
Epidemiology of Visceral Pain



Prevalence of Visceral Pain

- Is by far the most common type of pain¹
 - Ranges from discomfort of indigestion to the agony of renal colic¹
- Prevalence rates (adults)¹
 - Intermittent abdominal pain: 25%
 - Chest pain: 20%
 - Pelvic pain (women): 16-24%
 - Abdominal pain with no definite explanation is the 10th most common cause of hospital admission for any reason in men¹
 - Sixth most common in women¹
 - A survey showed that up to 67% of consecutive admissions to a teaching hospital surgical ward were for “non-specific” abdominal pain²

Pain from internal organs is widespread and its social burden may surpass that of somatic pain³

Visceral Pain and Gender

- **Gender-specific viscera**
 - Women seem more likely than men to manifest a number of “parapsychological” visceral pains in life due to more complex nature of reproductive organs
 - Women also more prone to develop frank “pathological” pains from same viscera
- **Non-gender-specific viscera**
 - Gender differences in many painful pathologies
 - More prevalent in **men**: CHD
 - More prevalent in **women**: gallbladder disease, IBS, interstitial cystitis
 - May be due to presumed higher susceptibility of women to nociceptive sensitization

Gender differences exist in the perception of pain from internal organs

Visceral Pain and Gender

- Gender influences the nature of pain from the same visceral pathology (intensity, location, and quality)
- Gender also influences the array of accompanying symptoms
- Women appear to be more prone than men to developing viscerovisceral hyperalgesia
 - Women probably at a higher risk for prolonged episodes of visceral pain, especially organs of the lower abdomen and pelvis
- Women more likely to have extended areas of somatic hyperalgesia – especially muscle – from multiple, concurrent, and recurrent visceral pains



Visceral Pain and Gender



- Visceral conditions are more prevalent
- Visceral conditions are more persistent
- Visceral conditions may be more insidious, complex, and difficult to diagnose
- Physicians may belittle algogenic processes of female reproductive organs and regard pain from them as normal
- More clear-cut description and etiology of visceral pain



Visceral pain is often undertreated in women vs. men, and when treated it is given empiric rather than mechanism-based therapy

Prevalence of Visceral Pain by Body Area

Body Area	Condition and Prevalence
Chest	Reflux esophagitis: 13.4% Costochondritis: 13.1%
Gastrointestinal	Irritable bowel syndrome: 10 – 20%
Pelvis	Chronic pelvic pain Women: 14%
Bladder	Chronic bladder pain Women: 2.6% Men: 1.3%
Genitals	Post-vasectomy scrotal pain: 15 – 19%
Genitals	Vulvar pain syndrome/vulvodynia: 15%

Irritable Bowel Syndrome



IBS: The Most Common Cause of Visceral Pain

- Chronic painful disorder of the GI tract^{1,2}
- Characterized by abdominal pain/discomfort associated with a change in stool form or frequency¹
- Considerable economic burden
 - Similar impairment of QoL as for ulcerative colitis, Crohn's disease¹
- No identifiable structural abnormality = functional GI disorder
- Various possible mechanisms¹
 - Visceral hypersensitivity
 - Abnormal GI motility
 - Abnormal GI flora
 - Low-grade mucosal inflammation
 - Altered CNS perception of pain



IBS is probably the most common disorder encountered by gastroenterologists in the industrialized world, and the most common functional bowel disorder seen in primary care.³

