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Exploring the relationship between language, postoperative pain, and opioid use

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BACKGROUND: Racial and ethnic disparities in pain management are well documented. Differences in pain assessment and management by language have not been studied in the postoperative setting in gynecologic surgery.

OBJECTIVE: This study aimed to investigate the association between language and immediate postoperative pain management by comparing pain assessments and perioperative opioid use in non-English speakers and English speakers.

STUDY DESIGN: This was a retrospective cohort study comparing perioperative outcomes between non—English-speaking patients and English-speaking patients who had undergone a gynecologic oncology open surgery between July 2012 and December 2020. The primary language was extracted from the electronic medical record. Opioid use is expressed in oral morphine equivalents. Proportions are compared using chi-square tests, and mean values are compared using 2-sample *t* tests. Although interpreter services are widely available in our institution, the use of interpreters for any given inpatient-provider interaction is not documented.

RESULTS: Between 2012 and 2020, 1203 gynecologic oncology patients underwent open surgery, of whom 181 (15.1%) were non-English speakers and 1018 (84.9%) were English speakers. There was no difference between the 2 cohorts concerning body mass index, surgical risk score, or preoperative opioid use. Compared with the English-speaking group, the non—English-speaking group was younger (57 vs 54 years old, respectively; $P<.01$) and had lower rates of depression (26% vs 14%, respectively; $P<.01$) and chronic pain (13% vs 6%, respectively; $P<.01$). Although non—English-speaking patients had higher rates of hysterectomy than English-speaking patients (80% vs 72%, respectively; $P=.03$), there was no difference in the rates of bowel resections, adnexal surgeries, lengths of surgery, intraoperative oral morphine equivalents administered, blood loss, use of opioid-sparing modalities, lengths of hospital stay, or intensive care unit admissions. In the postoperative period, compared with English-speaking patients, non—English-speaking patients received fewer oral morphine equivalents per day (31.7 vs 43.9 oral morphine equivalents, respectively; $P<.01$) and had their pain assessed less frequently (7.7 vs 8.8 checks per day, respectively; $P<.01$) postoperatively. English-speaking patients received a median of 19.5 more units of oral morphine equivalents daily in the hospital and 205.1 more units of oral morphine equivalents at the time of discharge ($P=.02$ and $P=.04$, respectively) than non—English-speaking patients. When controlling for differences between groups and several factors that may influence oral morphine equivalent use, English-speaking patients received a median of 15.9 more units of oral morphine equivalents daily in the hospital cohort and similar oral morphine equivalents at the time of discharge compared with non—English-speaking patients.

CONCLUSION: Patients who do not speak English may be at risk of undertreated pain in the immediate postoperative setting. Language barrier, frequency of pain assessments, and provider bias may perpetuate disparity in pain management. Based on this study's findings, we advocate for the use of regular verbal pain assessments with language-concordant staff or medical interpreters for all postoperative patients.

Key words: bias, disparity, equity, gynecologic oncology, interpreter, language barrier, laparotomy, pain, perioperative

Introduction

The management of postoperative pain may be undermined by racial and ethnic disparities. Across practice settings and specialties, historically underrepresented patients receive fewer pain medications and specifically fewer opioids than do their White counterparts.[1–4]

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AJOG Global Reports at a Glance

Why was this study conducted?

Postoperative pain management is crucial for recovery. Equity in pain management has not been studied in the immediate postoperative period between non−English-speaking (NES) patients and English-speaking (ES) patients.

Key findings

NES patients underwent fewer pain assessments postoperatively than ES patients. NES patients received fewer opioids postoperatively than ES patients.

What does this add to what is known?

Current assessments and treatments for addressing postoperative pain after laparotomy may not adequately serve NES patients. Awareness of the disparity in postoperative pain assessments should be included in diversity equity and inclusion training and education modules for bedside providers in the medical-surgical unit.

