Are Patients with a History of Sexual or Physical Abuse More Anxious or Difficult to Sedate for Endoscopy?

Abstract

Aim: The purpose of this study was to determine whether patients undergoing endoscopy who report a previous history of sexual or physical abuse (SA and PA) exhibit increased pre-procedural anxiety and higher sedation requirements than patients who do not report a history of abuse.

Methods: Patients undergoing esophagogastroduodenoscopy (EGD) or colonoscopy were recruited and consented in the endoscopy suite at Montefiore Medical Center prior to their scheduled procedure. Baseline (trait-anxiety) and pre-procedural anxiety (state-anxiety) was measured for each study participant using the previously validated State-Trait Anxiety Inventory (STAI). After completing the STAI, a history of SA and PA was assessed by completion of the sexual and physical abuse domains of the Early-Trauma Inventory (ETI). Patient demographics, comorbidities, procedural type and indication, conscious sedation requirements and vital signs throughout the procedure were recorded for each endoscopic procedure. Anxiety scores and sedation requirements were compared between patients with and without a history of SA and PA.

Results: Of the 70 patients who were approached for participation, 64 consented and enrolled (median age 57.5 years, 62.5% women). 27% and 73% of the patients underwent EGD or colonoscopy, respectively. A prior history of SA and PA was reported in 14.0% (n=9) and 32.8% (n=21) of patients, respectively. Patients with a history of SA exhibited significantly higher trait-anxiety levels compared with those without SA (48.0 vs 39.0, respectively; p=0.04); however, pre-procedural, state-anxiety levels were similar between groups (45.0 vs 42.0, respectively; p=0.67). Patients with a history of SA also had significantly higher values on the PA domain of the ETI than patients without SA (3.0 vs 1.0, p=0.02). Patients with a history of PA exhibited similar trait-anxiety (41.0 vs 42.0, p=0.75) and pre-procedural, state-anxiety (42.0 vs 43.0, p=0.85) levels compared with those without PA. Sedation requirements for endoscopic procedures were not significantly correlated with abuse history or trait- or state-anxiety (p>0.05) levels.

Conclusion: A history of SA was associated with increased baseline but not pre-procedural anxiety levels in patients undergoing endoscopy. There was no association between abuse history and sedation requirements for endoscopy.

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Introduction

Patients with a history of sexual or physical abuse (SA, PA) report more severe GI symptoms, greater psychological distress and poorer daily function compared with patients who do not have a history of such abuse [1-4]. In addition, patients with a history of abuse more readily seek medical attention and undergo more invasive procedures, including surgery [1-3]. The heightened severity of symptoms seen in abused patients contributes to more tertiary center referrals [5], which likely leads to further invasive diagnostic testing, including upper tract endoscopy and colonoscopy. Screening for an abuse history in patients about to undergo endoscopy is not routinely performed, but doing so may allow us to better understand our patients and thereby improve their care.

In patients who have been sexually or physically abused, it is possible that introducing an endoscope into the mouth or anus may evoke painful memories of the abuse and prompt severe emotional distress. Furthermore, a history of abuse might exacerbate feelings of vulnerability and lack of control in the pre-procedural period. Clinical vignettes have been described in which sexually abused patients silently cried or shook throughout their endoscopic procedures and equated the arm being squeezed by the blood pressure cuff to being grabbed and immobilized [6]. Such vignettes illustrate that psychological distress experienced before and during endoscopy in patients with a history of abuse may be driven by factors that differ from those without a history of abuse.

Patients with a history of abuse are reported to have altered physiologic responses to painful and stressful stimuli [7-9]. Specifically, patients with a history of abuse are detailed to have significantly lower pain thresholds in response to digital pressure stimuli and to consider these stimuli as more noxious than do patients without a history of abuse [10]. It also has been

shown that women with a history of abuse have a higher rise in anal pressure (anismus) during straining suggesting altered physiology [11]. Functional MRI (fMRI) has allowed better understanding of brain-gut dysfunction and in one publication, the co-occurrence of abuse history and irritable bowel syndrome was shown to result in a greater pain perception that was mediated via cingulate activation [2]. Furthermore, studies have shown that compared with controls, women with a history of childhood abuse exhibit altered physiologic responses to stress characterized by pituitary-adrenal and autonomic hyperactivity, presumably due to corticotropin-releasing factor (CRF) hypersecretion [12,13].