Prevalence of IBS According to Geographic Location

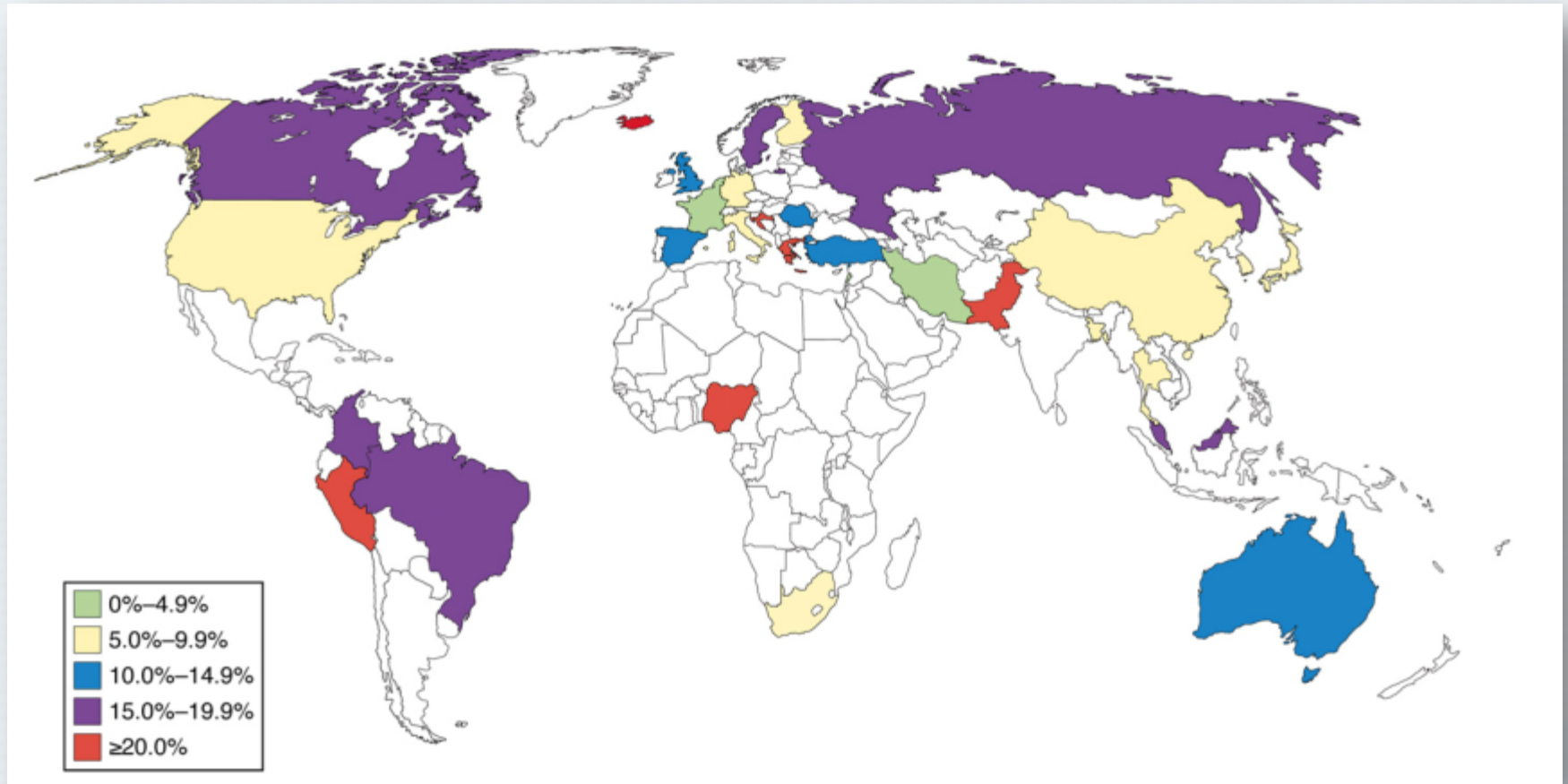
	No. of studies	No. of subjects	Pooled prevalence (%)	95% CI	I ² (%)	P value for I ²
All studies	80	260,960	11.2	9.8–12.8	99.3	<.001
Criteria used to define IBS						
Rome II	36	128,893	9.4	7.8–11.1	99.0	<.001
Rome I	24	55,478	8.8	6.8–11.2	98.7	<.001
Manning	23	39,786	14.0	10.0–17.0	99.0	<.001
Questionnaire-defined	12	64,804	12.2	7.6–17.7	99.7	<.001
Rome III	5	22,427	11.3	3.1–23.8	99.6	<.001
Study year						
1981–1990	7	24,710	8.5	3.0–16.5	99.6	<.001
1991–2000	33	639,642	12.0	9.0–15.0	99.1	<.001
2001–2010	38	160,563	10.9	9.1–12.8	99.3	<.001
2011	2	11,723	21.0	8.0–38.0	N/A ^a	N/A ^a
Duration of symptoms						
1 mo	1	6094	14.0	13.0–15.0	N/A ^a	N/A ^a
3 mo	15	40,524	15.7	9.9–22.7	99.6	<.001
6 mo	1	700	21.0	18.0–25.0	N/A ^a	N/A ^a
12 mo	40	148,325	9.0	8.0–11.0	98.8	<.001
Method used to collect symptom data						
Interview-administered questionnaire	33	113,978	9.4	7.4–11.6	99.3	<.001
Postal questionnaire	29	105,060	15.0	12.0–17.0	99.1	<.001
Telephone interview	8	16,182	5.0	4.0–7.0	94.6	<.001
Self-completed questionnaire	6	23,748	13.0	5.0–23.0	99.6	<.001

N/A, not applicable.

^aToo few studies to assess heterogeneity.

Highest prevalence: South America (21%)
Lowest prevalence: Southeast Asia (7%)

Prevalence of IBS According to Country



IBS = irritable bowel syndrome

Lovell RM, Ford AC. *Clin Gastroenterol Hepatol.* 2012;10(7):712-21.

