

Review

Incidence, patient satisfaction, and perceptions of post-surgical pain: results from a US national survey

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Abstract

Objective:

During the past two decades, professional associations, accrediting bodies, and payors have made post-surgical pain treatment a high priority. In light of the disappointing findings in previous surveys, a survey was conducted to assess patient perceptions and characterize patient experiences/levels of satisfaction with post-surgical pain management.

Research design and methods:

Survey included a random sample of US adults who had undergone surgery within 5 years from the survey date. Participants were asked about their concerns before surgery, severity of perioperative pain, pain treatments, perceptions about post-surgical pain and pain medications, and satisfaction with treatments they received.

Results:

Of the 300 participants, ~86% experienced pain after surgery; of these, 75% had moderate/extreme pain during the immediate post-surgical period, with 74% still experiencing these levels of pain after discharge. Post-surgical pain was the most prominent pre-surgical patient concern, and nearly half reported they had high/very high anxiety levels about pain before surgery. Approximately 88% received analgesic medications to manage pain; of these, 80% experienced adverse effects and 39% reported moderate/severe pain even after receiving their first dose.

Study limitations:

Key study limitations include the relatively small population size, potential for recall bias associated with the 14-month average time delay from surgery date to survey date, and the inability to account for influences of type of surgery and intraoperative anesthetic/analgesic use on survey results.

Conclusions:

Despite heightened awareness and clinical advancements in pain management, there has been little improvement in post-surgical analgesia as measured by this survey of post-surgical patients.

Introduction

According to statistics from the Centers for Disease Control and Prevention, ~100 million surgical procedures are performed in the US each year¹. Of these, ~60% are conducted in an ambulatory setting^{1,2}, with up to 80% of patients experiencing pain after their procedure^{3,4}.

Adequate treatment of acute pain improves clinical and economic outcomes³ and, during the past 2 decades, there has been increased focus on the need for

better post-surgical pain management. Several guidelines published by government-sponsored healthcare agencies and non-governmental clinical societies outline strategies for improving pain management⁵⁻⁸. In recognition of the pervasive inadequacy of pain management in the surgical setting, guidelines commissioned by the Office of the Forum for Quality and Effectiveness in Health Care of the Agency for Healthcare Research and Quality (AHRQ; formerly the Agency for Health Care Policy and Research [AHCPR]) were first published in 1992⁵. In 2002, the Veterans Health Administration formally recognized pain as the fifth vital sign and published guidelines for post-operative pain management⁷. In 2001, the Joint Commission pain management standards went into effect for all accredited healthcare institutions in the US⁸. Practice guidelines for pain management in the perioperative setting, first published by the American Society of Anesthesiologists in 1995⁹, were updated in 2004¹⁰, and again in 2012⁶.

Pain management guidelines appear to have had little impact on practice patterns or improvement in pain control for patients. One year after the AHCPR guidelines were released, Warfield and Kahn⁴ conducted a national survey to assess the status of acute pain management in US hospitals ($n = 300$) and another to assess the attitudes of adults ($n = 500$) about post-surgical pain management. The hospital survey consisted of 36 questions concerning the status of current and future acute pain management programs; the survey of adults consisted of 36 questions regarding respondents' attitudes and experiences with post-operative pain and its management. Of the 300 hospitals surveyed, only 46% had written guidelines or a formal pain management program in place. Of the 500 participants surveyed, 27% (135) had undergone surgery during the past 5 years; of these, 77% reported pain after surgery, with 61% experiencing moderate-to-extreme pain. One shortcoming of this survey was that patients were not stratified as inpatients or outpatients. About 10 years later, Apfelbaum *et al.*³ conducted a similarly designed survey to assess whether pain management practices had improved during the decade after the Warfield survey. When Apfelbaum *et al.* surveyed 250 adults who had undergone surgery within the previous 5 years, their results showed that the prevalence and characteristics of post-surgical pain had not improved over the course of the previous 10 years. In their survey, 82% (206/250) reported pain after surgery; of these patients, 86% experienced moderate-to-severe pain, with similar results observed for inpatient and outpatient sub-groups.

In light of the increased focus on acute pain management and disappointing findings from these previous surveys, we sought to conduct a contemporary assessment of patient perceptions of post-surgical pain and to characterize their experiences and levels of satisfaction with post-surgical pain management.

Patients and methods

The study was approved by the Duke University Medical Center Institutional Review Board; patient consent requirements were waived. In the recruiting effort for this institutional study, 10,235 US physicians were randomly selected and asked to provide patients with a toll-free phone number to call to participate in the research. This process was performed using a random selection software program. The physician sample was designed to be representative of the US physician population in terms of geographic regions and medical specialties. Each patient who completed the survey received a \$20 incentive and the referring physician received a \$10 incentive. Physicians were allowed to refer a maximum of three patients. Adults of 18 years of age or older who underwent surgery within a period of no longer than 5 years from the date of the survey were eligible to participate, similar to the design of the previous study reported by Apfelbaum *et al.*³. Enrollment was closed when the number of patients reached 300.