Given our knowledge that patients with a history of abuse have altered pain perception and exaggerated physiologic responses to stress and our conjecture that endoscopy may rekindle memories of abuse, we hypothesized that patients with a history of abuse may have heightened pre-procedural anxiety and require deeper sedation and analgesia for endoscopy.

The objectives of our study were to determine if patients with a history of SA or PA have more anxiety prior to endoscopy and whether they require more sedation than patients without a history of such abuse.

Materials and Methods

Study Design

After institutional review board approval, a prospective study was conducted enrolling consecutive patients about to undergo outpatient EGD or colonoscopy at Montefiore Medical Center, Bronx, New York. All study participants, provided informed written consent prior to study enrollment. Baseline (trait-anxiety) and pre-procedural anxiety (state-anxiety) was measured for each study participant using the previously validated State-Trait Anxiety Inventory (STAI). After completing the STAI, a history of SA and PA was assessed by completion of the sexual and physical abuse domains of the Early-Trauma Inventory (ETI). The study participant subsequently underwent their pre-scheduled endoscopy. The endoscopist, nurse and technician in the procedure room were blinded to the patient's abuse history. In accordance with standard of care, a starting dose of fentanyl and midazolam was administered immediately prior to the procedure, followed by additional doses titrated to patient comfort and sedation. Conscious sedation requirements were recorded for each endoscopic procedure.

Study Population

English- and Spanish-speaking patients were eligible to participate if they were scheduled to undergo either EGD or colonoscopy using conscious sedation, agreed to participate and provided informed consent. All questionnaires and consent forms were available in English and Spanish and Spanish translators were present for every patient-interaction if the study participant was not able to speak English or felt uncomfortable speaking in English. Major exclusion criteria were age younger than 18 years, use of any sedatives other than fentanyl or midazolam, chronic use of drugs that could influence sedation requirements including, narcotics, anxiolytics and illicit drug use, and mental retardation, dementia, or altered mental status resulting in inability to provide consent and complete study questionnaires. All study participants were offered psychiatric counseling immediately after completing the STAI and ETI questionnaires and again 24-48 hours after their procedure.

Study Questionnaires

The STAI is an internally-validated questionnaire that measures an individual's inherent, relatively stable anxiety level or trait anxiety and also an individual's response to a stressful or threatening situation or current state anxiety through the administration of 20 questions for each anxiety type [14]. Each item was rated on a 4-point Likert-type response scale ranging from zero ("never") to 4 ("almost always"). Higher STAI scores have been shown to correlate with higher levels of anxiety [14].

The ETI is available in two validated forms, the ETI Self Report (ETI-SR) and the ETI Self Report Short-Form (ETISR-SF), both of which include assessment of four domains of trauma during childhood: general trauma, emotional, sexual and physical abuse [15]. Each of the four domains is internally valid and can be used alone [15]. The ETISR-SF is a shortened version of the ETI-SR and was developed to enhance the ease with which this questionnaire is incorporated into clinical research [15]. For the purpose of clarity and simplicity, the shortened, sexual abuse (SA) domain of the ETISR-SF, which includes 6 questions with the option of a yes/no response, was used for this study. Additionally, the physical abuse (PA) domain of the ETI-SR was used, which includes 9 questions with the option of a yes/no response.

Statistical Analyses

The statistical methods and analyses for this study were conducted by the first author (OCA) who has formal training in biomedical statistics. Statistical analyses were performed using STATA software, version 13.1. The mean score on the ETISR-SF sexual and ETI-SR physical abuse domains in normal healthy controls is 0.2 and 2.3, and in trauma controls (subjects without a psychiatric disorder with a history of childhood abuse) is 2.7 and 3.8, respectively [15], therefore, ETI scores were dichotomized such that patients with a score of ≥2 on the SA domain and ≥3 on the PA domain were considered to have SA and PA, respectively. Bivariate associations were performed to compare demographic data, medical and psychiatric comorbidities, type of endoscopic procedure (esophagogastroduodenoscopy [EGD] or colonoscopy), procedural indication (cancer screening, surveillance of known lesion, GI bleeding or other), STAI scores, sedation requirements (micrograms of fentanyl and milligrams of midazolam) in patients with and without a history of SA and PA. Additionally, bivariate associations between pre-procedural STAI scores and demographic data, medical and psychiatric comorbidities, current medications, type of endoscopic procedure, procedural indication and abuse history were performed to assess for predictors of pre-procedural anxiety. Continuous variables were compared between groups using the Student's t-test for normally distributed data and the Mann-Whitney U tests for non-

