Psychology and Behavioral Science
International Journal
ISSN 2474-7688

Research Article
Volume 23 Issue 5 - January 2026
DOI: 10.19080/PBSIJ.2026.23.556125

Psychol Behav Sci Int J

Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety

Shachar Zion Shemesh[1,2], Paz Kelmer[1,2], Itay Goor Aryeh[2,3] and Lior Ungar[1,2,3*]

[1]*Department of Neurosurgery, Sheba Medical Center, Ramat Gan, Israel*

[2]*Gray School of Medicine, Tel Aviv University, Tel Aviv, Israel*

[3]*Pain Center, Sheba Medical Center, Ramat Gan, Israel*

Submission: December 17, 2025; **Published:** January 05, 2025

***Corresponding author:** Lior Ungar, Department of Neurosurgery, Sheba Medical Center, Ramat Gan, Gray School of Medicine, Tel Aviv University, Tel Aviv, Pain Center, Sheba Medical Center, Ramat Gan, Israel

Abstract

Background: Anxiety during medical procedures can heighten pain perception. While sedation (e.g., midazolam) may alleviate anxiety, it carries risks in older adults and may obscure pain feedback. Humor and distraction are potential non-pharmacological alternatives. This pilot study explored whether humorous storytelling by the physician during fluoroscopy-guided injections could reduce patient anxiety.

Methods: In this randomized pilot trial, 100 patients (mean age ~63) undergoing first-time bilateral facet joint injections (L4-L5, L5-S1) without sedation or local anesthesia were allocated to two groups. The control group (n = 50) received concise procedural explanations. The storytelling group (n = 50) received a lighthearted animal-themed narrative synchronized with each needle insertion. Patients selected a favorite animal (e.g., cat, dolphin, lion), and the physician used a playful bedtime metaphor. Anxiety and pain were rated (0–4 scale) before, during, and after the procedure. Outcomes included procedural anxiety, pain, and satisfaction. Group comparisons were analyzed using unpaired t-tests.

Results: Baseline anxiety scores were similar (mean ~1.7; $p = 0.53$). During the procedure, anxiety was significantly lower in the storytelling group (0.88 vs 1.44; $p = 0.004$), as was pain (1.40 vs 2.14; $p < 0.001$). Satisfaction scores were high and similar in both groups (~3.5; $p = 0.60$). No adverse effects were reported.

Conclusion: Humorous narrative communication during fluoroscopy procedures significantly reduced patient anxiety and pain. This simple, non-pharmacological method may enhance comfort when sedation is not feasible. Future studies should validate these findings and explore long-term benefits of therapeutic storytelling in clinical care.

Keywords: Patient Anxiety; Benzodiazepines; Fluoroscopy; Midazolam

Introduction

Undergoing invasive medical procedures while awake can be anxiety-provoking for patients, and this anxiety can in turn amplify the perception of pain. In interventional pain management, such as spinal or joint injections performed under fluoroscopic guidance, patients are often kept conscious to provide feedback and because sedation is typically optional. In fact, clinical guidelines suggest avoiding routine sedation during spine injections to prevent confounding the patient's pain response and to minimize risks. Sedation (e.g. with benzodiazepines like midazolam or diazepam) is usually reserved for very anxious patients, as studies show that more-anxious patients do benefit from sedatives whereas many patients tolerate these procedures well without sedation [1-5].

Sedatives, however, are not without downsides - particularly in older adults they can cause delirium, respiratory depression, or prolonged drowsiness. Moreover, sedating the patient removes their ability to fully cooperate or report pain accurately during procedures. There is a clear need for non-pharmacological strategies to help anxious patients through procedures while keeping them alert and safe. One promising approach is the use

of distraction and humor as anxiety-relief techniques. Distraction techniques have a proven record in reducing pain and distress, especially in pediatric settings [6-8].

For example, engaging children with toys, videos, or clowns during medical procedures significantly lowers their anxiety and discomfort. In adults as well, simple distraction methods can yield meaningful benefits. A randomized trial of patients undergoing conscious surgery (varicose vein operations under local anesthetic) found that those who engaged in a distraction - such as watching a DVD, squeezing stress balls, or conversing with a nurse - experienced significantly less anxiety and pain than those who received no special intervention. Notably, having a nurse dedicated to talking with the patient throughout the procedure reduced anxiety by ~30% and pain by ~16%, and even a simple stress ball to channel nervous energy reduced anxiety ~18% and pain ~22%. These findings underscore that the manner of interaction and psychological engagement can modulate the patient's experience of an ongoing medical procedure.