Preexisting literature on analgesia and language barriers has primarily focused on pediatric populations and chronic pain management in the outpatient setting. Consistently, non-English-speaking (NES) patients receive fewer opioid prescriptions than their English-speaking (ES) counterparts.[5–7] Very little is known about how language may affect postoperative pain management in the hospital and immediately after discharge. Poorly controlled postoperative pain can significantly affect recovery and quality of life for postsurgical patients. Greater postoperative pain is associated with impeding a patient's ability to eat, sleep, and ambulate and, therefore, is associated with higher rates of complications, longer hospital stays, increased readmission rates, prolonged opioid use during and after hospitalization, and higher costs.[8,9]

This study aimed to study the possibility that such disparities in postoperative pain assessments and oral morphine equivalent (OME) use exist in our patient population. We hypothesized that NES gynecologic oncologic patients after open surgeries receive fewer OMEs than their ES counterparts.

Materials and Methods

We designed this retrospective cohort study to evaluate the effect of language on postoperative pain management in ES and NES. Groups were defined by preferred language documented in the electronic medical record (EMR), which is typically determined by asking patients during the initial patient intake or registration process.

Patients were included if they were adult patients (≥18 years of age) who underwent open surgery by a gynecologic oncologist at our institution between July 1, 2012, and December 31, 2020. Patients were excluded if they were not cared for primarily by the gynecologic oncology service (eg, the patient underwent a joint surgery with colorectal surgery and was on their service) and if they were pregnant at the time of their surgery.

Opioid use is expressed as OMEs. Quantities of each opioid medication were converted to OMEs based on the University of California, San Francisco, Pain Management Guidelines.[10] Intraoperative OME was extracted from anesthesia documentation. Daily OME was extracted from the Medication Administration Record.

Frequency and type of pain assessment were extracted from the EMR. Pain checks were performed either via a self-reported scale, such as the numeric rating scale, where the provider asks a patient to rate his or her pain on a scale from 0 to 10, or via a behavioral scale, such as the Checklist of Nonverbal Pain Indicators, where provider interprets a patient's pain severity based on various visual cues.[11] Audio and video interpreters were both available on the inpatient nursing unit, but the use of video or in-person interpreters was not documented.

Continuous variables are presented as mean (standard deviation) or median (interquartile range), as appropriate, and categorical data are presented as number (percentage). Proportions are compared using chi-square tests, and mean values are compared using 2-sample *t* tests.

Univariate analysis was completed by examining the potential influence of alternative variables on our primary outcome of OME. In the development of our multivariate model, we addressed potential confounding factors to ensure the robustness of our analysis. Therefore, we controlled for variables that differed between groups, such as age, depression, and hysterectomy rate. We accounted for mediators of OME prescription per univariate analysis. We ultimately opted to omit race and pain score from the model for specific reasons described in the discussion section.

A P value of <.05 was considered statistically significant for all comparisons. Statistical analyses were performed using Stata/BE (version 17.0; StataCorp, College Station, TX).[12] We obtained institutional review board approval for this study.

Results

Between 2012 and 2020, 1204 gynecologic oncology patients underwent open surgery. Of note, 1 patient was excluded for lack of any charted data on pain, and 4 patients were excluded for unknown language preference. Therefore, a total of 1199 patients were included in the analysis, of which 181 (15.1%) were NES patients and 1018 (84.9%) were ES patients. Most NES patients (54.7%) identified as "Hispanic," whereas most ES patients (65.3%) identified as White (P<.001) (Table 1).

