<u>Original Paper</u>

Reducing Health Anxiety in Patients With Inflammatory Bowel Disease Using Video Testimonials: Pilot Assessment of a Video Intervention

Joel Shor[1*], BA; Yusuke Miyatani[2*], MD; Etsuko Arita[3], MD; Pohung Chen[4], BA; Yusuke Ito[4], BA; Hiroki Kayama[4], MS; Jacob Reiter[1], MS; Kaho Kobayashi[4], BA; Taku Kobayashi[2], MD

[1]Verily Life Sciences, South San Francisco, CA, United States

[2]Center for Advanced Inflammatory Bowel Disease Research and Treatment, Kitasato University Kitasato Institute Hospital, Tokyo, Japan

[3]Medical Psychology Pharmaceutical Education Research Center, School of Pharmacy, Kitasato University, Tokyo, Japan

[4]Google Japan, Tokyo, Japan

[*]these authors contributed equally

Corresponding Author:
Joel Shor, BA
Verily Life Sciences
269 E Grand Ave
South San Francisco, CA, 94080
United States
Phone: 1 650 253 0000
Email: joelshor@google.com

Abstract

Background: Health anxiety has many damaging effects on patients with chronic illness. Physicians are often unable to alleviate concerns related to living with a disease that has an impact on daily life, and unregulated websites can overrepresent extreme anxiety-inducing outcomes. Educational clinician video interventions have shown some success as an acute anxiolytic in health settings. However, little research has evaluated if peer-based video interventions would be a feasible alternative or improvement.

Objective: This pilot study assesses the efficacy of anxiety reduction for patients with Crohn disease (CD) and those with ulcerative colitis (UC) by showing patient testimonial videos during hospital visits. It investigates the degree to which patient testimonials can affect state anxiety, and whether patients are comfortable enough with the technology to share their stories.

Methods: Patients with CD (n=51) and those with UC (n=49) were shown testimonial videos of patients with CD during their physician consultations at Kitasato University Kitasato Institute Hospital in Japan. The video testimonials were collected from Dipex Japan, the Japan branch of an international organization specializing in understanding patient experiences. Patients completed a Visual Analogue Scale for Anxiety before and after viewing the videos, a Hospital Anxiety and Depression Scale (HADS) survey before the videos, and satisfaction surveys. Patients receiving infusion therapy participated in the study while receiving treatment to minimize hospital workflow disruption.

Results: Anxiety reduction, on the Visual Analog Scale for Anxiety, was significant in the entire cohort both when viewed as an ordinal variable (P=.003, t_{98}=1086.5) and as a continuous variable (P=.01, t_{94}=−2.54, 90% CI −3.47 to −0.72). Eighty percent (n=15) of patients with high HADS Anxiety (HADS-A) scores and 71% (n=24) of patients with high starting state anxiety experienced reduced anxiety after watching testimonials. Patients with high state anxiety but low HADS-A scores experienced anxiety reduction (69%, n=16). Forty-two percent (n=100) of patients responded that they would share their stories for future users. When patients with UC received testimonials from patients with CD, 71% (n=49) of patients reported that they were relevant despite differences in condition.

Conclusions: Our pilot results suggest that patient testimonial videos can reduce illness-related state anxiety for patients with CD and those with UC, especially in those with higher baseline state anxiety. The success of this study in reducing anxiety and achieving patient involvement suggests that video interventions for reducing anxiety might be a low-cost intervention that could scale to any number of hospitals, suggesting that technology can help scale up efforts to record and share patient testimonials. Future work can establish whether patient testimonials can be helpful in other contexts, such as before major surgeries or when a family member receives a difficult diagnosis.

Introduction

Background

Managing health anxiety is essential in treating chronic illness [1,2]. Physicians can provide patients with facts about treatment based on evidence but are often unable to address anxieties related to the experience of living with a chronic illness. Websites can be a useful tool for patients to share experiences, but they can also increase patients' concerns about their treatment and hamper medication adherence [3,4].