Humor is a particularly powerful form of distraction that also directly induces positive physiological changes. Laughter and humor have long been touted as "the best medicine," and modern research is increasingly validating their benefits. Meta-analyses of randomized trials have concluded that humor interventions can significantly decrease adults' anxiety and depression levels, improve overall psychological well-being, and even enhance sleep quality. Laughter triggers a cascade of neurohormonal effects: it lowers stress hormones like cortisol and adrenaline, while boosting endorphins, dopamine, and serotonin - neurotransmitters associated with pleasure and relaxation [9,10]. In essence, laughing physiologically counteracts the stress response and induces a state of calm and pain relief. One striking report by journalist Norman Cousins famously described how bouts of hearty laughter gave him analgesic relief from severe pain, providing hours of pain-free sleep in spite of an otherwise debilitating illness. Subsequent research has borne out the pain-relieving power of humor: for instance, in an experimental study, people who watched comedy videos were able to tolerate cold-induced pain significantly longer than those who didn't laugh, an effect attributed to laughter-triggered endorphin release. Thus, beyond diverting one's attention, humor produces genuine biochemical and autonomic changes that can reduce anxiety and increase pain tolerance.

Importantly, humor in healthcare also has psychosocial benefits. It can strengthen the therapeutic alliance and make patients feel more emotionally supported and at ease. Shared laughter between patient and provider fosters a sense of connection and trust. In one observational study in a mental health context, even when patients laughed about "serious" matters, the synchronous laughter with their clinician was associated with reduced tension and a feeling of being understood. In hospital medical wards, the introduction of humor therapy (such as clown doctors visiting pediatric patients) has led to decreased procedure-related anxiety and improved patient outcomes. Humor and empathy are human qualities that no machine or medication can fully replicate - a reminder that in the era of high-tech medicine and AI, the human touch remains vital. As one psychologist aptly stated, laughter is free, with no side effects or contraindications, and "one of the most cost-effective ways" to improve a patient's emotional state.

Given this background, we hypothesized that incorporating a humorous storytelling narrative during a pain clinic procedure would reduce patient anxiety (and secondarily, pain perception) compared to the standard practice of providing sterile, technical information. We designed a pilot study focusing on a common interventional pain procedure - a lumbar facet joint injection - performed without sedation. Our approach was to have the treating physician replace the usual step-by-step medical explanation with a playful story told throughout the procedure, while still completing all necessary clinical steps safely. The goal was to determine if this simple verbal intervention could make a measurable difference in patient-reported anxiety and pain. We also assessed patient satisfaction to ensure that using humor did not detract from the perceived quality of care. The findings of this pilot are reported here, with the aim of informing larger-scale studies and encouraging reflection on how medical professionals communicate with patients in high-anxiety situations [11-13].

Methods

Study Design and Setting

We conducted a single-center, two-arm randomized pilot trial at the Pain Management Unit of a tertiary medical center. The study was reviewed and approved by the local institutional review board, and all participants provided informed consent. Inclusion criteria were adults (age 18-90) with chronic pain undergoing their first fluoroscopy-guided facet joint injection, who opted to have the procedure without sedation (either due to contraindications for sedatives - e.g. age >80 - or personal preference to avoid sedation). We excluded patients who had significant cognitive impairment or language barrier precluding understanding the study explanation or the storytelling intervention. The trial was conducted as a prospective quality-improvement pilot over the span of one year, aiming to enroll up to 100 patients (50 per group).

All procedures were performed by the same experienced pain physician (a neurosurgeon with >5 years of experience in interventional pain). Using a single operator helped standardize other aspects of patient interaction and procedural technique. The interventions took place in a fluoroscopy procedure suite. Notably, no pre-procedure anxiolytic or analgesic medication was given - specifically, no benzodiazepine (such as midazolam) and no local anesthetic skin infiltration, to clearly observe the patients' natural anxiety and pain responses to the needle insertions. While mild sedation is sometimes offered for very anxious patients, it

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

was deliberately withheld in this study to test the effect of the communication style alone (patients had agreed to this during consent).