There was no difference between the 2 cohorts concerning body mass index, American Society of Anesthesiologists score, preoperative opioid use, or alcohol use. The NES group was slightly younger. Compared with ES patients, NES patients had lower rates of tobacco use (10% vs 1%, respectively; P<.01), depression (26% vs 14%, respectively; P<.01), anxiety (33% vs 19%,

TABLE 1
Pain assessment and opioid use for NES and ES adult gynecologic oncology open surgical patients

Variables	NES (n=181)	ES (n=1018)	*P* value
OME used intraoperatively	72 (42−105)	75 (45−105)	.4
OME used per day postoperatively	31.7 (16.6−62.6)	43.9 (20.0−84.8)	<.01[a]
OME prescribed for discharge	450.0 (212.5−675.0)	450.0 (225.0−800.0)	.04[a]
Frequency of pain checks per day	7.7 (5.7−9.5)	8.8 (7.1−11.0)	<.01[a]
Percentage visual pain checks[b]	0 (0−0)	0 (0−0)	.56
Average pain score (0−10)	2.0 (0.0−3.0)	3.0 (1.5−4.0)	<.01[a]

Data are presented as median (interquartile range) if continuous variables, unless otherwise indicated.

ES, English speaker; *NES*, non-English speaker; *OME*, oral morphine equivalent.

[a] XXX; [b] Proportion of pain checks per patient that were behavioral (rather than self-reported). This is expressed as a percentage.

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respectively; *P*<.01), and chronic pain (13% vs 6%, respectively; *P*<.01) (Table 1). Although NES patients had higher rates of hysterectomy than ES patients (80% vs 72%, respectively; *P*=.03), there was no difference in the rates of cancer, bowel resection, adnexal surgery, length of surgery, blood loss, length of stay, or intensive care unit admission (Table 1). There was no difference between cohorts in OMEs administered intraoperatively and the use of postoperative opioid-sparing modalities (transversus abdominis plane blocks, epidurals, patient-controlled analgesia, and nonsteroidal anti-inflammatory drugs) or gabapentin. There was no difference in postoperative visits to the emergency department, readmissions, or OME refill rates.

In the postoperative period, NES patients received fewer OMEs per day than ES patients, accounting for hospital length of stay (31.7 OMEs [interquartile range (IQR), 16.6−62.6] vs 43.9 OMEs [IQR, 20.0−84.8], respectively; *P*<.01) (Table 2). Although the median total amount of OMEs prescribed to patients at the time of hospital discharge was the same between groups, the disparate IQRs demonstrated that ES patients were more likely to receive larger prescription sizes than NES patients (450 OMEs [IQR, 212.5 −675.0] vs 450 OMEs [IQR, 225.0 −800.0], respectively; *P*=.04) (Table 2). NES patients had their pain assessed less frequently than did their ES counterparts (7.7 checks per day [IQR, 5.7 −9.5] vs 8.8 checks per day [IQR, 7.1 −11.0], respectively; *P*<.01) (Table 2). The median pain scores were lower for NES patients than ES patients (2/10 [IQR, 0.0−3.0] vs 3/10 [IQR, 1.5−4.0], respectively; *P*<.01) (Table 2). There was no difference in the type of pain assessment between groups, as both groups were primarily assessed via verbal pain scores.[1−10]

Univariate analysis indicated that ES patients received 19.5 more units of OMEs daily in the hospital and 205.1 more units of OME for discharge prescription than NES patients (*P*=.02 and *P*=.04, respectively) (Table 3). In addition, factors other than language were independent predictors of OMEs in the hospital and at the time of discharge. Patients who identify as Asian received fewer OMEs, and patients who identified as Black received more OMEs than their White-identifying counterparts (Asian patients had 27.5 fewer daily OMEs in the hospital [*P*<.01] and 233.1 fewer OMEs at discharge [*P*=.04]; Black patients had 35.6 more daily OMEs in the hospital [*P*<.01] and 471.2 more OMEs at discharge [*P*<.01]) (Table 3).

Additional variables other than language status that were associated with increased OME use included length of surgery, number of OMEs given intraoperatively, and average daily pain scores. For every additional hour of surgery, patients received 4.2 additional OMEs per day in the hospital and 61.2 additional OMEs at the time of discharge (*P*=.01 and *P*<.01, respectively) (Table 3). For every additional 10 units of OMEs given intraoperatively, patients received 5.3 additional OMEs per day in the hospital and 56.8 additional OMEs at the time of discharge (*P*<.01 and *P*<.01) (Table 3). For every additional point on average daily pain score (ie, the difference between pain scores of 2 and 3), patients received 27.2 additional OMEs per day in the hospital and 189.7 additional OMEs at the time of discharge (*P*<.01 and *P*<.01, respectively) (Table 3).