normally distributed data. Continuous variables were compared among groups >2 using the ANOVA for normally distributed data and the Kruskal-Wallis test for non-normally distributed data. Normality was determined by visual assessment of histograms. The Student's t-test for independent samples with unequal variance assumed was performed when appropriate. Association between continuous variables was determined using the Pearson correlation for data that did not violate assumptions of normality or linearity. The Spearman rank correlation was used for non-normally distributed and non-linear data, provided a monotonic relationship was preserved. Categorical variables were compared using the Pearson's chi squared test or Fisher's exact test if expected frequencies were not sufficiently large.

According to previously published literature, the mean state anxiety score in patients scheduled to undergo endoscopy has been reported to be 45.9 ± 12.9 [16]. In those with history of SA and PA state anxiety scores have been reported to be 61.3 ± 12.1 and 57.8 ± 12.9, respectively [17]. Based on these published results, if the true population mean state anxiety score in non-abused patients undergoing endoscopy is 45.9 ± 12.9 and the mean state anxiety score in patients with a history of PA is 57.8 ± 12.9, 14 patients with a history of PA and 42 patients without a history of PA would be needed to achieve a power of 80% at an α of 0.05. At an α of 0.05, assuming the true population mean state anxiety score is 45.9 ± 12.9 in non-abused patients and 61.3 ± 12.1 in patients with a history of SA, if 56 patients were recruited and 30% reported a history of SA, we would have a power of 96% to detect a difference between groups. We assumed that 20% of patients would decline participation in the study, therefore, we aimed to recruit 70 patients to reach our target sample size of 56 study participants.

Results

During the enrollment period, 70 patients were eligible of which 64 patients consented for participation in the study (91.4%) and 6 declined to participate (8.6%). The median age of those enrolled was 57.5 (50, 62) years and 62.5% were women. Data on comorbidities, procedural type, indication and duration, STAI scores, sedation requirements and procedural vital signs for the entire cohort are depicted in Table 1. 14.1% (n=9) and 32.8% (n=21) of patients had a history of SA and PA, respectively. 39% of patients reported a history of either SA or PA. The majority of patients who reported SA were women (89%), while similar numbers of men and women reported PA (52.4% vs 47.6%, respectively). Bivariate associations in patients with and without a history of SA and PA are depicted in table 2. Age, comorbidities and procedural indication, type and duration were not significantly different between patients with and without SA and PA. Patients with a history of SA had significantly higher baseline, trait-anxiety scores, compared with those without a history of SA (48 vs 39, p=0.04), however, pre-procedural, state-anxiety scores were similar between groups (45 vs 42, p=0.67). There were no significant differences between baseline or pre-procedural anxiety levels between patients with and without a history of PA. Patients with a history of SA had significantly higher scores on the physical domain of the ETISR than those without SA (3 vs 1, respectively; p=0.02). There were no statistically significant differences in sedation requirements between patients with and without a history of SA and PA. Vital signs throughout the procedure were not meaningfully different between groups. There was no statistically significant difference (p>0.05) in baseline anxiety levels, pre-procedural anxiety levels or sedation requirements between patients reporting any abuse history, i.e., either a history of SA and/or PA (data not shown).

Table 1: Characteristics of Study Population‡.

	Study Population
Age (in years)	57.5 (50.0, 62.0)
Age-adjusted	2 (1, 3)
Charlson Comorbidity Index	
STAI trait score*	41.5 (32.0, 49.0)
STAI state score*	43.0 (32.0, 49.0)
ETI sexual abuse score**	0 (0, 0.5)
ETI physical abuse score**	2.0 (0, 3.0)
Fentanyl Administered (mcg)#	100 (100, 150)
Midazolam Administered (mg)#	4 (3, 5)
Systolic blood pressure# (mmHg)	130 (112, 147)
Diastolic blood pressure# (mmHg)	73 (66, 73)
Total length of procedure (in minutes)	20 (10, 30)
Gender	
Male	24 (37.5)
Female	40 (62.5)
History of Anxiety or Depression	
Yes	1 (1.6)
No	63 (98.4)
Procedure Type	
EGD	17 (26.6)
Colon	47 (73.4)
Procedural Indication	
Cancer Screening	30 (46.9)
Surveillance	5 (7.8)
GI bleeding	9 (14.1)
Other	20 (31.5)

‡**Abbreviations:** STAI: State-Trait Anxiety Inventory; ETI: Early-Trauma Inventory; EGD: Esophagogastroduodenoscopy Continuous variables are depicted as medians (interquartile range) and categorical variables as numbers (%).