Randomization and Interventions

Participants were randomized to one of two groups: Control (Concise Explanation) or Experimental (Humorous Storytelling). A simple randomization scheme was used based on procedure start time: if the procedure began at an even-numbered minute on the clock, the patient received the control treatment; if at an odd-numbered minute, the patient received the storytelling treatment. (This method was chosen for convenience in the busy clinic setting; once one group was filled to 50 patients, subsequent patients were automatically assigned to the other group to achieve balanced sample size.)

- **Control Group** - Standard Concise Explanation: Patients in this group received the typical running commentary during the procedure. The physician gave a brief, factual explanation before starting ("During the injection under X-ray, I will explain each step in clear and simple terms"), and then as the procedure progressed, he provided minimal but reassuring descriptions of what was happening. For example, at each stage he would say statements such as: "I am disinfecting the skin now - the antiseptic will feel cold.", "I'm now injecting the numbing medicine.", "You will feel a needle poke now.", "You may feel some pressure as I inject the treatment.", and "I am placing a small bandage now, we're all done.". This reflects the usual care: a straightforward narration of steps to keep the patient informed, without any embellishment or humor.

- **Storytelling Group** - Humorous Narrative Explanation: Patients in this group experienced a very different communication approach. Prior to the procedure, the physician briefly introduced the concept by saying that, "during the procedure, the usual explanation will be replaced by a short amusing story describing the steps". Each patient was asked to choose a favorite animal - "a particularly cute animal, one that makes you feel calm" - which would become the protagonist of their personalized story. The physician then delivered a fixed narrative script timed with the procedure events, substituting the chosen animal into the story. The narrative was akin to a whimsical bedtime story intended to reframe the medical actions in a playful metaphor. For example, during skin disinfection (with a cold alcohol swab), he would begin: "Many years ago, in a faraway cold land, lived a lovely [animal] mother and her babies…". As the sterile drapes were placed, he'd say, "On that cold winter night, the mother [animal] covered her little ones with a blanket to keep them warm.".

When inserting each needle under fluoroscopy (there were four needle insertions for bilateral L4-L5 and L5-S1 medial branch blocks), instead of warning "sharp poke" as usual, he narrated, "To help them fall asleep, the mother gave each of her babies a gentle kiss goodnight - a kiss for the smallest one, for the middle ones, and for the biggest one." (said while each needle was inserted in turn). During the actual injection of the medication, he continued: "And lo and behold, each baby [animal] gave their mom a kiss back in return.". Finally, as he removed the needles and placed bandages, he concluded, "Then Mom [animal] tucked them in and went to sleep herself. The end. All finished!". Throughout the narrative, the focus was on maintaining a lighthearted tone - using words like "kiss" instead of "injection" to soften the perception of the painful stimulus, and engaging the patient's imagination in a calming, story-like experience. It is important to note that the physician still performed the procedure with full concentration on safety - the story was pre-memorized and synchronized with steps, so that he could deliver it almost reflexively while monitoring the fluoroscope and needle placement. Patients were free to react (many chuckled or smiled) or to remain quiet; no explicit response was required from them, aside from choosing an animal at the start.

Measures and Data Collection

We collected basic demographic data (age, gender) for all patients. The primary outcomes were patient-reported anxiety (fear) and pain associated with the procedure, measured on numeric rating scales. We employed short questionnaires immediately before and after the procedure, which patients completed verbally or in writing:

- **Anxiety/Fear Scale:** Patients rated "How much are you afraid of the upcoming procedure?" just before the procedure, and "How much were you afraid during the procedure?" immediately after, on a 0-4 Likert scale (0 = not afraid at all, 4 = extremely afraid). These two items captured the patient's anticipatory anxiety (pre-procedure state anxiety) and the actual experienced anxiety during the procedure.

- **Pain Scale:** Immediately after the procedure, patients rated "How much pain did you feel during the procedure?" on a 0-4 scale (0 = no pain at all, 4 = extreme pain). Since no local anesthetic was used at the injection sites, this rating reflects the true pain of needle insertions and tissue injection as perceived by the conscious patient.

- **Satisfaction Scale:** After the procedure, patients also rated "How satisfied are you with the treatment experience you just had?" on a 0-4 scale (0 = not at all satisfied, 4 = extremely satisfied). This was a simple measure of overall patient satisfaction with the care and procedure, to see if the communication style influenced their retrospective evaluation of the experience.

The above scales were chosen for their simplicity in this pilot stage. (In a future larger study, we intend to use validated instruments such as the State-Trait Anxiety Inventory or the McGill Pain Questionnaire; however, in this pilot we prioritized brevity to avoid over-burdening patients around the time of the procedure.) Other data recorded included the number of needle punctures (which was uniformly four in all cases by study design) and any complications or use of rescue measures (e.g. if a patient

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

became too anxious, would we need to give a sedative - which did not occur in this series).