When controlling for differences in pain scores, there was no difference in OME use between NES patients and ES patients in the hospital or at the time of discharge. When controlling for differences between groups (age, chronic pain, depression, anxiety, and hysterectomy rate) and several factors that may influence OME use (preoperative opioid use and OMEs given intraoperatively), ES patients received more OMEs daily in the inpatient setting (15.9 additional OMEs for ES patients per every 1 OMEs for NES patients; *P*=.03) (Table 4). This difference was not observed for discharge OME prescriptions on multivariate analysis.

Comments

Principal findings

Despite comparable preoperative opioid use and intraoperative OME administration, NES and ES patients did not receive equivalent postoperative analgesia. NES patients underwent fewer pain assessments. After controlling for several potential confounding factors, NES patients received fewer daily OMEs in the inpatient postoperative period. The difference was not found when controlling for pain scores.

Possible explanations

There are several possible hypotheses to explain our findings. First, patients who speak English may communicate their pain to the medical team more

TABLE 2
Baseline demographic characteristics of adult gynecologic oncology open surgical patients

Variable	NES (n=181)	ES (n=1018)	*P* value
Age (y)	54 (44–62)	57 (46–66)	<.01[a]
BMI (kg/m^2)	27.2 (22.7–31.4)	27.1 (23.0–33.2)	.15
ASA score	2 (2–3)	2 (2–3)	.4
Language			<.01[a]
English	0 (0)	1018 (100.0)	
Spanish	105 (58.0)	0 (0)	
Chinese	21 (12.0)	0 (0)	
Vietnamese	10 (6.0)	0 (0)	
Russian	8 (4.0)	0 (0)	
Punjabi	6 (3.0)	0 (0)	
Cambodian	4 (2.0)	0 (0)	
Tagalog	4 (2.0)	0 (0)	
Other[b]	23 (13.0)	0 (0)	
Patient race			<.01[a]
White	24 (13.0)	665 (65.0)	
Asian	52 (29.0)	102 (10.0)	
Black	1 (1.0)	67 (7.0)	
Pacific Islander	1 (1.0)	14 (1.0)	
Native American	0 (0)	27 (3.0)	
Hispanic	99 (55.0)	115 (11.0)	
Unknown	4 (2.0)	28 (3.0)	
Previous opioid use	7 (10.0)	45 (13.0)	.6
History of AUD	0 (0)	6 (1.0)	.3
History of OUD	0 (0)	1 (<0.1)	.7
Active drug use	0 (0)	8 (1.0)	.2
Tobacco use	1 (1.0)	103 (10.0)	<.01[a]
Depression	26 (14.0)	263 (26.0)	<.01[a]
Anxiety	35 (19.0)	338 (33.0)	<.01[a]
Chronic pain	10 (6.0)	134 (13.0)	<.01[a]
Length of surgery (min)	215 (168–287)	226 (174–290)	.3
EBL (mL)	500 (250–900)	500 (200–1000)	.5
Hysterectomy	145 (80.0)	737 (72.0)	.03[a]
Bowel resection	41 (23.0)	252 (25.0)	.5
USO or BSO	145 (80.0)	833 (82.0)	.6
TAP block	13 (7.0)	82 (8.0)	.7
PCA	67 (37.0)	359 (35.0)	.5
NSAIDs	112 (62.0)	659 (65.0)	.5
Gabapentin	114 (63.0)	699 (69.0)	.1
Length of stay	5 (4–7)	5 (4–7)	.9