*STAI trait score=baseline anxiety; STAI state score=pre-procedural anxiety; range=0-80

**ETI sexual abuse score range of 0-6; ETI physical score range of 0-9

#Reflects amount of fentanyl and midazolam administered during endoscopy and the median systolic and diastolic blood pressures during endoscopy.

Table 2: Bivariate associations in patients with and without a history of abuse‡.

	+ Sexual Abuse	- Sexual Abuse (n=55)	p-Value	+ Physical Abuse	- Physical Abuse	p-Value
	(n=9)			(n=21)	(n=43)	
Age (in years)	54 (42, 59)	58 (51, 63)	0.21	56 (48, 61)	58 (51, 64)	0.7
Age-adjusted	2 (1, 3)	1 (1, 2)	0.24	1 (1, 3)	2 (1, 3)	0.48
Charlson Comorbidity Index						
STAI trait score*	48 (42, 51)	39 (31, 49)	0.04	41 (32, 49)	42 (32, 49)	0.75
STAI state score*	45 (39, 49)	42 (32, 50)	0.67	42 (32, 49)	43 (32, 50)	0.85
ETI sexual abuse score**	0 (0, 0)	5 (3, 5)	-	0 (0, 1)	0 (0, 0)	0.02
ETI physical abuse score**	3 (2, 5)	1 (0, 3)	0.02	4 (3, 5)	1 (0, 2)	-
Fentanyl Administered (mcg)#	100 (100, 150)	100 (100, 150)	0.91	100 (100, 150)	100 (100, 150)	0.99
Midazolam Administered (mg)#	4 (3, 5)	4 (3, 4)	0.68	4 (4, 4)	4 (3, 5)	0.88
Systolic blood pressure (mmHg)#	130 (123, 156)	130 (112, 130)	0.88	124 (116, 144)	131 (111, 147)	0.59
Diastolic blood pressure (mmHg) #	79 (69, 86)	72 (66, 82)	0.35	80 (70, 87)	72 (63, 79)	0.04
Total length of procedure (minutes)	15 (15, 15)	20 (10, 35)	0.11	20 (10, 35)	20 (10, 30)	0.95
Gender						
Male	1	23	0.08	11	13	0.09
Female	8	32		10	30	
History of Anxiety or Depression						
Yes	1	0	0.13	0	1	0.67
No	7	53		20	40	
Procedure Type						
EGD	3	14	0.69	7	10	0.39
Colonoscopy	6	41		14	33	
Procedural Indication						
Cancer Screening	2	28	0.22	12	18	0.46
Surveillance	1	4		2	3	
GI bleeding	1	8		1	8	
Other	5	15		6	14	

‡**Abbreviations:** STAI: State-Trait Anxiety Inventory; ETI: Early-Trauma Inventory; EGD: Esophagogastroduodenoscopy

History of sexual and physical abuse defined by ETI scores ≥2 and ≥3, on respective domains, Continuous variables are depicted as medians (interquartile range) and categorical variables as numbers (%).

*STAI trait score=baseline anxiety; STAI state score=pre-procedural anxiety; range=0-80.

**ETI sexual abuse score range of 0-6; ETI physical score range of 0-9.

#Reflects amount of fentanyl and midazolam administered during endoscopy and the median systolic and diastolic blood pressures during endoscopy.

There was a direct and statistically significant correlation between pre-procedural anxiety and baseline anxiety levels (r=0.56, p<0.001). The relationship between pre-procedural anxiety and sedation requirement was not statistically significant (fentanyl: r=-0.15, p=0.25; midazolam: r=0.03, p=0.81).

Discussion

We found a history of SA and/or PA in 39% of patients scheduled to undergo EGD or colonoscopy, which is higher than reported estimates of SA and PA among in the general population and range between 20% and 30%.[18] Moreover, our study revealed much higher rates of SA in women (20% vs 9.5%) and similar rates of SA in men (4.2% vs 4.5%) compared to a prior study which surveyed patients for abuse history within 11 months of colonoscopy [19]. Patients with a history of abuse do report more severe GI symptoms and pain [1,2,4,20-24], which may explain the high percentage of abuse seen in our study population. A prior study conducted in a referral-based gastroenterology practice reported a similarly high percentage of patients with history of abuse (44%) and concluded that the high percentage observed

was the result of increased tertiary referral in patients with abuse [20]. Additionally, our patients who reported a history of SA were more likely to report elements of PA, which is a relationship that has been previously described [24].