Statistical Analysis

For this initial pilot, our analysis was primarily descriptive and exploratory. We used unpaired two-tailed t-tests to compare the mean anxiety and pain scores between the two groups. We also compared satisfaction scores similarly. A p value < 0.05 was considered statistically significant for this pilot. Given the sample size (50 per group), the study had limited power, so we focused on effect size and direction. We did not impute any missing data (if a patient skipped a question, that case was omitted from that comparison; however, nearly all patients answered all questions). Data was tabulated in Excel and analyzed with SPSS. The results are presented as mean ± standard deviation for each group, and between-group differences with p-values. As a pilot study, no adjustments were made for multiple outcomes (anxiety, pain, satisfaction were considered separate endpoints of interest).

Results

Participant Characteristics

A total of 100 patients were enrolled and completed the study (see Table 1 for demographics). The mean age was 63.3 years (range 34-86), with 54% of the sample being female. The two groups (50 patients each) were similar in age (Control mean 63.5 vs Storytelling 63.1 years) and had a comparable gender mix (Control 56% female vs Storytelling 52% female). All patients underwent the intended facet joint injection at L4-L5 and L5-S1 bilaterally, involving four needle insertions under fluoroscopy. There were no procedural complications. By design, none of the patients received sedative medication or local anesthetic, and all remained fully conscious and communicative throughout. In the storytelling group, patients selected a variety of favorite animals for their narrative (examples included dog, cat, lion, dolphin, monkey, tiger, horse, etc., reflecting a fun range of imagery). All participants in the storytelling arm tolerated the narrative well - there were no instances of patients expressing discomfort or refusing the approach once it began. Some patients laughed or visibly relaxed during the story, while others remained quietly attentive; even those who were more reticent still noted later that the story "kept my mind off the pain." In the control group, the procedural dialogue was minimal and neutral, as per protocol. (See Table 1 for demographics and baseline characteristics)

Table 1: Participant Demographics and Baseline Characteristics.

Group	N	Mean Age	Female (%)
Control	50	63.5	56%
Storytelling	50	63.1	52%

Anxiety (Fear) Ratings

Before the procedure, patients reported their level of fear about the impending injection. The mean pre-procedure anxiety rating was 1.78 ± 0.99 (SD) in the control group (on the 0-4 scale) and 1.66 ± 0.91 in the storytelling group. These were statistically equivalent (p = 0.53) indicating successful randomization - both groups started with, on average, a mild to moderate level of apprehension (approximately between "slightly" and "moderately" afraid). During the procedure, the patients' experienced anxiety diverged markedly between the groups. In the control arm (concise medical explanation), the mean fear rating for the procedure was 1.44 ± 1.02, indicating that on average patients felt a moderate level of fear during the injections. In contrast, the storytelling arm's mean fear during the procedure was only 0.88 ± 0.86, which is closer to the "very little fear" end of the scale. This difference was statistically significant (p = 0.004, unpaired t-test). In other words, patients who were engaged with a humorous narrative reported 39% less anxiety during the procedure compared to those who received standard information.

It is notable that in the storytelling group, many patients' fear scores dropped to 0 ("not afraid at all") once the procedure started with the story - 38% of patients in that group reported 0 fear during the procedure, compared to 20% in the control group. Only a few patients in either group rated the maximal 4 ("extremely afraid"), but notably those few were all in the control group. These findings support that the humorous storytelling was effective in alleviating intra-procedural anxiety. (See Table 2 for full comparison of anxiety and pain scores across groups)

Table 2: Anxiety and Pain Scores by Group.