These challenges are amplified in patients with inflammatory bowel disease (IBD), who are estimated to have a 2- to 6-fold increased odds for developing an anxiety disorder [5-7]. IBD and anxiety disorders have a bidirectional relationship, highlighting the importance of managing anxiety disorders in the treatment of IBD [6,8].

Recent literature has examined how clinician educational video interventions can be used as an acute anxiolytic in health settings [9-12]. Several randomized trials have shown success in a wide variety of conditions and disorders [13-15], including IBD [16]. However, results have not always been promising in IBD [17-19]. Further literature has identified the anxiolytic effect when IBD education is delivered not by a clinician, but from peers with IBD who have shared experiences to the patient [20]. However, peer-based education faces challenges of scale and are, therefore, prime candidates for digital innovation. Yet, only one publication to date has evaluated if peer-based education effects translate over video in hospital settings [21], and, to our knowledge, there have been no publications to date investigating peer-based interventions by video for specifically IBD.

Objectives

In this work, we describe a pilot study that assessed the efficacy of anxiety reduction for patients with Crohn disease (CD) and those with ulcerative colitis (UC) by showing patient testimonial videos during hospital visits. This pilot study investigates whether patient testimonials can be integrated into the normal hospital workflow, and whether patients are comfortable enough with the technology to share their stories.

Methods

Site and Participants

The study was conducted at the outpatient clinic of the Center for Advanced IBD Research and Treatment at Kitasato University Kitasato Institute Hospital. Randomly selected patients with a confirmed diagnosis of CD or UC were included in the study if they were older than 20 years. Patients were excluded from the study if they did not understand Japanese or participated in any other clinical trials. A total of 100 patients were included. See Table 1 for patient descriptives.

Table 1. Descriptives of patients and self-report measures (N=100).

Characteristic	Value
Condition, n	
UC[a]	49
CD[b]	51
Sex, n	
Male	63
Female	37
Age (years), median (IQR)	41.5 (30-50)
Years since diagnosis, median (IQR)	10 (5-20)
Disease severity[c], median (IQR)	
CD	59 (37.5-108.5)
UC	0 (0-1)
Hospital Anxiety and Depression Scale–Anxiety score, mean (SD)	
All	5.6 (4.3)
CD	5.0 (4.4)
UC	6.3 (4.3)
Starting Visual Analog Scale for Anxiety score, mean (SD)	
All	26.8 (25.1)
CD	28.3 (26.4)
UC	25.2 (23.7)
Patients per anxiety category[d], n	
Low HADS-A[e], Low baseline VAS-A[f]	64
Low HADS-A, High baseline VAS-A	16
High HADS-A, Low baseline VAS-A	8
High HADS-A, High baseline VAS-A	7
Satisfaction surveys[g], n	
Willing to share story	
Yes	43
No	48
No response	9
How would you be willing to share your story? (Multiple responses allowed)	
Video	18
Document	23
Audio only	7
Were the testimonial videos relevant to you?	
Yes[h]	71
No[i]	29
Were the testimonial videos helpful?	
Yes[j]	54
No[k]	8
Unsure[l]	38

XSL•FO
RenderX

[a]UC: ulcerative colitis.

[b]CD: Crohn disease.

[c]Crohn's Disease Activity Index for CD [22] and Partial Mayo Score for UC [23].

[d]Low HADS-A is below 11 [24]. Low VAS-A is below 47 [25].

[e]Hospital Anxiety and Depression Scale

[f]Visual Analogue Scale for Anxiety

[g]Questions were presented to patients in Japanese; English translations shown in table above.

[h]Among patients with UC, the *yes* response was provided by 35 participants.

[i]Among patients with UC, the *no* response was provided by 14 participants.

[j]Among patients with UC, the *yes* response was provided by 28 participants.

[k]Among patients with UC, the *no* response was provided by 5 participants.

[l]Among patients with UC, the *unsure* response was provided by 16 participants.

Ethics Considerations

This study was approved by the Research Ethics Committee of Kitasato University Kitasato Institute Hospital (#21006). Data analyzed in this study were anonymized. Patients signed consent waivers in Japanese consistent with Kitasato University Kitasato Institute Hospital practices and were not compensated.