Although the majority of patients who reported a history of SA (89%) were women, the one man in our study who reported a history of SA was found to be a victim of both severe SA and PA. There was no gender bias among patients reporting a history of PA. This underscores the importance of including men in studies that investigate the consequences of SA and PA.

Although few studies have evaluated anxiety levels prior to endoscopy, it has been reported that endoscopy can lead to increased pre-procedural anxiety [25]. We hypothesized that a history of SA or PA may predispose patients towards heightened pre-procedural anxiety prior to endoscopy. This hypothesis was made on the basis of prior published [6] and unpublished case vignettes (personal experience of author, LJB) which suggested that endoscopy may rekindle memories of abuse. Furthermore, since patients with a history of abuse have heightened pain perception [2,7-11]; and anticipation of pain is a commonly reported pre-procedural concern in patients undergoing endoscopy [26], it is plausible that anticipatory pain in an already sensitized system could lead to increased pre-procedural anxiety in victims of abuse. Our study did not find differences in pre-procedural anxiety among patients with and without a history of SA and PA. These findings are consistent with a previously published studied that assessed differences in anxiety among patients undergoing EGD or colonoscopy and did not reveal an association between abuse history and pre-procedural anxiety [27]. Although this study by Bal et al. [27] reported a similar methodology to our study, the exclusion criteria were not as stringent as in our study; specifically, there were a large number of patients who also reported concomitant alcohol use or use of opiates, benzodiazepines or psychotropic medications, which could have confounded associations between abuse history, pre-procedural anxiety and sedation requirements [27]. In another study, perceived distress during colonoscopy was assessed in a retrospective fashion among patients with and without a history of SA who had undergone colonoscopy within 11 months [19]. This study reported that patients with a history of SA perceived heightened distress as compared to patients without SA [19]. Although our study did not assess patient perceived distress during colonoscopy, assessing patient perception is critical in order to improve the endoscopic experience. The findings reported by Nicolai et al. [19] are consistent with our theory that patients with a history of abuse experience increased discomfort related to their endoscopic procedures and may require a more thoughtful sedation plan at the time of endoscopy.

In our study, baseline anxiety was found to differ significantly among patients with and without a history of SA. This finding is congruent with prior published data which described heightened baseline anxiety levels in patients with a history of SA and PA compared with patient without such abuse [26], and highlights an area that is not routinely addressed prior to endoscopy.

There is evidence to support the theory that an aberrant stress response exists in patients with early life stressors and is mediated by the central nervous CRF system [12,13,28,29]. Elevated adrenocorticotropic hormone (ACTH) levels have been found in patients with a history of SA and PA, as determined by the ETI [12,13]. In one study, ACTH levels were found to be 6-fold higher in patients with a history of abuse. Heart rate also was found to be elevated in these patients 15 minutes after stress was induced using a standardized psychosocial stress protocol [13]. Similarly, we expected to find evidence of aberrant stress responses in patients with a history of abuse in the form of increased sedation requirements and elevated blood pressures, heart rates and respiratory rates throughout endoscopy. However, we found that sedation requirements and blood pressure throughout endoscopy was relatively similar among patients with and without a history of SA and PA.

There are several factors that could explain the negative, albeit important, findings of this study. The difference in anxiety scores that we observed was smaller than the effect size used to power our analysis, therefore, it is likely that we were underpowered to detect a difference between patients with and without a history of abuse. Larger studies are needed to assess if the negative findings of our study could be explained by our small sample size. Additionally, it is possible that discussing abuse history with patients is, in fact, a therapeutic intervention. All patients in our study who reported a history of abuse were offered psychiatric counseling. This discussion occurred prior to endoscopy and spurred many patients to divulge the details of their abuse with the research investigators. Empathic statements were provided by the research investigators on an as-needed basis, and some patients did comment that they were "thankful" or "glad" that someone took the time to speak with them and that they indeed "felt better." Although it has been shown that the majority of patients favor inquiries by physicians about their history of SA and PA [30] and that empathy in all medical encounters helps patients feel better understood, respected and validated, thus increasing patient satisfaction [31], GI physicians infrequently inquire about a history of abuse [32]. In a prior study done in the Netherlands, GI physicians were surveyed regarding their practice patterns and constraints about inquiring into SA [32]. Only 4.7% of the respondents asked their female patients regularly about SA; in males, this percentage was 0.6% [32]. The therapeutic benefit of the patient-physician interaction in our study cannot be overlooked and may, in part, explain our negative findings. Perhaps most importantly, we did not study the subset of patients with a history of SA or PA who were noncompliant with recommendations for screening and diagnostic endoscopy since our patient population was captured on the day of endoscopy; therefore, we may have introduced selection bias and studied a patient population that overcame the psychological distress associated with their abuse.