Levy. Language barriers and postoperative opioid use. Am J Obstet Gynecol Glob Rep 2024. *(continued)*

effectively than patients with a language barrier. Results that may highlight the effect of this language barrier are the lower rates of depression and anxiety in the NES group. Perhaps this difference is not a true difference between groups but rather a reflection of the privilege that ES patients experience when expressing personal and emotional needs to the medical team. Research indicates that interactions between patients from racial-ethnic minority groups and providers with nonconcordant backgrounds can be influenced by concerns of discrimination or bias, thereby affecting patients' willingness to disclose certain information. Insufficient cultural competence among healthcare providers may also contribute to misunderstandings, miscommunication, and patient mistrust.[13]

The nursing protocol for pain assessment of patients on the medical surgical units acknowledges that "the more difference (eg, language, race, or culture) between staff and patient, the higher the risk of unrecognized and/or underrated pain" and recommends routine use of interpreters and various words to describe pain to optimize patient-provider communication.[14]

An alternative hypothesis to explain the disparities seen is at the level of the hospital system. Although the difference between 7.7 (for NES patients) and 8.8 (for ES patients) daily pain assessments may not be clinically significant, this difference likely translates to a clinically significant increase in the number of OMEs given for ES patients. Although almost all pain assessments were documented as self-reported, it is possible that ES patients benefit from more informal and conversational pain assessments. Although the use of interpreter services is recommended and available at our institution, there is no current standardized means of enforcing or tracking their use for bedside pain assessments. Given the time pressures of inpatient care, it is possible that many pain assessments are not performed with appropriate interpreter services, leaving room for misunderstanding and communication gaps. This may also explain why NES patients and

TABLE 2
Baseline demographic characteristics of adult gynecologic oncology open surgical patients *(continued)*

Variable	NES (n=181)	ES (n=1018)	*P* value
ICU admission	33 (18.0)	180 (18.0)	.9
Died in the hospital	1 (1.0)	3 (<0.1)	.6
Malignant pathology	133 (74.0)	773 (76.0)	.5
Acquired refill	33 (18.0)	211 (21.0)	.4
Post-op ED visit	21 (12.0)	102 (10.0)	.5
Post-op readmission	20 (11.0)	91 (9.0)	.4

Data are presented as number (percentage) if categorical and median (interquartile range) if continuous variables, unless otherwise indicated.

ASA, American Society of Anesthesiologists; *AUD*, alcohol use disorder; *BMI*, body mass index; *BSO*, bilateral salpingo-oophorectomy; *EBL*, estimated blood loss; *ES*, English speaker; *ICU*, intensive care unit; *NES*, non-English speaker; *NSAID*, nonsteroidal anti-inflammatory drug; *OME*, oral morphine equivalent; *OUD*, opioid use disorder; *PCA*, patient-controlled analgesia; *TAP*, transversus abdominus plane; *USO*, unilateral salpingo-oophorectomy.

[a] XXX;; [b] Other languages include Amharic, Arabic, Burmese, Farsi, Greek, Hindi, Hmong, Igbo, Ilocano, Japanese, Korean, Romanian, and Thai.

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ES patients received equivalent OME discharge prescriptions in our multivariate analysis. Discharge assessment and education may be more formally performed with the use of interpreting services, allowing for more accurate and equitable pain medication prescriptions.

In addition, pain assessment protocols in our medical surgical unit require documentation of a pain rating at the time of analgesic medication administration and then again within 90 minutes after orally administered analgesia and within 30 minutes after intravenously administered analgesia.[14] Therefore, per protocol, more frequent analgesia administrations perpetuate more frequent pain checks, which may subsequently lead to more analgesia administrations. More frequent verbal pain assessments with the routine use of interpreter services for NES patients may offset the disparity between NES and ES postoperative OME use.