Survey participants were asked a pre-defined set of questions about their pre-operative and post-operative pain experiences (Appendix). Questions from previously conducted surveys were included^{3,4}, along with modified and new questions written by the investigators of the current study. The new questions were tested in a sample of patients to establish face and content validity. Participants were asked about their concerns before surgery, about pre- and post-operative pain levels, perioperative medications received, pain levels following analgesic administration, non-pharmacologic pain management techniques, satisfaction with pain management, analgesic-related adverse events, perioperative pain consultations, pain threshold levels, and pain-related anxiety.

The data were stratified according to surgical setting (inpatient vs outpatient) and summarized using descriptive statistics, with percentages calculated based on the total number of patients who answered each question. Those who had surgical procedures at a hospital as an outpatient, or at a doctor's office, outpatient clinic, or freestanding surgical center were classified as 'outpatients'. Kruskal-Wallis or Wilcoxon 2-sample tests were performed, as appropriate, to assess the degree of association between parameters of interest.

Results

A total of 300 patients were included in this study. Demographic data are presented in Table 1. Approximately half of the respondents underwent surgery in an outpatient setting. The mean time from end of surgery to survey date was ~14 months.

Table 1. Demographics of survey respondents.

Parameter	Inpatient (n = 146), n (%)	Outpatient ^a (n = 154), n (%)	Total (n = 300), n (%)
Age, years			
18–39	35 (24)	64 (42)	99 (33)
40–54	45 (31)	46 (30)	91 (30)
55–64	26 (18)	29 (19)	55 (18)
≥65	40 (27)	15 (10)	55 (18)
Sex			
Male	49 (34)	56 (36)	105 (35)
Female	97 (66)	98 (64)	195 (65)
Race			
White	115 (79)	115 (75)	230 (77)
Hispanic	11 (8)	15 (10)	26 (9)
Black	4 (3)	6 (4)	10 (3)
Asian	9 (6)	10 (6)	19 (6)
Other	6 (4)	8 (5)	14 (5)

^aIncludes patients with surgical procedures performed in a hospital as outpatients, doctor's office, an outpatient clinic, or a freestanding surgery center.

Table 2. Patient responses regarding concerns prior to surgery^a.

Concern	Inpatient (n = 146), n (%)	Outpatient (n = 154), n (%)	Total (n = 300), n (%)
Pain after surgery	122 (84)	118 (77)	240 (80)
Whether surgery would improve condition	93 (64)	94 (61)	187 (62)
Full recovery from surgery	84 (58)	67 (44)	151 (50)
Pain during surgery	73 (50)	62 (40)	135 (45)
Treatment by healthcare professionals	65 (45)	39 (25)	104 (35)
No concerns	10 (7)	17 (11)	27 (9)

^aPatients could choose more than one concern.

Before surgery, post-surgical pain was the most prominent concern among patients surveyed, with 80% of respondents expressing concern about this issue (Table 2). When queried regarding anxiety about surgery-related pain before their surgery (response choices were 'very high', 'high', 'neutral', 'low', or 'very low'), 53% (78/146) of respondents who had inpatient surgery reported 'high' or 'very high' levels of anxiety compared with 40% (61/154) of those who had undergone surgery in an outpatient setting. Most patients (72% of inpatients; 70% of outpatients) classified their pain threshold as 'high' or 'very high'.

Overall, about half of the respondents reported having pain before surgery, and 86% experienced pain after surgery (Table 3). Of the patients with pain prior to surgery, 38% (60/159) were taking analgesic medications pre-operatively. The intensity of the post-surgical pain was described as moderate, severe, or extreme by 75% of the patients with some post-surgical pain (65% of all patients); a slightly larger proportion (79%) of the inpatient sub-group than the outpatient sub-group (72%) who had

pain described its intensity as moderate-to-extreme. The survey item assessing post-discharge pain was answered by 225 respondents, of whom 84% reported some pain after hospital discharge. The intensity of pain was reported as moderate, severe, or extreme by 74% of those reporting pain (62% of all respondents), with inpatient and outpatient sub-group rates of 71% and 78%, respectively.