Measure	Control Group (Mean ± SD)	Storytelling Group (Mean ± SD)	P-Value
Baseline Anxiety	1.71 ± 0.89	1.68 ± 0.91	0.53
Procedural Anxiety	1.44 ± 0.85	0.88 ± 0.73	0.004
Pain During Procedure	2.14 ± 1.06	1.40 ± 0.88	< 0.001
Satisfaction	3.56 ± 0.65	3.52 ± 0.68	0.60

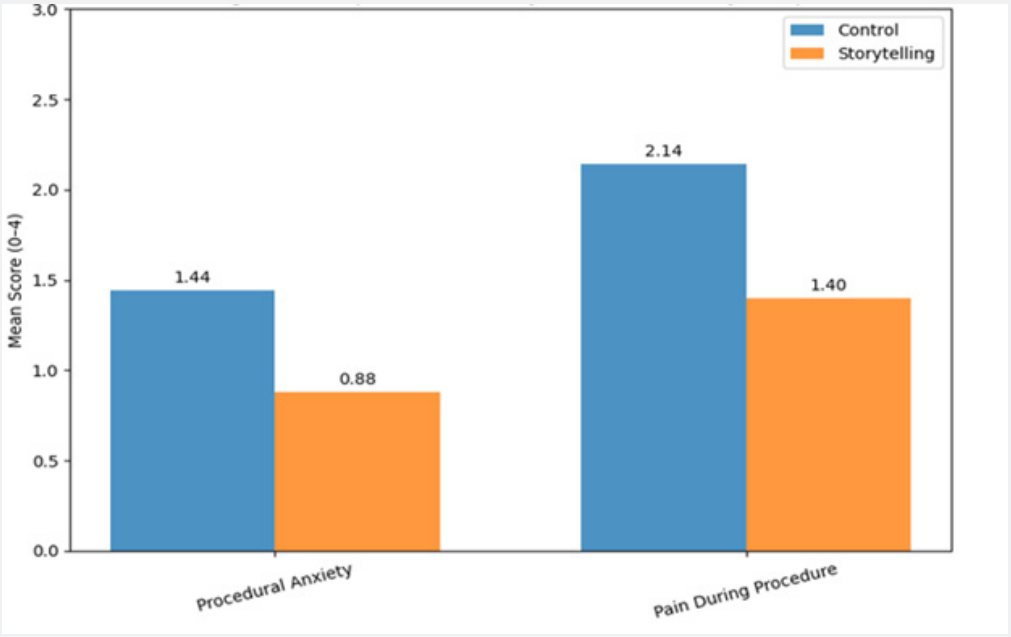
This table summarizes the main outcome measures comparing the control and storytelling groups, including baseline anxiety, procedural anxiety, pain during the procedure, and post-procedural satisfaction. Mean scores and standard deviations are provided along with p-values for between-group comparisons.

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

Pain Ratings

We assessed pain immediately after the procedure by asking patients to rate how much it hurt. In the control group (no humor), the mean pain score during the procedure was 2.14 ± 1.10 on the 0-4 scale. This indicates that, on average, patients felt between "moderate" and "severe" pain from the four injections (not surprising given no local anesthetic was used). In the storytelling group, the mean pain score was significantly lower, at 1.40 ± 0.72. Statistically, the difference was highly significant ($p < 0.001$). Thus, those who heard the humorous narrative perceived about 35% less pain compared to controls. It is worth emphasizing that this pain reduction occurred despite identical physical stimuli - same procedure, no pain medicine - so it reflects a true difference in subjective pain perception attributable to the psychological intervention. Laughter and engagement with the story likely released endorphins and distracted attention from pain, thereby raising pain tolerance in real time. Some patients in the humor group commented informally that "I was focusing on the story and the stinging didn't bother me as much." In the control group, several patients mentioned that the injections were quite painful or "worse than I expected," whereas such comments were rarer in the humor group.

We also observed that in the control group, 30% of patients rated their pain at the maximum of 4 (extreme pain), versus only 10% in the storytelling group. Conversely, 20% of storytelling patients rated pain as 0 (no pain at all, perhaps an exaggeration or indicating it didn't register as pain to them in the moment), compared to 12% in controls. The majority of the storytelling group (72%) rated pain in the 1-2 range (mild to moderate), whereas the control responses were more spread into the higher pain categories. This pattern suggests a clinically meaningful improvement in pain experience when humor was used. (See for visual comparison of anxiety and pain scores).



Bar graph comparing mean procedural anxiety and pain scores (on a 0–4 scale) between the control and storytelling groups. The storytelling group showed significantly lower anxiety and pain levels during the procedure.

Figure 1: Comparison of Anxiety and Pain Scores by Group.