Lastly, it is possible that language functions as a proxy for race and ethnicity in the inpatient setting and that NES patients serve as a proxy for non-Whiteness. Of course, patients who identify as part of the same racial group may speak various languages and vice versa. Overall, 65% of ES patients and 13% of NES patients identified as White, and when adjusting for race as a covariate in the multivariate analysis, the observed disparity in opioid use between NES and ES patients was no longer significant (Table 1). The interplay of race, ethnicity, and language is complex, and it is important to point out that our data also demonstrate that Asian patients received fewer OMEs postoperatively and that Black patients received more than White-identifying patients (Table 3). These data highlight that patients of different races and ethnicities may experience biases in opposite directions and that combining data for

TABLE 3
Univariate analysis: OME given to patients based on various factors

	Inpatient postoperatively			At time of discharge		
Variable	Units OME	95% CI	*P* value	Units OME	95% CI	*P* value
ES	19.5	3.1–36.0	.02[a]	205.1	8.5–401.6	.04[a]
Patient race						
Asian	−27.5	−45.5 to −9.5	<.01[a]	−233.1	−439.5 to −6.7	.04[a]
Black	35.6	9.9–61.4	<.01[a]	471.2	162.2–780.1	<.01[a]
Pacific Islander	3.0	−49.5 to 55.5	.9	−335.8	−965.9 to 294.2	.3
Native American	2.1	−38.3 to 41.6	.9	85.8	−387.8 to 559.4	.7
Latinx	−9.1	−24.8 to 6.7	.3	−210.4	−399.7 to −21.0	.03[a]
Unknown or declined	39.7	3.8–75.5	.03[a]	88.1	−342.1 to 518.3	.7
Surgery length (per 1 h)	4.2	1.2–7.4	.01[a]	61.2	22.8–100.2	<.01[a]
Intraoperative OME (per 10 units)	5.3	4.5–6.3	<.01[a]	56.8	45.6–68.1	<.01[a]
Pain score (per 1 point)	27.2	24.4–30.0	<.01[a]	189.7	152.8–226.6	<.01[a]

Pain score is equal to the average daily score of 1 to 10.

CI, confidence interval; *ES*, English speaker; *NES*, non-English speaker; *OME*, oral morphine equivalent.

[a] XXX.

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TABLE 4
Multivariate analysis: OME given to NES and NES controlling for other factors

	Inpatient postoperatively			At time of discharge		
Variable	Units OME	95% CI	*P* value	Units OME	95% CI	*P* value
Additional OME given to ES compared with NES	19.5	3.1–36.0	.02[a]	205.1	8.5–401.6	.04[a]
Controlling for race	10.4	−8.3 to 29.2	.3	57.7	−167.3 to 282.7	.6
Controlling for surgery length	18.5	2.0–35.0	.03[a]	191.9	−6.0 to 389.7	.06
Controlling for hysterectomy	19.3	2.8–35.8	.02[a]	203.9	6.9–400.8	.04[a]
Controlling for intraoperative OME	17.2	1.6–32.8	.03[a]	179.0	−10.1 to 368.1	.06
Controlling for pain score	4.0	−10.6– to 18.5	.6	100.1	−90.0 to 290.2	.3
Controlling for differences between groups and influencers of OME prescription[b]	15.9	1.3–30.5	.03[a]	131.9	−50.9 to 314.6	.2

Pain score is equal to the average daily score of 1to 10.

CI, confidence interval; ES, English speaker; NES, non-English speaker; OME, oral morphine equivalent.

[a] XXX; [b] Controlling for age, chronic pain, depression, whether hysterectomy performed, preoperative opiate use, and OME given intraoperatively.

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disparate racial groups may neutralize our ability to detect differences.

Results in the context of what is known

The effect of racial and ethnic biases on the treatment of pain is well documented.[15,16] At the theoretical level, several studies expose pervasive provider bias and false beliefs about pain and even found that clinicians tended to prescribe Black patients fewer pain medications.[17,18] Current literature on opioids and language disparity indicates that NES patients receive fewer OMEs than their ES counterparts after orthopedic surgery, during admission for traumatic injury, and in primary care clinics.[7,15,19] Such findings demonstrate how bias, whether implicit or explicit, can undermine quality care and contribute to healthcare disparities. To address this, our institution has developed mandatory training for all bedside nursing entitled "Foundations of diversity, equity, and inclusion (DEI)."[14]

Clinical implications

The observed disparities in postoperative analgesia between NES and ES patients underscore the importance of protocols that strive toward patient equity and minimizing bias. We urge providers to use interpreters in every patient encounter, use various words to ask about pain, and assess pain regularly. Ongoing and pain-specific DEI training for healthcare providers may contribute to reducing healthcare disparities in pain management.