Approximately 88% (225/257) of all respondents with post-surgical pain received analgesic medications after surgery, 93% (124/134) of the inpatient group vs 82% (101/123) of outpatients. Of the inpatients who reported receiving medication for post-surgical pain, 57% (71/124) received their medication on a timed schedule, 23% (28/124) received it via a patient-controlled device, 16% (20/124) had to ask for pain medication when needed, and 4% (5/124) had analgesia provided via an epidural device or nerve block; 95% of the outpatient sub-group received their pain medication on a timed schedule. Opioids and, in particular, hydrocodone, oxycodone, and morphine, were by far the most frequently administered analgesics for post-surgical pain in both the inpatient and outpatient settings (Table 4). Hydrocodone was used in a higher proportion of outpatient responders (46/101 [46%] vs 40/124 [32%] of inpatient responders); morphine was used in a higher proportion of inpatients (16% of inpatient vs 3% of outpatient responders). About 39% (73/186) of patients reported moderate-to-severe pain, even after receiving the first dose of analgesic medication, a rate that was similar across the inpatient and outpatient sub-groups. Overall, 79% of those who received pain medications experienced at least one adverse effect. The most frequently reported adverse effects in both inpatients and outpatients were those typically observed with opioid analgesics: drowsiness, constipation, and nausea (Table 5).

Of the 225 patients who responded, 135 (60%) reported that non-pharmacologic pain management strategies were used during post-surgical recovery. Application of cold, application of heat, and prescribed exercise regimens were the most common non-pharmacologic methods. Exercise regimens were prescribed twice as frequently for inpatients (31% of inpatient vs 15% of outpatient respondents).

The vast majority of patients in the survey (90%) reported being somewhat or very satisfied with their peri-operative pain management. About two thirds of patients in the inpatient and outpatient sub-groups said they were very satisfied with their pain management and only 2% of each sub-group said they were very dissatisfied. About 75% of respondents received counseling about pain from a healthcare professional before and again after surgery. Overall, surgeons and nurses were the most likely healthcare professionals to provide perioperative counseling about pain, with nurses more likely to give pre-operative pain counseling in the inpatient setting and surgeons more likely in the outpatient setting. After surgery, nurses were

Table 3. Presence of pain and maximum intensity of pain experienced.

Variable, n (%)	Inpatient (n = 146)	Outpatient (n = 154)	Total (n = 300)
Patients reporting pre-operative pain	85/146 (58.2)	74/154 (48.1)	159/300 (53.0)
Slight	7 (8.2)	15 (20.3)	22 (13.8)
Moderate	20 (23.5)	25 (33.8)	45 (28.3)
Severe	58 (68.2)	34 (46.0)	92 (57.9)
Patients reporting post-operative pain	134/146 (91.8)	123/154 (79.9)	257/300 (85.7)
Slight	28 (20.9)	35 (28.5)	63 (24.5)
Moderate	63 (47.0)	52 (42.3)	115 (44.8)
Severe	27 (20.2)	31 (25.2)	58 (22.6)
Extreme	16 (11.9)	5 (4.1)	21 (8.2)
Patients reporting pain after first analgesic medication administered	102/124 (82.3)	84/101 (83.2)	186/225 (82.7)
Slight	61 (59.8)	52 (61.9)	113 (60.8)
Moderate	31 (30.4)	27 (32.1)	58 (31.2)
Severe	10 (9.8)	5 (6.0)	15 (8.1)
Patients reporting pain after discharge	109/124 (87.9)	80/101 (79.2)	189/225 (84.0)
Slight	32 (29.4)	18 (22.5)	50 (26.5)
Moderate	48 (44.0)	39 (48.8)	87 (46.0)
Severe	20 (18.4)	20 (25.0)	40 (21.2)
Extreme	9 (8.3)	3 (3.8)	12 (6.4)

Table 4. Post-surgical analgesics used.

Analgesic, n (%)	Inpatient (n = 124)	Outpatient (n = 101)	Total (n = 225) ^a
Morphine	20 (16)	3 (3)	23 (10)
Meperidine	4 (3)	1 (1)	5 (2)
Hydromorphone	8 (6)	2 (2)	10 (4)
Hydrocodone	18 (15)	14 (14)	32 (14)
Hydrocodone + acetaminophen	22 (18)	32 (32)	54 (24)
Oxycodone	16 (13)	7 (7)	23 (10)
Oxycodone + acetaminophen	21 (17)	24 (24)	45 (20)
Propoxyphene	1 (0.8)	0	1 (0.4)
Propoxyphene + acetaminophen	3 (2)	0	3 (1)
Codeine + acetaminophen	9 (7)	6 (6)	15 (7)
Ketorolac	5 (4)	3 (3)	8 (4)
Aspirin	1 (0.8)	0	1 (0.4)
Ibuprofen	6 (5)	2 (2)	8 (4)
Acetaminophen	8 (6)	3 (3)	11 (5)

^aSeventy-five patients did not respond to questions regarding post-surgical analgesics used.

the most likely healthcare professionals to provide pain counseling in both the inpatient and outpatient settings. Surprisingly, only 24% of patients reported receiving pre-operative pain counseling from an anesthesiologist, and only 3% received post-operative counseling from an anesthesiologist.