Anxiety

Visual Analogue Scale for Anxiety

The primary outcome metric for this study was the Visual Analogue Scale for Anxiety (VAS-A) [25], which measures anxiety in the moment (state anxiety). All patients completed the VAS-A before and after the video intervention. Patients self-reported their level of anxiety on a printed line, with scores calculated as the distance in millimeters. Scores were normalized between 0 and 100 [26].

Hospital Anxiety and Depression Scale

All patients completed the Hospital Anxiety and Depression Scale (HADS) survey [24]. Seven items comprise the HADS Anxiety (HADS-A) subscale. For our population, we used the clinically validated Japanese translation of the HADS [27].

Since HADS assesses symptoms over the previous week, HADS was not readministered after video intervention.

Testimonial Videos

The videos were collected from DIPEx Japan [28] using the "Health and illness narrative" methodology [29]. Narratives from patients with CD that are publicly available are collected and used with explicit consent from DIPEx Japan. The same 6 patient testimonial videos were selected as "required viewing" (12 minutes) for everyone in the pilot, and 22 videos were included as "optional viewing." These videos were selected to be diverse in subject matter, tone, and speaker characteristics (Multimedia Appendix 1).

Hospital Senpai Video Platform

Patients met with physicians before participating in the Hospital Senpai pilot. Participants completed the VAS-A and HADS, and then engaged with the testimonial videos through the software (Figure 1). Patients watched a linear progression of required videos, optionally viewed additional videos, then completed postvideo VAS-A and satisfaction surveys. Patients who received infusion therapy watched videos and completed the surveys during their infusion treatment.

Figure 1. A screen capture of 6 pages of the Hospital Senpai video viewing software. Patient images are blurred in this screenshot but not the actual software.

XSL•FO

RenderX

Satisfaction Surveys

Patients completed an 11-question multiple choice and free-form survey on usability and satisfaction at the end of the study. Users answered questions in Japanese such as whether the content was relevant, how easy the video viewing process was, and whether the patients would share their story for future users.

Statistical Analysis

We compare the VAS-A scores before and after video testimonials. In some domains, the VAS values are not normally distributed [30] and only the order of values matters [31] so we report both a paired, 2-sided Student t test and a paired, 2-sided Wilcoxon signed rank test. The Wilcoxon signed rank test is a distribution-free alternative to the paired Student t test. Patients who did not complete part of the survey or questionnaire were excluded from the relevant analyses. Following the previous work, we exclude from the t tests outliers more than 2.5 SD from the mean [32] (Multimedia Appendix 1). We use correlation and partial correlation [33] to explore the relationship between variables.

Results

Anxiety Reduction

There was a statistically significant decrease in state anxiety (VAS-A) before and after watching testimonial videos across all patients both when interpreting VAS-A as an ordinal variable (P=.003, t_{98}=1086.5) and a continuous variable (P=.01, t_{94}=–2.54, 90% CI –3.47 to –0.72). The largest magnitude of anxiety reduction occurred in patients with high starting VAS-A scores (90% CI –7.89 to –1.86, n=22), but the most consistent reduction effect was seen in 80% of patients (n=15) with high HADS-A (see Figure 2).

Sixty-nine percent (n=16) of patients with low HADS-A but high baseline VAS-A experienced a reduction in anxiety (see Figure 3). Baseline VAS-A anxiety and HADS-A scores are correlated both as continuous and ordinal variables (r=0.41, ρ=0.40), and HADS-A was primarily correlated with anxiety reduction through baseline VAS-A (r=0.12 between HADS-A and anxiety reduction, and 0.014 partial correlation when controlling for baseline VAS-A), indicating that video testimonials can be effective for patients without anxiety on a longer timescale.

