BRIEF REPORTS

How Do Older Persons Define Constipation?

Implications for Therapeutic Management

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This study examined the relation between bowel-related symptoms and self-report of constipation in 10,875 subjects aged 60 years and over, who participated in the 1989 National Health Interview Survey. Subjects reporting constipation "always" or "mostly" over the past 12 months (n = 594) were compared with those who reported never having the symptom (n = 4,192). Straining (adjusted odds ratio 66.7; 95% confidence interval 31.5, 142.4) and hard bowel movements (25.6; 16.7, 38.7) were most strongly associated with self-report of constipation. These findings suggest that treatment for constipation in the older population should be directed as much or more at facilitating comfortable rectal evacuation, as increasing bowel movement frequency.

KEY WORDS: **constipation; aged; bowel movements; straining; rectal evacuation.**
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The prevalence of self-reported constipation increases markedly among individuals aging beyond the sixth decade of life,[1–3] yet bowel movement frequency does not generally decline with aging,[1–4] even among older persons who report constipation.[2,4,5] This would suggest that symptoms other than infrequent bowel movements in part underlie the report of constipation in elderly persons.[1,6] Although self-report of constipation in older people has been associated with subjective symptoms of anxiety, depression, and poor general health perception,[5] the relation to specific bowel-related symptoms has not been well studied. Previous work suggests that the subjective symptom of constipation frequently drives the high level of laxative use in the elderly population.[3–8] A clearer understanding of the specific bowel symptoms associated with patient reports of "constipation" may be useful in guiding the diagnosis, evaluation, and treatment of this common problem in older people.[8,9] Therefore, we examined the relation between self-report of constipation and other bowel-related symptoms in a population-based sample of older Americans.

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METHODS

The study population consisted of all individuals aged 60 years and older who participated in the 1989 National Health Interview Survey (NHIS) Digestive Disorders Supplement. Noninstitutionalized individuals were randomly selected for face-to-face interviews from households throughout the United States. A detailed description of the design of the survey was published by the National Center for Health Statistics.[10]

The analyses described herein focus on responses to the following survey questions:

1. During the past 12 months, how often (always, mostly, sometimes, rarely, never) have you been constipated?
2. During the past 12 months, how often (always, mostly, sometimes, rarely, never) have your bowel movements been:
   a. Hard?
   b. Accompanied by straining?
   c. Followed by a feeling of not being flushed?
   d. Accompanied by pain?
   e. Accompanied by swelling or bloating?
3. How often do you usually have bowel movements? (times per week).

Individuals responding "always" or "mostly" to question 1 were characterized as having constipation for the purpose of this study.

Data Analysis

Demographic information on study subjects included age (60–69, 70–79, 80+), gender, and race (white, African American, and other including Asian/Pacific Islander, Native American, and Hispanic). Bowel-related symptoms studied were straining, report of hard bowel movements, a feeling of incomplete evacuation, pain, bloating, and report of no more than two bowel movements per week. Subjects with constipation were compared with those who reported never having the symptom. The association between self-report of constipation and bowel-related symptoms was examined by using multiple logistic regression analysis; the model included terms for each of the bowel-related symptoms of interest as well as age, gender, and race.

RESULTS

Among the total population of 10,875 subjects, 594 (5.7%) reported constipation "always" or "mostly," 5,854 (53.8%) reported constipation "sometimes" or "rarely", and 4,192 (38.6%) reported that they were never constipated. Table 1 shows that the relative risk of self-report of constipation increased with advancing age; persons 80 years of age or older were over two and a half times more likely than those 60 to 69 to report constipation. Women were more than twice as likely as men to report constipation, and African-American subjects were slightly more likely to report constipation compared with whites or those of other races.

Report of straining and of hard bowel movements

Table 1. Prevalence and Relative Risk of Self-Report of Constipation by Age, Gender, Race, and Bowel-Related Symptoms

Characteristic (%)	Constipated		Never Constipated	Relative Risk*
	Always/Mostly	Sometimes/Rarely		
	n = 594	*n* = 5,854	*n* = 4,192	(95% CI)
Age				
60–69 (*n* = 5,133)	4.1	53.2	41.0	1.00
70–79 (*n* = 3,980)	5.4	54.0	38.7	1.36 (1.1, 1.6)
80+ (*n* = 1,744)	9.7	55.9	31.4	2.61 (2.2, 3.1)
Gender				
Male (*n* = 3,990)	3.2	51.2	43.5	1.00
Female (*n* = 6,867)	6.8	55.9	35.8	2.32 (1.9, 2.8)
Race				
White (*n* = 9,119)	5.4	53.8	40.6	1.00
Black (*n* = 1,246)	7.5	59.2	32.7	1.59 (1.3, 1.9)
Other (*n* = 205)	4.9	55.6	38.5	0.96 (0.5, 1.7)
Straining				
Never (*n* = 6,346)	1.8	41.9	56.1	1.00
Sometimes/rarely (*n* = 3,807)	5.5	79.1	15.1	8.47 (6.8, 10.5)
Always/mostly (*n* = 400)	64.8	32.5	3.3	30.2 (25.2, 36.2)
Hard bowel movements				
Never (*n* = 3,316)	1.4	27.8	70.5	1.00
Sometimes/rarely (*n* = 6,221)	2.7	71.5	25.5	4.88 (3.6, 6.7)
Always/mostly (*n* = 936)	39.0	40.5	20.0	33.6 (25.1, 44.8)
≤2 bowel movements per week (*n* = 473)	23.9	24.5	13.7	6.08 (5.3, 7.0)
Feeling of incomplete evacuation				
Never (*n* = 7,322)	2.6	48.2	48.9	1.00
Sometimes/rarely (*n* = 2,921)	8.5	73.6	17.8	6.34 (5.3, 7.5)
Always/mostly (*n* = 269)	50.9	34.2	14.9	15.2 (13.0, 17.8)
Bowel movement accompanied by pain				
Never (*n* = 8,378)	3.3	50.2	46.3	1.00
Sometimes/rarely (*n* = 2,025)	10.8	76.4	12.8	6.92 (6.0, 8.1)
Always/mostly (*n* = 155)	60.0	31.6	8.4	13.3 (11.6, 15.2)
Bowel movement accompanied by bloating				
Never (*n* = 8,378)	3.3	50.2	46.3	1.00
Sometimes/rarely (*n* = 2,025)	10.8	76.4	12.8	5.98 (5.1, 7.0)
Always/mostly (*n* = 155)	60.0	31.6	8.4	10.5 (9.0, 12.2)