Responses to questions regarding patients' perceptions about post-surgical pain and pain medications showed that 84% (251/300) felt post-surgical pain was necessary, and 94% (288/300) thought it was okay to complain about their pain. Only 12% (35/300) admitted that they had ever cancelled or delayed a surgical procedure for fear of pain. When asked about the route of pain medication administration that provided the best pain relief, 31% (92/300) selected the intravenous route, 17% (52/300) chose oral tablet administration, and 10% (29/300)

Table 5. Adverse effects.

Adverse effect	Inpatient (n = 124, n (%))	Outpatient (n = 101, n (%))	Total (n = 225, n (%)) ^a
Drowsiness	70 (56)	56 (55)	126 (56)
Constipation	47 (38)	31 (31)	78 (35)
Nausea	31 (25)	32 (32)	63 (28)
Dizziness	19 (15)	20 (20)	39 (17)
Itching	18 (15)	16 (16)	34 (15)
Sleeplessness	18 (15)	10 (10)	28 (12)
Mood changes	17 (14)	10 (10)	27 (12)
Confusion	17 (14)	9 (9)	26 (12)
Vomiting	9 (7)	15 (15)	24 (11)
Difficulty urinating	6 (5)	1 (1)	7 (3)
Slow or troubled breathing	4 (3)	3 (3)	7 (3)

^aSeventy-five patients did not respond to questions regarding analgesic-related adverse events.

chose the elastomeric pain pump. About 92% (275/300) believed pain medications cause adverse effects, and, given a choice between narcotic and non-narcotic pain medications, more patients stated a preference for non-narcotic pain medications (57%, 172/300) than narcotic medications (36%, 109/300). Conversely, patient concerns regarding addiction were not highly prevalent—30% (89/300) of patients had concerns about becoming addicted to narcotic pain medications as a result of their post-surgical pain management therapy.

Correlation analyses showed statistically significant associations between patients' anxiety levels about pain before surgery and actual levels of post-surgical pain—patients with higher anxiety levels experienced higher levels of pain after surgery than patients who reported lower levels of anxiety about pain before surgery (Figure 1). Pain intensity levels before surgery were

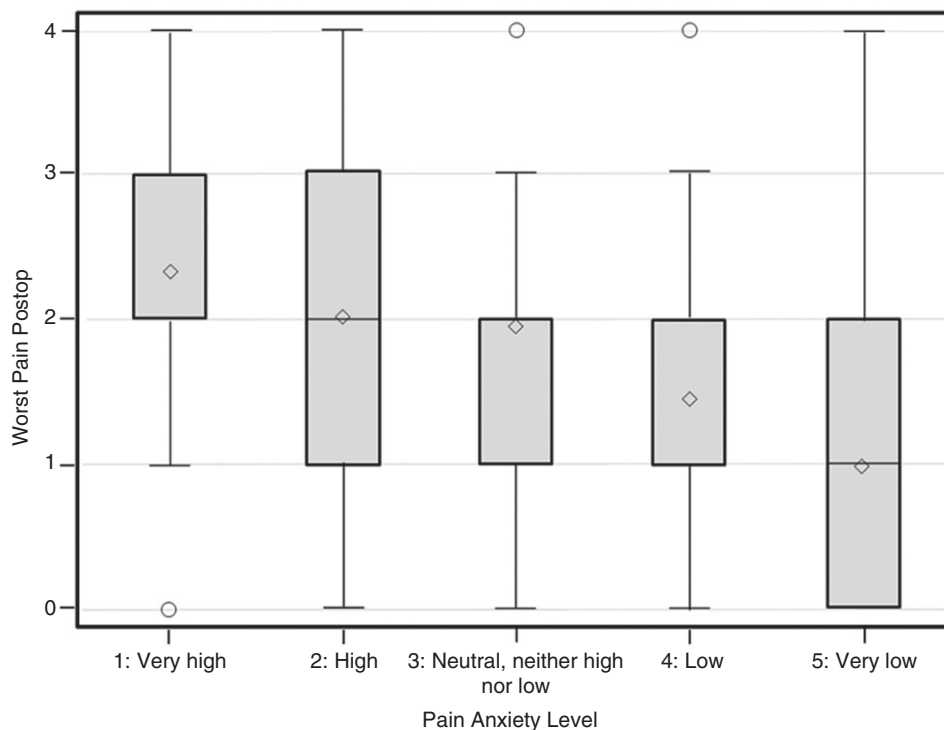


Figure 1. Association between anxiety about pain and post-surgical pain intensity. Kruskal-Wallis chi-square statistic: 34.01; $p < 0.0001$. Shaded bars extend from the 25th percentile (bottom of bar) to the 75th percentile (top of bar). Means are shown by the diamond symbol. Medians equal 2 for the 3 highest anxiety categories, and equal 1 for the 2 lower categories. Vertical lines above and below each bar extend to the limits of the data, except where extreme outliers are shown by circles.

predictive of severity of post-operative pain—greater levels of pre-operative pain were associated with worse post-operative pain (Kruskal-Wallis chi-square statistic: 3.8; $p = 0.003$).

