing and causes them to plan their day around their constipation.





 CIC severity was positively related to the cumulative number of patient symptoms from somewhat to extremely bothersome (61% total popul "more severe" patients, and 85% "most severe" patients).

• A higher percentage of patients categorized as "most severe" rated their CIC symptoms as very bothersome or extremely bothersome.



*Percentage of patients currently using an OTC treatment. **Percentage of patients currently taking a prescription CIC treatment.

• Of the total population, only 21% of current prescription treatment users were completely satisfied with prescription treatment, and only 15% of current OTC treatment users were completely satisfied with OTC treatment.

 Only 1% of "most severe" CIC patients were completely satisfied with OTC treatment, and only 8% were completely satisfied with prescription treatment.

Compared to all CIC patients, the "most severe" patients were about one third as

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Discussion

- This subanalysis of the BURDEN–CIC Study corroborates findings^{5,6} that CIC symptom severity negatively impacts patients' HRQOL and experience with CIC.
- There was a trend between CIC-related impairment of productivity and personal activity and CIC symptom severity, with a large number of days/month affected.
- Patients who were currently taking a prescription CIC treatment reported having productivity and personal activity impacted by CIC symptoms 8 and 7 days/month, respectively, suggesting that current prescription treatments do not sufficiently address CIC symptoms that impact HRQOL.
- Patients with higher levels of symptom severity were much less likely to report feeling accepting and in control of their CIC and were much more likely to report emotional and psychological consequences.
- Only 8% of "most severe" patients reported being completely satisfied with current prescription treatments for CIC, and less than one-fourth of the "more severe" and all patient groups reported complete satisfaction. Even fewer patients in all groups expressed satisfaction with current OTC therapies.
- These results from BURDEN-CIC demonstrate that CIC is not a benign condition and that currently available OTC and prescription treatments for CIC are not adequately managing the symptoms and impact of CIC for patients.

References

- Higgins PD, Johanson JF. Epidemiology of constipation in North America: a systematic review. Am J Gastroenterol. 2004:99:750–759.
- Suares NC. Ford AC. Prevalence of, and risk factors for, chronic idiopathic constipation in the community: systematic review and meta-analysis. Am J Gastroenterol. 2011;106:1582-1591.
- 3. Lacy BE, Mearin F, Chang L, et al. Bowel disorders. *Gastroenterology*. 2016;150:1393–1407.e5.
- Heidelbaugh JJ, Stelwagon M, Miller SA, et al. The spectrum of constipation-predominant irritable bowel syndrome and chronic idiopathic constipation: US survey assessing symptoms, care seeking, and disease burden. Am J Gastroenterol. 2015:110:580–587.
- . Tack J. Camilleri M. Dubois D. et al. Association between health-related quality of life and symptoms in patients with chronic constipation: an integrated analysis of three phase 3 trials of prucalopride. Neurogastroenterol Motil. 2015;27:397–405.
- . Neri L, Basilisco G, Corazziari E, et al; LIRS Study Group. Constipation severity is associated with productivity losses and healthcare utilization in patients with chronic constipation. United European Gastroenterol J. 2014;2:138-147.
- . Johanson JF, Kralstein J. Chronic constipation: a survey of the patient perspective. *Aliment Pharmacol* Ther. 2007;25:599-608.

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Disclosures

LA Harris has participated in advisory boards and has served as a consultant for Synergy Pharmaceuticals J Cavallo is an employee and stockholder of Synergy Pharmaceuticals Inc. EMM Quigley, M Kissous-Hunt, and J Horn have no conflicts of interest to declare.