**Relative risks for constipated "always/mostly" compared with "never." Referent groups: age 60–69; male gender; white race; bowel-related symptom reported as "never."*

were most strongly associated with self-report of constipation in the unadjusted analysis (Table 1). Feelings of incomplete evacuation, and of pain and bloating were less strongly associated, and the association of the report of constipation with two or fewer bowel movements per week was least strong.

Straining and report of hard bowel movements remained most strongly associated with self-report of constipation after simultaneous inclusion in a multivariate model (Table 2). The strength of the association with two or fewer bowel movements per week persisted, but reports of feeling of incomplete evacuation and bowel movements accompanied by pain were less strongly associated after adjustment. Bloating was not significantly associated with constipation.

Table 2. Characteristics Independently Associated with Self-Report of Constipation

Characteristic	Adjusted Odds Ratio* (95% CI)
Age	
60–69	1.00
70–79	1.54 (1.1, 2.1)
80+	3.17 (2.2, 4.6)
Gender	
Male	1.00
Female	2.79 (2.0, 3.9)
Race	
White	1.00
Black	1.86 (1.2, 2.8)
Other	1.16 (0.4, 3.2)
Bowel movements accompanied by straining	
Never	1.00
Sometimes/rarely	3.6 (2.6, 5.1)
Always/mostly	66.7 (31.5, 142.4)
Hard bowel movements	
Never	1.00
Sometimes/rarely	2.27 (1.5, 3.4)
Always/mostly	25.6 (16.7, 38.7)
≤2 Bowel movements per week	11.9 (6.8, 20.9)
Feeling of incomplete evacuation	
Never	1.00
Sometimes/rarely	1.39 (1.0, 2.0)
Always/mostly	3.4 (1.7, 6.9)
Bowel movements accompanied by pain	
Never	1.00
Sometimes/rarely	2.46 (0.8, 7.3)
Always/mostly	2.53 (1.7, 3.8)
Bowel movements accompanied by bloating	
Never	1.00
Sometimes/rarely	1.43 (0.9, 2.2)
Always/mostly	1.82 (0.7, 4.4)

**Adjusted odds ratios for constipated "always/mostly" compared with "never." Referent groups: age 60–69; male gender; white race; bowel-related symptom reported as "never."*

DISCUSSION

Our findings suggest that the bowel-related symptoms most strongly related to self-report of constipation in older persons are straining and hard bowel movements. Our findings likely characterize those persons who are more likely to visit a physician for evaluation and treatment of persistent and chronic bowel-related symptoms.

Both straining and hard stools should be considered cardinal symptoms of constipation in older persons. Chronic straining and hard stools are likely to be more reliable clinical indicators of bowel dysfunction than the general complaint of constipation. A high prevalence of straining is seen in the elderly,[1,4–7] in part owing to certain age-related changes such as prolongation of pudendal nerve motor latency and loss of pelvic muscle tone, most notably in older women.[11–13] Excessive perineal descent during straining may lead to further damage to the pudendal nerve from compression against the ischeal spine.[12] Straining in older persons of both genders may also be an indicator of rectal dyschezia, in which rectal sensation and contractility are impaired,[9,11,13,14] and the clinical risk of both fecal incontinence and recurrent rectal impaction is potentially increased.[12,14] Report of hard bowel movements has been correlated with prolongation of rectosigmoid transit time.[11,15] Hard stools require higher intra-abdominal pressures to be effectively evacuated from the rectum, so straining is often an associated symptom.[7]

Management strategies for chronic straining should focus specifically on facilitating rectal evacuation, rather than on increasing bowel movement frequency. Helpful therapeutic interventions would be to promote bulkier, softer stools so as to stimulate rectosigmoid contraction, by use of wheat bran or bulk laxatives.[16,17] Judicious administration of bisacodyl suppositories promotes effective rectal evacuation,[9] and elevation of the legs onto a footstool during evacuation may improve efficacy of the Valsalva maneuver. For elderly persons complaining of hard stools, rather than using the commonly prescribed agent docusate sodium,[6] which recent examination suggests is ineffectual as a laxative agent,[18] more optimum therapy would be with bulk laxatives, or osmotic agents (sorbitol or lactulose), which enhance transit through the distal colon and rectum, as well as softening stool.[16,17,19]

One potential limitation of this study is that report of bowel-related symptoms, however specific, may be subjective. However, test-retest evaluations of bowel-symptom questionnaires in elderly subjects have shown good reliability.[4,20] Psychosocial factors and clinical factors such as diet, physical activity, medication use, and chronic illness are important to consider when evaluating the problem of constipation; information regarding such variables was not available from these survey data.

In conclusion, the specific bowel-related symptoms most strongly associated with the complaint of constipation in elderly persons are straining and hard stools. These symptoms should be carefully explored in any patient with constipation. Treatment of constipation in the geriatric population should be directed at relieving each patient's individual symptoms, not simply at increasing bowel movement frequency.

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