Discussion

The design and format of our survey were similar to those conducted ~10 years ago by Apfelbaum *et al.*³ and 20 years ago by Warfield and Kahn⁴. Based on the results from all three surveys, it seems there has been little or no improvement in post-surgical pain management during the past 2 decades (Figure 2), despite numerous advancements in pain treatment standards. A large majority (86%) of surgery patients experience post-surgical pain—a rate that has actually increased from 2 decades ago—and three quarters of those patients who did experience post-surgical pain reported its intensity as moderate-to-extreme. Slightly higher proportions of respondents reported moderate-to-extreme pain in the earlier surveys; Apfelbaum *et al.* survey: 86%; Warfield and Kahn survey: 80%. The proportion of patients experiencing pain after hospital discharge was higher in our survey (84%) than the Apfelbaum *et al.* survey (75%); Warfield and Kahn did not assess this outcome. Pain after surgery appears to be an even more prominent concern today (80% in the current survey) than

it was 10 years ago (59%) and 20 years ago (57%), perhaps reflecting greater awareness of post-surgical pain as reported in the lay press and efforts to highlight pain as the ‘fifth vital sign’. Despite high prevalence of intense pain, 90% of patients (269/300) reported satisfaction with their post-surgical pain management. Reasons for this apparent paradox are unclear. Because most patients expect to experience pain after surgery, it is possible that satisfaction levels are more dependent on factors such as attentiveness of the hospital staff, cleanliness of the facility, and food quality, than the physical discomfort associated with surgical intervention. Interestingly, the satisfaction rate in our study was nearly identical to the rate reported a decade ago by Apfelbaum *et al.*³ (88% satisfied). In light of recent efforts by numerous clinical groups and payors encouraging heightened awareness among clinicians regarding patient education and best practices for pain management, it is not surprising that more patients in the current survey received perioperative pain counseling (~74%) than in the previous two surveys (~65% and ~53%, respectively^{3,4}).

Use of non-pharmacologic modalities for pain management also has increased over the past 2 decades from 46% in the Warfield and Kahn survey to 60% in the current survey. Morphine, meperidine, and codeine/acetaminophen combinations were the most frequently administered opioid analgesic medications in the previous surveys^{3,4}.

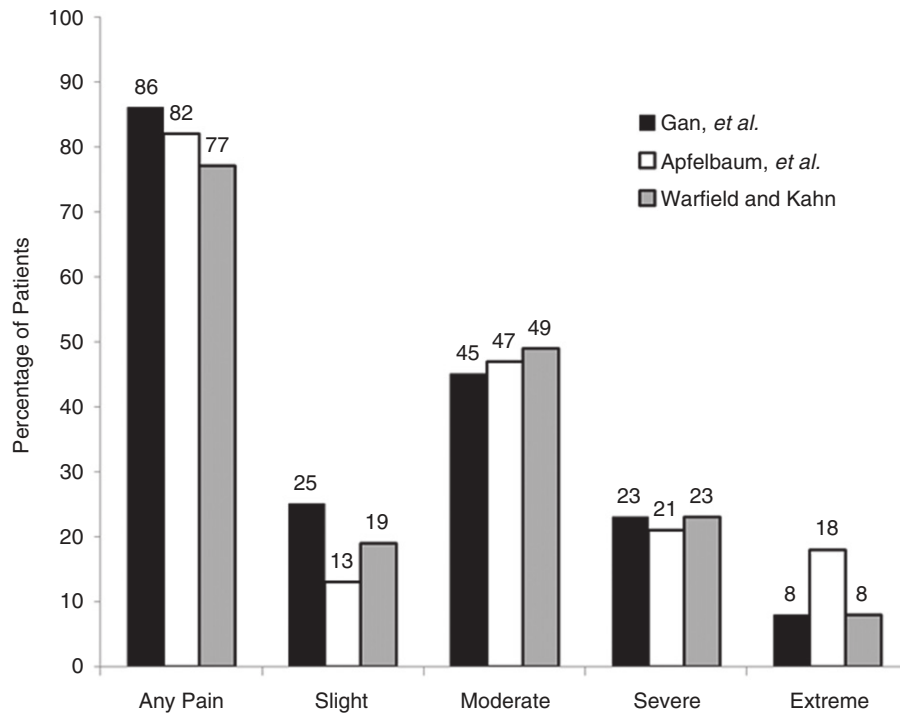


Figure 2. Proportions of patients reporting various post-surgical pain levels in the Warfield and Kahn⁴ survey, the Apfelbaum *et al.*³ survey, and the current survey.

Since then, hydrocodone/acetaminophen and oxycodone/acetaminophen combinations have emerged as the most commonly used opioid-based analgesics; in the current survey, the proportion of patients receiving these medications was 3–4-times greater than the proportion that received any other opioid. Patient perceptions regarding inevitability of post-surgical pain have changed little over the past 2 decades; 77% of respondents in the earliest study expressed belief that some pain is necessary after surgery compared with 84% in the current study.