Figure 2. Histogram plots of prevideo Visual Analogue Scale for Anxiety (VAS-A) scores minus postvideo VAS-A scores for different baseline VAS-A and HADS Anxiety (HADS-A) cohorts. Positive scores mean reduced anxiety. Patients with incomplete Hospital Anxiety and Depression Scale (HADS) responses were dropped.
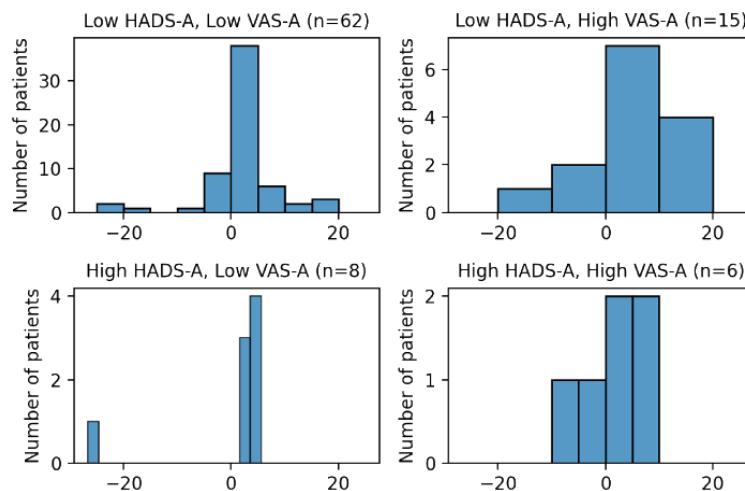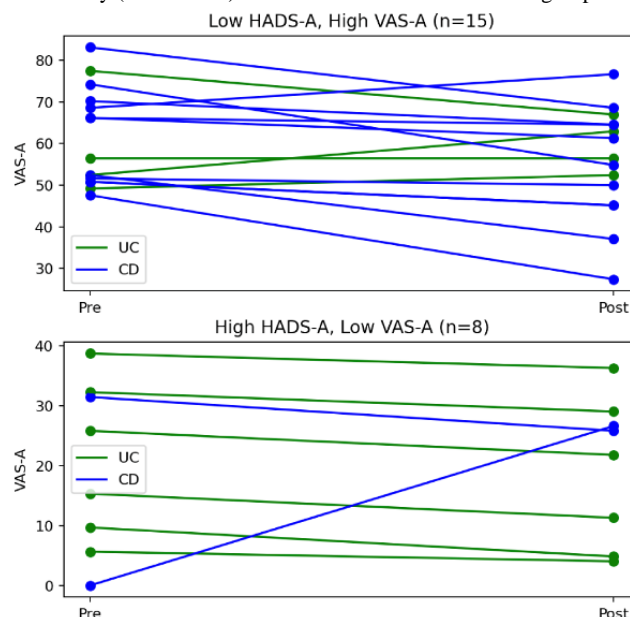
Figure 3. Pre–Visual Analogue Scale for Anxiety (Pre-VAS-A) and Post-VAS-A scores for 2 subgroups. CD: Crohn disease; UC: ulcerative colitis.

Patient App Usability, Satisfaction, and Participation

Among all patients, 71% (n=100) responded that the videos were relevant and only 8% (n=100) said that they were not helpful. Importantly, patients with UC responded similarly even though all testimonial videos were from patients with CD (71% relevant, 10% not helpful, n=49). In addition, 42% (n=100) of all patients responded that they would be willing to share their stories on the platform for future patients.

Discussion

This study suggests that patient testimonial videos can reduce state anxiety during hospital visits for patients diagnosed with IBD. It also demonstrates that video testimonials can be effectively integrated into the normal hospital workflow. Finally, surveys show that patients are willing to share their stories for future patients as part of the program.

Patients with high starting state anxieties demonstrated the greatest reduction in state anxiety. Similarly, patients with high starting state anxieties and low HADS-A consistently experienced reduced anxiety, indicating that patients without a formal anxiety disorder could potentially benefit from video testimonial intervention. For reference, the psychopharmacological intervention study with closest methodology investigating acute anxiolytic effect in the range

of minutes-to-hours found a comparable VAS-A reduction [34]. Additionally, a large fraction of patients were willing to share their stories, suggesting that collecting testimonial videos might not be the bottleneck in scaling up the video testimonial approach. Patients with UC reported the testimonials to be very relevant and helpful despite being from patients with CD, indicating that experiences from similar but not identical medical conditions may be helpful.