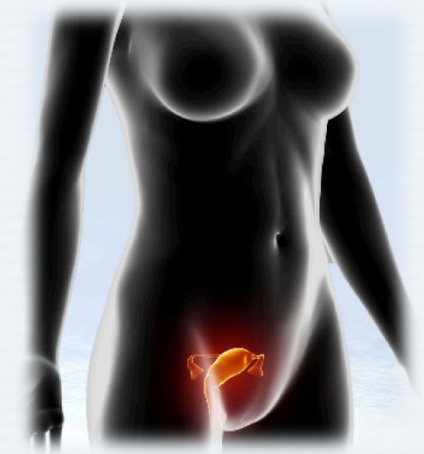
Prevalence of IBS According to Age, Gender, and Socioeconomic Status

Parameter	Odds Ratio for IBS
Age (years)	
<30	1.00
30-39	1.04
40-49	0.86
50-59	0.68
≥60	0.63
Gender	
Male	1.00
Female	1.67
Socioeconomic Status	
High	1.00
Medium	1.02
Low	0.99

IBS prevalence decreases with age, is higher in women than in men, and is not impacted by socioeconomic status.

Prevalence of Vulvodynia

- Vulvodynia is frequently misdiagnosed
- Common condition among women of reproductive age
- Prevalence estimated at 10-28%
- True prevalence is unknown
- Caucasian and African American women have similar lifetime prevalences
 - Hispanic women 80% more likely to experience chronic vulvar pain than Caucasian or African American women
- Estimated that almost 40% of women with vulvodynia do not seek treatment



Prevalence of Endometriosis

- Found in 4.1% of asymptomatic women undergoing laparoscopy for sterilization
- Evidence of the disease is present in 20% of women undergoing laparoscopic investigation for infertility
- About 24% of women complaining of pelvic pain are subsequently found to have endometriosis
- Overall prevalence – including symptomatic and asymptomatic women – is estimated to be 5-10%



Prevalence of Interstitial Cystitis (IC)

- True prevalence unknown
 - No objective marker for IC
 - Often misdiagnosed or undiagnosed
- May affect 20% of females
 - Female:male estimated at 10:1
- Some evidence suggests incidence is slowly increasing among young and middle-aged women



Literature Cited

- Farthing, M. J. (1995). Irritable bowel, irritable body, or irritable brain? *BMJ (Clinical Research Ed.)*, 310(6973), 171–175.
- Halder, s, & Locke, G. (2009). Epidemiology and social impact of visceral pain. In *Visceral pain: clinical, pathophysiological and therapeutic aspects*. Oxford University Press.
- Harlow, B. L., & Stewart, E. G. (2003). A population-based assessment of chronic unexplained vulvar pain: have we underestimated the prevalence of vulvodynia? *Journal of the American Medical Women's Association (1972)*, 58(2), 82–88.
- Harlow, B. L., Vazquez, G., MacLehose, R. F., Erickson, D. J., Oakes, J. M., & Duval, S. J. (2009). Self-reported vulvar pain characteristics and their association with clinically confirmed vestibulodynia. *Journal of Women's Health (2002)*, 18(9), 1333–1340. <http://doi.org/10.1089/jwh.2008.1032>
- Lovell, R. M., & Ford, A. C. (2012). Global prevalence of and risk factors for irritable bowel syndrome: a meta-analysis. *Clinical Gastroenterology and Hepatology: The Official Clinical Practice Journal of the American Gastroenterological Association*, 10(7), 712–721.e4. <http://doi.org/10.1016/j.cgh.2012.02.029>
- Metts, J. F. (1999). Vulvodynia and vulvar vestibulitis: challenges in diagnosis and management. *American Family Physician*, 59(6), 1547–1556, 1561–1562.

Literature Cited

Payne, C. K., Joyce, G. F., Wise, M., Clemens, J. Q., & Urologic Diseases in America Project. (2007). Interstitial cystitis and painful bladder syndrome. *The Journal of Urology*, 177(6), 2042–2049. <http://doi.org/10.1016/j.juro.2007.01.124>

Wellbery, C. (1999). Diagnosis and treatment of endometriosis. *American Family Physician*, 60(6), 1753–1762, 1767–1768.

Wesselmann, U., Baranowski, A. P., Börjesson, M., Curran, N. C., Czakanski, P. P., Giamberardino, M. A., ... Traub, R. J. (2009). EMERGING THERAPIES AND NOVEL APPROACHES TO VISCERAL PAIN. *Drug Discovery Today. Therapeutic Strategies*, 6(3), 89–95. <http://doi.org/10.1016/j.ddstr.2009.05.001>