Our study included several questions not included in the other surveys. We assessed patients' anxiety levels about pain and worries about addiction, and investigated potential associations between pain anxiety and post-surgical pain levels. About half the patients in our survey (46%) expressed high anxiety before surgery about pain they anticipated after surgery; and we found a significant association between pain anxiety levels and post-surgical pain levels. Although 'anxious' respondents were more likely to experience high pain levels after surgery than respondents without anxiety, association does not imply causation. We found that only about one third of respondents expressed concerns regarding addiction in our survey population.

Overall, incidence and type of adverse effects and level of patient satisfaction with pain management were similar between inpatients and outpatients in our study. High proportions of both inpatients and outpatients experienced pain before and immediately after surgery, as well as after

discharge, although the difference between groups was roughly 10 percentage points higher in the inpatient subgroup at all three time points. The incidence and severity of post-surgical pain reported by ambulatory and inpatient respondents are somewhat higher than that reported in other studies. McGrath *et al.*¹¹ conducted a survey of 5703 patients who had undergone ambulatory surgery within 72 h before their survey, and 55% reported they had some degree of pain during the first 24 h after surgery; of these, 48% had moderate-to-severe pain. In a study of 648 patients undergoing various types of surgery in an ambulatory setting, Gramke *et al.*¹² monitored pain intensity levels on a daily basis for 4 days after surgery. In this study, only 26% of respondents reported moderate-to-severe post-surgical pain on the day of surgery, and the proportion decreased to 9% by post-operative day (POD) 4. In a study of 1490 surgical inpatients, Sommer *et al.*¹³ also monitored pain levels daily through POD 4. They found that 40% of their patients experienced moderate-to-severe pain on the day of surgery, with 14% of patients continuing to report moderate-to-severe pain on POD 4. Reasons for the disparity in pain rates reported in these three studies compared with our study (as well as the Apfelbaum *et al.*³ and Warfield and Kahn⁴ studies) are unclear. McGrath *et al.*¹¹, Gramke *et al.*¹², and Sommer *et al.*¹³ conducted their pain studies at the time of surgery rather than at later time points. Also, all three of those studies were conducted in non-US populations, which may account for some of the differences across studies.

The healthcare landscape continues to change—new incentives and benchmarks for institutional performance are being established that tie patient experiences (including pain experiences) within healthcare systems to financial reimbursement rates. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is a standardized survey instrument developed by the Centers for Medicare & Medicaid Services (CMS) and the AHRQ to measure patients' perceptions of their hospital experience¹⁴. It focuses on 10 key patient-centric topics, including communication about medicines and pain management. This survey has been endorsed by the National Quality Forum (NQF), a national organization that represents stakeholders with shared interest in improving hospital quality. A portion of government-funded reimbursement to healthcare facilities depends on timely and accurate reporting of HCAHPS data; these data are also used by federal healthcare agencies to calculate value-based incentive payments to healthcare institutions. The recently formed Patient-Centered Outcomes Research Institute (PCORI)¹⁵ has been authorized by Congress to investigate benefits and harms of various preventive, diagnostic, therapeutic, palliative, and health delivery system interventions. A key function of PCORI will be to highlight comparisons and outcomes that matter to patients, so that patients can make informed decisions about their healthcare. Based on the results of our study, it appears that healthcare professionals will be challenged to meet the standards that have been set for pain management.

Further, the pain treatment landscape is evolving toward heavier reliance on multimodal analgesic regimens for management of post-surgical pain rather than opioid-only regimens. The goal of a multimodal approach is to provide effective analgesia while reducing the use of opioids and the incidence of opioid-related adverse effects⁶. Studies have shown that use of multimodal analgesic regimens can indeed achieve both effective pain control and a reduction in opioid-related adverse events^{6,16–18}. The current American Society of Anesthesiologists practice guidelines for acute pain management in the perioperative setting recommend the use of multimodal analgesic techniques whenever possible⁶.

There are several limitations that should be considered when interpreting the results of this survey. Our survey was not conducted immediately after surgery; thus, participant responses may have been influenced by recall bias. It could also be argued that the average 14-month time span from surgery date to survey date may have resulted in more clinically meaningful responses from survey participants. The time delay may have allowed participants to put their surgery in a proper context. The survey was not designed to capture detailed information regarding types of surgeries conducted and types of intraoperative anesthetics and/or analgesics used. Obviously, these factors could have

impacted respondents' post-surgical pain experiences. The study population was relatively small ($n = 300$), slightly larger than the population studied by Apfelbaum *et al.*³ ($n = 250$) and smaller than the one surveyed by Warfield and Kahn⁴ ($n = 500$). We were unable to account for the potential influence of demographic characteristics on survey results; a large proportion of our study population was white (230/300; 77%) and female (195/300; 65%). Also, our results may have been biased by physician respondents' choices regarding which patients they chose for participation in the survey. Despite these limitations, the data obtained from the survey allowed us to gain useful insight on the current state of post-surgical pain management from the patients' perspective.