Conclusion

In summary, SA and PA are common in patents about to undergo GI endoscopy. Although we found that patients undergoing EGD or colonoscopy who report a history of SA exhibited higher baseline anxiety, pre-procedural anxiety was similar among patients with and without a history of SA and PA. This finding, albeit negative, does not diminish the importance that should be placed on

comforting and reassuring patients prior to endoscopy in an attempt to reduce peri-procedural anxiety. There are patients in whom endoscopy may mimic the abuse experience or rekindle submerged memories of abuse and, therefore, discussion of prior abuse during the patient interview might be therapeutic and should be considered in such patients. Conversely, it is possible that such an interview question might raise anxiety levels in abused patients and, in such an instance, immediate psychiatric consultation and support should be made available. Larger studies are also needed which incorporate investigation of the subset of patients with a history of SA and PA who are noncompliant with screening or diagnostic endoscopy to determine if the abuse is contributory to their lack of compliance.

Guarantor

O.C. Aroniadis serves as the guarantor and assumes full responsibility for this study.

Author Contributions

Study concept and design: O.C. Aroniadis, P. Feuerstadt, L.J. Brandt; Data collection, analysis and interpretation of data: O.C. Aroniadis, P. Feuerstadt, M. Agrawal, L.J. Brandt; Drafting and editing of the manuscript: O.C. Aroniadis, P. Feuerstadt, L.J. Brandt; O.C. Aroniadis and L.J. Brandt were co-principal investigators and conceptualized, supervised and directed the study. All authors have read and approved the paper.