Patient Satisfaction

After the procedure, we asked patients to overall rate their satisfaction with the treatment experience. Interestingly, satisfaction scores were very high in both groups. The control group mean satisfaction was 3.52 ± 0.54 out of 4, and the storytelling group was 3.58 ± 0.60 out of 4. Essentially, most patients in both groups reported being very satisfied (3) or extremely satisfied (4) with their care. There was no significant difference between groups on this measure ($p = 0.60$). This result suggests that adding humor did not detract from patient satisfaction, nor did it dramatically boost it beyond the already high levels. One interpretation is that patients generally felt positive about the procedure afterwards if it went smoothly and they anticipated pain relief from the injection - those factors might overshadow the immediate discomfort or the style of doctor-patient interaction, at least when assessing satisfaction on a broad 0-4 scale.

Another interpretation is a possible ceiling effect: since many patients were at the top of the satisfaction scale in both

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

groups, our measure wasn't sensitive enough to distinguish subtle differences. All patients did eventually receive the treatment they needed, and the physician in both scenarios was attentive and skilled, so high satisfaction is logical across the board. It is notable that none of the patients in the storytelling group expressed any negative feedback about the use of humor. On the contrary, several of them spontaneously thanked the doctor for "making it easier" and some even remarked that every clinic should do this. In the control group, satisfaction was also high, likely reflecting that the care was competent and perhaps relief that the procedure was over. There were no complaints about lack of sedation; indeed, these patients had chosen or needed to avoid sedation, and they generally coped well.

Discussion

This pilot study provides preliminary evidence that a humorous storytelling approach can significantly reduce patient anxiety and pain during a conscious medical procedure. To our knowledge, this is among the first controlled investigations of doctor-delivered humor as an intra-procedural anxiolytic in an adult clinical setting. The magnitude of the effect on anxiety (nearly 40% reduction in fear scores) and on pain (35% reduction in pain ratings) is noteworthy for a simple, low-tech intervention. These findings align with a body of literature pointing to the therapeutic benefits of humor and distraction in healthcare.

Our results are in line with prior studies where distraction techniques improved patients' procedure tolerance. In the context of conscious surgeries, researchers have found that engaging patients' attention elsewhere can attenuate both anxiety and pain. For example, Hudson et al. reported that having a nurse talk to patients throughout a minor surgery significantly eased their anxiety and pain compared to usual care. In our study, the storytelling narrative likely worked through similar mechanisms - it served as a form of immersive distraction, pulling the patient's focus into the story's imagery and away from the procedure. Additionally, because the story was humorous and personalized (using each patient's chosen animal), it elicited smiles or mental amusement, which in turn triggers the physiological laughter response. Even if patients did not laugh out loud, the tone of the interaction was jovial rather than clinical, which may have helped diffuse tension.

The power of humor to reduce stress is well documented. Laughing can rapidly decrease the body's stress arousal: it lowers cortisol and catecholamine levels and activates the parasympathetic nervous system, leading to relaxation. Laughter also releases endorphins, the body's natural painkillers, which can raise pain thresholds. A recent systematic review found that even a single short laughter session can cut stress hormone levels by over 30% compared to baseline. By embedding humor into our procedure, we essentially turned the medical intervention into a mini laughter therapy session for those patients. The outcome - reduced anxiety and pain - is consistent with what laughter physiology would predict. Patients in the humor group might have had some of the analgesic "buffer" that Norman Cousins described from his laughter episodes, evidenced by fewer of them labeling the experience as very painful.

It is important to note that the satisfaction ratings did not differ between groups, remaining high in both. This suggests that introducing a humorous narrative did not compromise the patient's overall satisfaction with care - a positive finding, since one might worry that being jocular could be misconstrued as unprofessional or not taking the patient's pain seriously. Our data indicates patients did not feel that way; if anything, anecdotal comments suggest they appreciated the physician's effort to comfort them. The uniformly high satisfaction also implies that even patients in the control group, who experienced higher pain and anxiety, still felt satisfied afterwards (possibly because the procedure was effective or short-lived). This points to a potential ceiling effect, where nearly everyone was "satisfied" regardless of nuances. Future studies might use more detailed patient experience surveys to see if aspects like "comfort during procedure" or "physician communication" are rated higher with the humor intervention, which could be more sensitive than the blunt 0-4 satisfaction item.

Our study has several limitations. First, as a pilot with 100 patients, the sample size is modest, and the results should be interpreted with caution. The single-center, single-operator design, while good for consistency, may limit generalizability - the physician in this case was someone comfortable with performing and multitasking a narrative. It is possible that the effect of the humor intervention is partly dependent on the deliverer's personality, comedic timing, or rapport with patients. In other words, not every clinician may achieve the same results reading a script; the human element is significant. Second, the measures of anxiety and pain were simple numeric scales. Although these showed clear differences, we did not use a full psychometric scale like the STAI for anxiety or a validated pain questionnaire, which could provide more robust evidence.