Conclusion

In summary, despite the heightened awareness regarding pain and the clinical advancements in pain management during the past 20 years, there has been little improvement in post-surgical analgesia. Most patients continue to experience significant pain following surgery. With the increasing prominence of performance-based reimbursement and publicly-available data regarding patients' experiences during contact with healthcare systems, healthcare professionals will be challenged to find better ways to achieve adequate post-surgical analgesia for their patients.

Transparency

Declaration of funding

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Declaration of financial/other relationships

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Appendix: US adult questionnaire

Q.1. In the past 5 years, have you, personally, had surgery of any type?

Base: Total consumers

- Yes (Proceed)
 No (Do not proceed)

Q.2a. For your most recent surgical procedure, in what type of facility was the surgery performed?

Base: Consumers who have had surgery in the past 5 years

- A hospital as an inpatient
 A hospital as an outpatient
 A doctor's office
 An outpatient clinic
 A free-standing surgicenter

Q.2b. What type of procedure did you have?

Q.3. Before undergoing the surgery, were you concerned about: (multiple selections allowed)

Base: Consumers who have had surgery in the past 5 years

- Whether the surgery would actually improve your condition?
 How you would be treated by the doctors, nurses, or other healthcare professionals?
 The pain you might experience during surgery?
 The pain you might experience after surgery?
 Whether you would fully recover from the surgery?

Q.4. What level of anxiousness or nervousness did you have about the pain you would experience after surgery?

- Very high
 High
 Neutral, neither high nor low

- Low
- Very low

Q.5. Following your surgery, that is, immediately afterwards and up to 2 weeks following surgery, did you experience any pain?

Base: Consumers who have had surgery in the past 5 years

- Yes
- No

Q.6. Which of the following describes the highest degree of pain you felt up to 2 weeks after surgery?

Base: Consumers who have had surgery in the past 5 years, and who experienced pain immediately afterwards and up to 2 weeks following their surgery

- Slight pain
- Moderate pain
- Severe Pain
- Extreme Pain
- DK/NA

Q.7. Did you receive any medication for your pain within 2 weeks after surgery?

Base: Consumers who have had surgery in the past 5 years

- Yes
- No
- DK/NA

Q.8. What medication or medications did you receive?

Base: Consumers who have had surgery in the past 5 years, and who received medication for their pain within 2 weeks after surgery (multiple selections allowed)

- Morphine
- Demerol
- Dilaudid
- Vicodin
- Norco
- Percocet
- Oxycodone
- Hydrocodone
- Darvon
- Darvocet
- Aspirin
- Motrin
- Toradol
- Tylenol
- Tylenol (with codeine)
- Indocin
- Local anesthetic
- Other _____
- DK/NA

Q.9. How did you receive pain medication?

Base: Consumers who have had surgery in the past 5 years, who are unsure of the medication(s) they received during

the 2-week period after surgery (multiple selections allowed)

- Injection
- Intravenous
- Patient-controlled IV pump
- PainBuster pump
- Spinal/epidural
- Oral/tablet form

Q.10. Do you know whether the drug or drugs were narcotic or non-narcotic?

Base: Consumers who have had surgery in the past 5 years, who are unsure of the medication(s) they received during the 2-week period after surgery

- Narcotic
- Non-narcotic
- Both
- DK/NA

Q.11. Did you (with regard to medication):

Base: Consumers who have had surgery in the past 5 years, and who received medication for pain within 2 weeks after surgery

- Have to ask for pain medication?
- Receive pain medication on schedule?
- Have to wait for pain medication when you asked for it?
- Control your own pain medication with an IV pump?

Q.12. After the first dose of pain medication, how much pain did you have? Would that be:

Base: Consumers who have had surgery in the past 5 years, and who received medication for pain within 2 weeks after surgery

- None
- Slight
- Moderate
- Severe
- DK/NA

Q.13. Did you experience any side-effects from any of your pain medications?

Base: Consumers who have had surgery in the past 5 years, and who received medication for pain within 2 weeks after surgery

- Yes
- No

Q.14. What side-effects did you experience?

Base: Consumers who have had surgery in the past 5 years, and who have experienced some type(s) of side effect(s) from their pain medication (multiple selections allowed)

- Confusion
- Drowsiness

- Nausea
- Vomiting
- Itching
- Difficulty urinating
- Sleeplessness
- Mood changes
- Dizziness
- Constipation
- Slow or troubled breathing
- Other _____
- DK/NA

Q.15. Did you use any of the following non-drug treatments for your pain after surgery?