Research implications

The study's findings underscore the need for future research on the effectiveness of standardized pain assessment tools, the effect of language-concordant postoperative pain assessments, and whether the presence of health advocates—whether familial or professional—mediates pain score, pain assessment frequency, and overall OMEs given.

Strengths and limitations

This research had several strengths. The large sample size enhanced the representativeness of the general population. The study's inclusion and exclusion criteria were clearly and narrowly defined, ensuring a focused analysis of adult patients who underwent open surgery by gynecologic oncologists.

Multivariate analysis in this study allowed for a more nuanced examination of the effect of language on postoperative pain management while considering and controlling for potential confounding factors. The simultaneous consideration of race and language, for example, acknowledges the intersectionality of these factors. The nuanced relationship between race, ethnicity, and primary language is something that cannot simply be controlled for in a multivariate analysis, leading us to exclude race from our model.

Our study had several limitations, including its retrospective nature and inability to make firm conclusions about why NES patients receive fewer OMEs postoperatively. In addition, data extraction was reliant on medical record–accessible information. Therefore, the sporadic documentation of interpreter use within the bedside nursing section makes it more difficult to understand the relationship between interpreter use, type of pain assessment, and OMEs administered.

In addition, medical record diagnoses of conditions, such as anxiety and depression, which are heavily influenced by provider input, may be susceptible to analogous factors affecting pain assessment and OME administration.

Finally, how non–English language speaking may act as a barrier can be difficult to assess and influenced by the presence of bilingual family members at medical visits. Furthermore, we do not know how many NES patients are conversant in English. Subtleties such as

these that may nonetheless be impactful are not captured in this study.

We acknowledge that pain scores were different between groups but not included in the multivariate analysis. Although differences exist between the NES and ES groups (age, tobacco use, etc.), we reject the conclusion that experiences of pain are biologically different between groups based on language, racial identity, or ethnicity. Alternatively, the authors acknowledge the subjective limitations of our current pain assessment tools. Although behavioral and self-reported pain scales have been validated in many languages, there is no study looking at the accuracy or acceptability of these assessment tools in the absence of a language-concordant provider or certified medical interpreter.[20] Furthermore, as few tools have been validated in adults from various cultural backgrounds, it is unclear whether the self-reported pain score accurately captures the intensity of a patient's pain in such a way that can be compared with another patient. For this reason, we have chosen not to include average pain scores in our multivariate analysis.[21]

Conclusions

The opioid epidemic has underscored the morbidity and mortality associated with opioid overuse and subsequently put pressure on the medical system to prescribe fewer opioids, especially for postsurgical patients. Although the recent implementation of Enhanced Recovery After Surgery protocols has reduced the need for opioids after laparotomy, opioids continue to play an essential role in pain management after surgery.[22] To provide adequate postoperative analgesia without worsening the harms of the opioid epidemic, healthcare providers must interrogate our prescribing patterns. Several investigations demonstrated that surgeons overprescribe opioids at discharge, with wide variations in prescribing practices among providers.[23] These variations in prescription patterns may differ across patient groups. We hope that by better understanding our postoperative analgesic practices for NES patients, we can strive toward a more evidence-based yet equitable practice after laparotomy for gynecologic oncology patients. ■

CRediT authorship contribution statement

Rachel A. Levy: Writing – original draft, Data curation, Conceptualization. **Allison H. Kay:** Writing – review & editing, Conceptualization. **Nancy Hills:** Formal analysis. **Lee-may Chen:** Writing – review & editing. **Jocelyn S. Chapman:** Writing – review & editing, Supervision.

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