Limitations of this work include using a rigorous control group of patients who watch unrelated or no videos, exploring the bias introduced by only sharing testimonials from volunteers, a patient cohort more representative of the population with CD and UC, and the bias introduced by patients knowing the physicians conducting the study.

This work suggests that patient testimonials might be a low-cost intervention that can reduce health anxiety during hospital visits. As long as patients continue to be willing to share their stories, the video testimonial framework presented in this study has the potential to easily scale, especially compared to more expensive or more time-intensive interventions. Further research can help establish how anxiety reduction leads to better patient adherence to treatment plans, satisfaction with their treatment, and overall outcomes. This work also highlights the possibility that patient testimonials can be helpful in other anxiety-inducing health situations, as well as in other conditions outside of IBD.

Data Availability

The data sets generated during and/or analyzed during the current study are not publicly available due to patient privacy.

Authors' Contributions

JS was involved in the conceptualization, methodology, formal analysis, resources, data curation, writing-original draft, writing-review and editing visualization, and funding acquisition. HK was responsible for resources, project administration, and funding acquisition. PC carried out conceptualization, methodology, software, resources, and funding acquisition. YI was responsible for project administration. JR was involved in writing-original draft and writing-review and editing. TK and YM performed conceptualization, methodology, investigation, resources, data curation, supervision, and project administration. EA carried out methodology and investigation.

Conflicts of Interest

Multimedia Appendix 1

Supplementary details on data.
[DOCX File , 7 KB-Multimedia Appendix 1]

References

1. Marrie RA, Walld R, Bolton JM, Sareen J, Patten SB, Singer A, CIHR Team in Defining the Burden and Managing the Effects of Psychiatric Comorbidity in Chronic Immunoinflammatory Disease. Psychiatric comorbidity increases mortality in immune-mediated inflammatory diseases. Gen Hosp Psychiatry 2018;53:65-72 [FREE Full text] [doi: 10.1016/j.genhosppsych.2018.06.001] [Medline: 29929117]

2. Hill E, Nguyen NH, Qian AS, Patel S, Chen PL, Tse CS, et al. Impact of comorbid psychiatric disorders on healthcare utilization in patients with inflammatory bowel disease: a nationally representative cohort study. Dig Dis Sci 2022;67(9):4373-4381 [FREE Full text] [doi: 10.1007/s10620-022-07505-9] [Medline: 35503486]

3. Linn AJ, van Weert JCM, Gebeyehu BG, Sanders R, Diviani N, Smit EG, et al. Patients' online information-seeking behavior throughout treatment: the impact on medication beliefs and medication adherence. Health Commun 2018;34(12):1461-1468 [FREE Full text] [doi: 10.1080/10410236.2018.1500430] [Medline: 30052088]

4. El Sherif R, Pluye P, Thoër C, Rodriguez C. Reducing negative outcomes of online consumer health information: qualitative interpretive study with clinicians, librarians, and consumers. J Med Internet Res 2018;20(5):e169 [FREE Full text] [doi: 10.2196/jmir.9326] [Medline: 29728350]

5. Fuller-Thomson E, Lateef R, Sulman J. Robust association between inflammatory bowel disease and generalized anxiety disorder. Inflamm Bowel Dis 2015;21(10):2341-2348 [FREE Full text] [doi: 10.1097/mib.0000000000000518]

6. Gracie DJ, Guthrie EA, Hamlin PJ, Ford AC. Bi-directionality of brain–gut interactions in patients with inflammatory bowel disease. Gastroenterology 2018;154(6):1635-1646 [FREE Full text] [doi: 10.1053/j.gastro.2018.01.027] [Medline: 29366841]

7. Mikocka-Walus A, Knowles SR, Keefer L, Graff L. Controversies revisited: a systematic review of the comorbidity of depression and anxiety with inflammatory bowel diseases. Inflamm Bowel Dis 2016;22(3):752-762 [FREE Full text] [doi: 10.1097/mib.0000000000000620]

8. Bannaga A, Selinger CP. Inflammatory bowel disease and anxiety: links, risks, and challenges faced. Clin Exp Gastroenterol 2015;8:111-117 [FREE Full text] [doi: 10.2147/ceg.s57982]