In future research, incorporating standardized anxiety inventories or physiological measures (heart rate, blood pressure changes during the procedure) would strengthen the findings. Third, blinding was not possible - patients obviously knew if they were hearing a story or not, and the researcher (physician) was the one delivering the intervention. This opens the door to potential bias. For example, patients in the storytelling group might feel compelled to please the jovial doctor with lower reported scores. We tried to mitigate this by having them fill out forms privately, but complete elimination of expectancy bias is difficult. A crossover design in the future could be insightful: e.g. the same patient's experience with and without humor in two similar procedures, serving as their own control, although that requires the patient to undergo multiple procedures.

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

Another limitation is that our population was those who opted out of sedation. This is a distinct subset; these patients either had contraindications (very elderly) or personal willingness to go without sedatives. They may have a higher tolerance for discomfort or lower baseline anxiety than a general population of procedure patients (since the extremely anxious likely would insist on sedation and thus not be in our sample). In that sense, our results might underestimate the benefit of humor - if we tried this on patients who are usually so anxious they need a sedative, perhaps the impact would be even greater (or conversely, such patients might not be sufficiently calmed by humor alone). We also note that our patients were relatively older (mean ~63). Humor appreciation can be individual; we did not specifically measure how the intervention might vary by age or personality. All chose an animal and went along, but it's possible a few found it slightly silly and perhaps not as effective. Tailoring the narrative to each patient's responses might further improve efficacy.

Our finding that pain was reduced is intriguing and aligns with some literature that anxiety and pain are interrelated in procedures. Anxiety can amplify pain perception via the common neural pathways of fear and pain in the brain (e.g. through attention and muscle tension). By alleviating anxiety, the narrative likely indirectly blunted pain. There may also have been direct distraction from pain - the classic example being how children might not notice an injection as much if engrossed in a story or video. While our pain reduction was significant, the satisfaction didn't change; this suggests that mild to moderate pain during these short procedures did not necessarily make patients dissatisfied as long as they felt cared for. However, reducing pain is still intrinsically valuable, as it decreases patient suffering and could lower the physiological stress response (which in turn might improve recovery).

In comparing humor to other interventions, one could consider that music is another common non-pharmacological adjunct in procedures. Interestingly, in the varicose vein surgery trial, simply playing music had no effect on patient anxiety or pain. Our study did not include a music-only arm, but given those findings, music without personal interaction may not be sufficient. Humor, on the other hand, inherently involves a cognitive engagement and often a social connection (shared laughter), which might explain why it has a stronger effect than passive listening to music. In essence, active distraction (interacting with a story or conversation) seems more effective than passive distraction. This is supported by the prior study where the conversation and stress balls worked better than music.

- **Clinical implications:** For pain specialists, proceduralists, and really any healthcare providers performing minor procedures - incorporating a bit of humor could be a simple way to improve patient comfort. It costs nothing, has no side effects, and as our pilot suggests, can make a real difference. Of course, humor must be used judiciously and empathetically. Not every patient will respond well to a joking style if done inappropriately. Key is to know your patient and obtain permission in a sense (we explicitly told patients we'd use a story, and only proceeded if they agreed and participated by choosing an animal). The humor should never be at the patient's expense; it should be inclusive and supportive. In our narrative, the patient was effectively the spectator to a cute story - a form of escapism from the medical reality. This seemed to work well across a range of patients. In the era of impersonal high-tech interventions, such human touch might actually stand out even more. Patients often feel fear because the medical environment is cold and serious; by "taking ourselves less seriously" for a moment and injecting a bit of playfulness, we humanize the experience and create a caring atmosphere. This does not mean we as professionals are any less serious about the patient's health - rather, it shows we care about their emotional well-being in addition to the technical task.

Our pilot results encourage further research. A larger trial with a more diverse patient group could solidify the evidence base for humor in medical procedures. It would be interesting to compare humorous storytelling against other interventions (e.g. a dedicated conversation without intended humor, or a video distraction) to see which is most effective. Additionally, measuring outcomes like blood pressure, heart rate, or even cortisol levels could objectively confirm stress reduction (given that laughter has been shown to reduce cortisol by roughly 30%). We also suggest exploring longer-term outcomes: Does making a patient's procedure experience less anxious improve their adherence to future treatments or follow-ups? Perhaps patients who have a positive memory are more likely to return for needed injections or therapy rather than avoiding them due to fear.