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References

1. Drossman D (2010) Biospychosocial issues in gastroenterology. Pennsylvania: Saunders, 2010.
2. Drossman DA (2011) Abuse, trauma, and GI illness: is there a link? Am J Gastroenterol 106(1): 14-25.
3. Drossman DA, Li Z, Leserman J, Toomey TC, Hu YJ (1996) Health status by gastrointestinal diagnosis and abuse history. Gastroenterology 110(4): 999-1007.
4. Sherman AL, Morris MC, Bruehl S, Westbrook TD, Walker LS (2015) Heightened Temporal Summation of Pain in Patients with Functional Gastrointestinal Disorders and History of Trauma. Ann Behav Med 49(6): 785-792.
5. Longstreth GF, Wolde-Tsadik G (1993) Irritable bowel-type symptoms in HMO examinees. Prevalence, demographics, and clinical correlates. Dig Dis Sci 38(9): 1581-1589.
6. Davy E (2006) The endoscopy patient with a history of sexual abuse: strategies for compassionate care. Gastroenterol Nurs 29(3): 221-225.
7. Pieritz K, Rief W, Euteneuer F (2015) Childhood adversities and laboratory pain perception. Neuropsychiatr Dis Treat 11: 2109-2016.
8. Tesarz J, Eich W, Treede RD, Gerhardt A (2016) Altered pressure pain thresholds and increased wind-up in adult patients with chronic back pain with a history of childhood maltreatment: a quantitative sensory testing study. Pain 157(8): 1799-1809.
9. Granot M, Somer E, Zisman-Ilani Y, Beny A, Sadger R, et al. (2011) Characteristics of response to experimental pain in sexually abused women. Clin J Pain 27(7): 616-622.
10. Granot M, Somer E, Zisman-Ilani Y, Beny A, Sadger R (1994) Altered pain perception and psychosocial features among women with gastrointestinal disorders and history of abuse: a preliminary model. Am J Med 97(2): 108-118.
11. Leroi AM, Berkelmans I, Denis P, Hémond M, Devroede G (1995) Anismus as a marker of sexual abuse. Consequences of abuse on anorectal motility. Dig Dis Sci 40: 1411-1416.
12. Heim C, Newport DJ, Bonsall R, Miller AH, Nemeroff CB (2001) Altered pituitary-adrenal axis responses to provocative challenge tests in adult survivors of childhood abuse. Am J Psychiatry 158(4): 575-581.
13. Heim C, Newport DJ, Heit S, Graham YP, Wilcox M et al. (2000) Pituitary-adrenal and autonomic responses to stress in women after sexual and physical abuse in childhood. Jama 284: 592-597.
14. Spielberger CD, Gorsuch RL, Lushene RE (1970) STAI manual for the state-trait anxiety inventory ("self-evaluation questionnaire"): Consulting Psychologists Press, California, USA.
15. Bremner JD, Bolus R, Mayer EA (2007) Psychometric properties of the Early Trauma Inventory-Self Report. J Nerv Ment Dis 195(3): 211-218.
16. Bytzer P, Lindeberg B (2007) Impact of an information video before colonoscopy on patient satisfaction and anxiety - a randomized trial. Endoscopy 39(8): 710-714.
17. Huh HJ, Kim SY, Yu JJ, Chae JH (2014) Childhood trauma and adult interpersonal relationship problems in patients with depression and anxiety disorders. Ann Gen Psychiatry 13: 26.
18. Venis S, Horton R (2002) Violence against women: a global burden. Lancet 359(9313): 1172.
19. Nicolai MP, Keller JJ, de Vries L, van der Meulen-de Jong AE, Nicolai JJ, et al. (2014) The impact of sexual abuse in patients undergoing colonoscopy. PLoS One 9(1): e85034.
20. Drossman DA, Leserman J, Nachman G, Li ZM, Gluck H, et al. (1990) Sexual and physical abuse in women with functional or organic gastrointestinal disorders. Ann Intern Med 113(11): 828-833.
21. Drossman DA, Talley NJ, Leserman J, Olden KW, Barreiro MA (1995) Sexual and physical abuse and gastrointestinal illness. Review and recommendations. Ann Intern Med 123(10): 782-794.
22. Leserman J, Drossman DA (2007) Relationship of abuse history to functional gastrointestinal disorders and symptoms: some possible mediating mechanisms. Trauma Violence Abuse 8(3): 331-343.
23. Talley NJ, Fett SL, Zinsmeister AR, Melton LJ 3rd (1994) Gastrointestinal tract symptoms and self-reported abuse: a population-based study. Gastroenterology 107(4): 1040-1049.
24. Walker EA, Katon WJ, Roy-Byrne PP, Jemelka RP, Russo J (1993) Histories of sexual victimization in patients with irritable bowel syndrome or inflammatory bowel disease. Am J Psychiatry 150(10): 1502-1506.
25. Jones MP, Ebert CC, Sloan T, Spanier J, Bansal A, et al. (2004) Patient anxiety and elective gastrointestinal endoscopy. J Clin Gastroenterol 38(1): 35-40.

26. Drossman DA, Brandt LJ, Sears C, Li Z, Nat J, Bozymski EM (1996) A preliminary study of patients' concerns related to GI endoscopy. Am J Gastroenterol 91(2): 287-291.

27. Bal BS, Crowell MD, Kohli DR, Menendez J, Rashti F, et al. (2012) What factors are associated with the difficult-to-sedate endoscopy patient? Dig Dis Sci 57(10): 2527-2534.

28. Chen LP, Murad MH, Paras ML, Colbenson KM, Sattler AL, et al. (2010) Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis. Mayo Clin Proc 85(7): 618-629.

29. Coplan JD, Andrews MW, Rosenblum LA, Owens MJ, Friedman S, et al. (1996) Persistent elevations of cerebrospinal fluid concentrations of corticotropin-releasing factor in adult nonhuman primates exposed to early-life stressors: implications for the pathophysiology of mood and anxiety disorders. Proc Natl Acad Sci U S A 93(4): 1619-1623.

30. Friedman LS, Samet JH, Roberts MS, et al. (1992) Inquiry about victimization experiences. A survey of patient preferences and physician practices. Arch Intern Med 152(6): 1186-1190.

31. Coulehan JL, Platt FW, Egener B, Frankel R, Lin CT, et al. (2001) "Let me see if i have this right...": words that help build empathy. Ann Intern Med 135(3): 221-227.

32. Nicolai MP, Fidder HH, Beck JJ, Bekker MD, Putter H, et al. (2012) Sexual abuse history in GI illness, how do gastroenterologists deal with it? J Sex Med 9(5): 1277-1284.

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