9. Helms LJ. Video education to improve preoperative anxiety in the bariatric surgical patient: a quality improvement project. J Perianesth Nurs 2020;35(5):467-471 [FREE Full text] [doi: 10.1016/j.jopan.2020.01.012] [Medline: 32448711]

10. Baralo B, Paravathaneni M, Hossain S, Keshava VE, Jain A, Mulla S, et al. Effect of video education about potential treatment-related side-effects on patient`s anxiety, depression, and distress level. Chest 2021;160(4):A1388 [FREE Full text] [doi: 10.1016/j.chest.2021.07.1269]

11. Vogt L, Klasen M, Rossaint R, Goeretz U, Ebus P, Sopka S. Virtual reality tour to reduce perioperative anxiety in an operating setting before anesthesia: randomized clinical trial. J Med Internet Res 2021;23(9):e28018 [FREE Full text] [doi: 10.2196/28018] [Medline: 34252034]

12. Ridout B, Kelson J, Campbell A, Steinbeck K. Effectiveness of virtual reality interventions for adolescent patients in hospital settings: systematic review. J Med Internet Res 2021;23(6):e24967 [FREE Full text] [doi: 10.2196/24967] [Medline: 34185015]

13. Lin S, Huang H, Lin S, Huang Y, Wang K, Shi H. The effect of an anaesthetic patient information video on perioperative anxiety: a randomised study. Eur J Anaesthesiol 2016;33(2):134-139 [FREE Full text] [doi: 10.1097/eja.0000000000000307]

XSL•FO
RenderX

14. O'Connor MI, Brennan K, Kazmerchak S, Pratt J. YouTube videos to create a "virtual hospital experience" for hip and knee replacement patients to decrease preoperative anxiety: a randomized trial. Interact J Med Res 2016;5(2):e10 [FREE Full text] [doi: 10.2196/ijmr.4295] [Medline: 27091674]

15. Bozkurt M, Erkoc M, Can O, Danış E, Canat H. The effect of an information video on preoperative anxiety level before percutaneous nephrolithotomy procedure: a prospective, randomized trial. Can Urol Assoc J 2022;17(3):134-139 [FREE Full text] [doi: 10.5489/cuaj.8005] [Medline: 36473477]

16. Arabul M, Kandemır A, Çelık M, Alper E, Akpinar Z, Aslan F, et al. Impact of an information video before colonoscopy on patient satisfaction and anxiety. Turk J Gastroenterol 2012;23(5):523-529 [FREE Full text] [doi: 10.4318/tjg.2012.0416] [Medline: 23161296]

17. Bytzer P, Lindeberg B. Impact of an information video before colonoscopy on patient satisfaction and anxiety: a randomized trial. Endoscopy 2007;39(8):710-714 [FREE Full text] [doi: 10.1055/s-2007-966718] [Medline: 17661246]

18. Ketelaars PJ, Buskes MH, Bosgraaf RP, van Hamont D, Prins JB, Massuger LF, et al. The effect of video information on anxiety levels in women attending colposcopy: a randomized controlled trial. Acta Oncologica 2017;56(12):1728-1733 [FREE Full text] [doi: 10.1080/0284186x.2017.1355108]

19. Kamat N, Rajan Mallayasamy S, Sharma PS, Kamath A, Pai CG. Video assisted patient education improves compliance with follow up and depression scores in inflammatory bowel diseases. Postgrad Med 2018;130(3):355-360 [FREE Full text] [doi: 10.1080/00325481.2018.1442978] [Medline: 29460659]

20. Larsson K, Sundberg Hjelm M, Karlbom U, Nordin K, Anderberg UM, Lööf L. A group-based patient education programme for high-anxiety patients with Crohn disease or ulcerative colitis. Scand J Gastroenterol 2003;38(7):763-769 [FREE Full text] [doi: 10.1080/00365520310003309] [Medline: 12889564]

21. Habibzadeh H, Milan ZD, Radfar M, Alilu L, Cund A. Effects of peer-facilitated, video-based and combined peer-and-video education on anxiety among patients undergoing coronary angiography: randomised controlled trial. Sultan Qaboos Univ Med J 2018;18(1):e61-e67 [FREE Full text] [doi: 10.18295/squmj.2018.18.01.010] [Medline: 29666683]