Another potential application is in populations that cannot receive sedation (as in our study) - for example, extremely elderly patients or those with certain medical comorbidities. These patients must endure procedures fully awake; having non-drug means to calm them is especially valuable. Conversely, if humor and distraction are effective enough, maybe fewer patients will need sedation, which would be a win for safety (sedation always carries some risk). Indeed, Kim et al. found that 42% of patients in a pain clinic did fine without any sedation, implying that not everyone requires pharmacological anxiolysis. Perhaps with better communication strategies, that percentage could be even higher.

Conclusion

In this pilot study, we found that a little laughter goes a long way in the procedure room. The use of a humorous, storytelling explanation during a fluoroscopy-guided pain injection significantly reduced patients' anxiety and pain compared to the standard clinical script, without any downside on patient satisfaction. These results highlight the potent impact of humanistic interventions in healthcare - even amidst high-tech

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125

procedures, the ancient medicine of humor retains its healing touch. While our sample was small, it provides a proof-of-concept that integrating humor into patient care is feasible and beneficial. We encourage clinicians to consider ways to safely incorporate laughter and narrative where appropriate, and we advocate for larger studies to further evaluate the efficacy of such approaches. As medical professionals, we often deal with very serious matters, but this study reminds us: maybe we shouldn't take ourselves too seriously all the time. By easing our patients' fear with compassion and a smile, we not only reduce their suffering in the moment, but also forge a stronger patient-provider bond. In the words of one participant after her storytelling-aided injection, "I never thought I'd be laughing on an operating table - but it really helped." Indeed, humor, when used with heart, can be a powerful anesthetic.

References

1. Abdul Hadi M, McHugh GA, Closs SJ (2018) Impact of chronic pain on patients' quality of life: a comparative mixed-methods study. J Patient Exp 5(2): 114-120.
2. Cho MK, Choi MY (2021) Effect of distraction intervention for needle-related pain and distress in children: a systematic review and meta-analysis. J Child Health Care 18(17): 9159.
3. Spielberger CD (1983) State-Trait Anxiety Inventory for Adults: Manual, Instrument and Scoring Guide. Mind Garden Inc.
4. Bennett MP, Lengacher C (2008) Humor and laughter may influence health IV. Humor and immune function. Evid Based Complement Alternat Med 5(1): 37-40.
5. Martin RA (2010) The Psychology of Humor: An Integrative Approach. 2nd ed. Elsevier Academic Press.
6. Dunbar RIM, Baron R, Frangou A, Eiluned P, Edwin J C Van L, et al. 2012) Social laughter is correlated with an elevated pain threshold. Proc Biol Sci 279(1731): 1161–1167.
7. Mora Ripoll R (2010) The therapeutic value of laughter in medicine. Altern Ther Health Med 16(6): 56–64.
8. Ko HJ, Youn CH (2011) Effects of laughter therapy on depression, cognition and sleep among the community-dwelling elderly. Geriatr Gerontol Int 11(3): 267–274.
9. Hasan H, Hasan TF (2009) Laugh yourself into a healthier person: a cross-cultural analysis of the effects of varying levels of laughter on health. Int J Med Sci 6(4): 200–211.
10. Lefcourt HM, Martin RA (1986) Humor and Life Stress: Antidote to Adversity. Springer-Verlag, Germany.
11. Wooten P (1996) Humor: An Antidote for Stress. Holist Nurs Pract 10(2): 49-56.
12. Vagnoli L, Caprilli S, Robiglio A, Messeri A (2005) Clown doctors as a treatment for preoperative anxiety in children: a randomized, prospective study. Pediatrics 116(4): e563-e567.
13. Bennett MP, Lengacher CA (2007) Use of humor and laughter in patients with chronic illness: a review. Evid Based Complement Alternat Med 4(1): 61-66.

DOI: 10.19080/PBSIJ.2026.23.556125

How to cite: Shachar Zion S, Paz K, Itay Goor A, Lior U. Are We Taking Ourselves Too Serious? A Pilot Study on the Use of Humorous Storytelling During Pain Procedures Under Fluoroscopy to Reduce Patient Anxiety. Psychol Behav Sci Int J. 2026; 23(5): 556125. DOI: 10.19080/PBSIJ.2026.23.556125