Base: Consumers who have had surgery in the past 5 years (multiple selections allowed)

- Relaxation techniques
- Biofeedback techniques
- Application of heat
- Application of cold
- Massage
- Exercise
- Acupuncture
- Transcutaneous electrical nerve stimulation (TENS)
- None
- DK/NA

Q.16. Prior to surgery, did someone from the facility where you had surgery talk with you about how your pain would be treated?

Base: Consumers who have had surgery in the past 5 years

- Yes
- No

Q.17. Who talked with you?

Base: Consumers who have had surgery in the past 5 years who, prior to surgery, talked with someone about how their pain would be treated (multiple selections allowed)

- Anesthesiologist
- Nurse
- Social worker
- Surgeon
- Other type of doctor
- DK/NA

Q.18. Did you have pain before surgery?

- Yes
- No
- DK/NA

Q.19. What was your worst pain before surgery?

- None
- Slight
- Moderate
- Severe
- DK/NA

Q.20. Within 5 days after your operation, did someone ask you if you had pain?

Base: Consumers who have had surgery in the past 5 years

- Yes
- No
- DK/NA

Q.21. Who asked you?

Base: Consumers who have had surgery in the past 5 years, and who were asked if they had any pain within 5 days after their operation (multiple selections allowed)

- Anesthesiologist
- Nurse
- Patient representative
- Social worker
- Surgeon
- Other type of doctor

Q.22. How satisfied were you with your overall pain management after your surgery?

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Very dissatisfied

Q.23. Have you ever refused or postponed surgery because you were worried about the possibility of experiencing pain?

Base: Total consumers

- Yes
- No
- DK/NA

Q.24. Do you believe it is necessary to experience some pain after surgery?

Base: Total consumers

- Yes
- No
- DK/NA

Q.25. Do you believe it's okay for patients to complain about pain after surgery?

Base: Total consumers

- Yes
- No
- DK/NA

Q.26. Which of the following do you believe would provide stronger relief from pain after surgery? Pain relief medication given:

- By injection
- By IV
- In tablet form
- Pain pump
- By spinal injection (epidural)
- They are about the same

- Depends on the surgery (volunteered)
 DK/NA

Q.27. Do you think there are some pain medications prescribed after surgery that cause side effects?

Base: Total consumers

- Yes
 No
 DK/NA

Q.28. What side-effects are caused by pain medications prescribed after surgery?

Base: Consumers who believe that some pain medications prescribed after surgery cause side-effects

Q.29a. Did you take any over-the-counter pain medication after surgery?

- Yes
 No
 DK/NA

Q.29b. What over-the-counter pain medication did you take?

Q.30. If your doctor gave you the choice of a narcotic or a non-narcotic pain reliever after surgery, which would you choose?

Base: Total consumers

- Narcotic
 Non-narcotic
 Neither/none (volunteered)
 Either/doesn't matter (don't care [volunteered])
 DK/NA

Q.31. Are you worried about becoming addicted to the pain medications after surgery?

- Yes
 No
 DK/NA

Q.32. How would you rate your pain threshold?

- Very high
 High
 Neutral, neither high nor low
 Low
 Very low

Q.33. How would you rate your anxiety level?

- Very high
 High
 Neutral, neither high nor low
 Low
 Very low

Q.34. What is your marital status?

Base: Total consumers

- Single, never married
 Married
 Separated
 Widowed
 Divorced
 Refused

Q.35. Would you consider yourself to be the male head of this household?

Base: Male consumers

- Yes
 No

Q.36. Would you consider yourself to be the female head of this household?

Base: Female consumers

- Yes
 No

Q.37. What is your age?

- 18–29
 30–39
 40–44
 45–54
 55–64
 65–74
 75 or over
 Refused

Q.38. What is the last grade of school you completed?

Base: Total consumers

- Less than high school graduate
 High school graduate
 Technical school/other
 Some college
 Graduated college
 Graduate school or more
 Refused

Q.39. What is your total annual household income from all sources and before taxes?

Base: Total consumers

- Less than \$10,000
 \$10,000 but less than \$15,000
 \$15,000 but less than \$20,000
 \$20,000 but less than \$25,000
 \$25,000 but less than \$30,000
 \$30,000 but less than \$40,000
 \$40,000 but less than \$50,000
 \$50,000 but less than \$75,000
 \$75,000 but less than \$100,000
 \$100,000 or over
 Refused

Q.40. Would you consider yourself to be white, Hispanic, African American, Asian, or of some other race?

Base: Total consumers

- White
 Hispanic

- African American
- Asian
- Mixed race
- Other
- Refused

Q.41. Gender
Base: Total consumers

- Male
- Female

Q.42. How much would you pay out-of-pocket to be completely pain-free after surgery?
\$ _____

Q.43. How much would you pay if an effective pain medication would not give you any side-effects, such as nausea, vomiting, itchiness, constipation, or drowsiness?
\$ _____

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