22. Best WR, Becktel JM, Singleton JW, Kern F. Development of a Crohn's disease activity index. Gastroenterology 1976;70(3):439-444 [FREE Full text] [doi: 10.1016/s0016-5085(76)80163-1]

23. D'Haens G, Sandborn WJ, Feagan BG, Geboes K, Hanauer SB, Irvine EJ, et al. A review of activity indices and efficacy end points for clinical trials of medical therapy in adults with ulcerative colitis. Gastroenterology 2007;132(2):763-786 [FREE Full text] [doi: 10.1053/j.gastro.2006.12.038] [Medline: 17258735]

24. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983;67(6):361-370 [FREE Full text] [doi: 10.1111/j.1600-0447.1983.tb09716.x] [Medline: 6880820]

25. Facco E, Stellini E, Bacci C, Manani G, Pavan C, Cavallin F, et al. Validation of visual analogue scale for anxiety (VAS-A) in preanesthesia evaluation. Minerva Anestesiol 2013;79(12):1389-1395 [FREE Full text] [doi: 10.2344/0003-3006-58.1.8] [Medline: 21410359]

26. Hornblow AR, Kidson MA. The visual analogue scale for anxiety: a validation study. Aust N Z J Psychiatry 1976;10(4):339-341 [FREE Full text] [doi: 10.3109/00048677609159523] [Medline: 1071419]

27. Matsudaira T, Igarashi H, Kikuchi H, Kano R, Mitoma H, Ohuchi K, et al. Factor structure of the hospital anxiety and depression scale in Japanese psychiatric outpatient and student populations. Health Qual Life Outcomes 2009;7:42 [FREE Full text] [doi: 10.1186/1477-7525-7-42] [Medline: 19445722]

28. DIPEx Japan. URL: https://www.dipex-j.org/ [accessed 2022-04-07]

29. Herxheimer A, McPherson A, Miller R, Shepperd S, Yaphe J, Ziebland S. Database of patients' experiences (DIPEx): a multi-media approach to sharing experiences and information. Lancet 2000;355(9214):1540-1543 [FREE Full text] [doi: 10.1016/s0140-6736(00)02174-7]

30. Ducoulombier V, Chiquet R, Graf S, Leroy B, Bouquet G, Verdun S, et al. Usefulness of a visual analog scale for measuring anxiety in hospitalized patients experiencing pain: a multicenter cross-sectional study. Pain Manag Nurs 2020;21(6):572-578. [doi: 10.1016/j.pmn.2020.03.004] [Medline: 32362472]

31. Heller GZ, Manuguerra M, Chow R. How to analyze the visual analogue scale: myths, truths and clinical relevance. Scand J Pain 2016;13(1):67-75 [FREE Full text] [doi: 10.1016/j.sjpain.2016.06.012] [Medline: 28850536]

32. Rousseeuw PJ, Hubert M. Robust statistics for outlier detection. WIREs Data Mining Knowl Discov 2011;1(1):73-79 [FREE Full text] [doi: 10.1002/widm.2]

33. Kim S. ppcor: an R package for a fast calculation to semi-partial correlation coefficients. Commun Stat Appl Methods 2015;22(6):665-674 [FREE Full text] [doi: 10.5351/csam.2015.22.6.665]

34. Nutt D, Mandel F, Baldinetti F. Early onset anxiolytic efficacy after a single dose of pregabalin: double-blind, placebo- and active-comparator controlled evaluation using a dental anxiety model. J Psychopharmacol 2009;23(8):867-873 [FREE Full text] [doi: 10.1177/0269881108094722] [Medline: 18635690]

Abbreviations

CD: Crohn disease
HADS: Hospital Anxiety and Depression Scale

XSL•FO
RenderX

HADS-A: Hospital Anxiety and Depression Scale–Anxiety
IBD: inflammatory bowel disease
UC: ulcerative colitis
VAS-A: Visual Analog Scale for Anxiety

XSL•FO
RenderX