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Trends in Outpatient Opioid Prescriptions for Cancer Pain Between 2016 and 2021

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ABSTRACT

PURPOSE Increasing opioid regulations have resulted in reduced opioid prescriptions, including for cancer pain, despite guideline exemptions. Data after 2017 following the Centers for Disease Control's 2016 pain management guidelines are limited on opioid prescribing practices of oncologists. The purpose of this study was to examine the trend in dose of opioids prescribed by oncologists to patients with cancer pain referred to outpatient palliative care between 2016 and 2021.

METHODS A single-center, cross-sectional, retrospective study was conducted at a tertiary cancer center's outpatient palliative care clinic including 375 adult patients referred for initial consultation for cancer pain between 2016 and 2021. The main outcome was the trend in prescribed opioid doses, expressed as morphine-equivalent daily dose in mg/day. Additional analyses were conducted to identify predictors of opioid prescriptions.

RESULTS The median age (range) was 61 (19-85), 50% were women, 67% were non-Hispanic White, 80% had advanced cancer, and 91% reported proficiency in English. Ninety-five percent had solid tumors, predominantly GI (22%), breast (15%), and genitourinary (14%). From 2016 to 2021, the median dose of opioids decreased from 37.5 to 7.5 ($P < .001$). The proportion of patients on long-acting opioid decreased from 26% to 12% ($P = .019$), whereas that of patients without opioids increased from 28% to 41% ($P = .008$). CAGE-AID score (reflecting potential for substance abuse; β Coefficient, 43.2 [95% CI, 23.3 to 63.2], $P < .001$) and pain on the Edmonton Symptom Assessment Scale (5.77 [95% CI, 2.6 to 8.9], $P < .001$) predicted higher opioid dose, whereas non-English language predicted lower dose (−26.9 [95% CI, −53.1 to −0.8], $P = .043$).

CONCLUSION During the study period, we observed a five-fold decline in opioid dose prescribed by oncologists for cancer pain. This raises concerns for undertreatment of pain in patients with cancer.

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INTRODUCTION

Pain, experienced by over 70% of patients with cancer, is among the most distressing symptoms that affects quality of life, drives health care utilization, and is linked with worse outcomes.[1-5] Opioids are the recommended treatment for moderate to severe cancer pain but are heavily regulated due to the opioid epidemic.[1,6-8] Efforts to curb the opioid epidemic and strict pain management guidelines for noncancer pain have affected cancer pain management.[9-11] Opioid prescriptions by oncologists have declined over the years, despite exemptions for cancer pain in most guidelines, but data after 2017 are limited.[10,12-16] Most population-based studies have examined trends in overall opioid prescriptions by oncologists, but only a few have focused on the population of patients referred to palliative care or those at end of life.[14,16]

We previously showed that the daily dose of opioids prescribed by oncologists for patients referred to palliative care had decreased from 78 mg/day to 40 mg/day between 2010 and 2015.[16] Patients referred to outpatient palliative care experience higher symptom burden and derive the most benefit from appropriate opioid prescription.[17] Undertreated pain in patients with cancer is one of most common reasons for frequent unscheduled visits to outpatient palliative clinics, emergency rooms, and hospitalizations.[18-20] Inadequately managed cancer pain in outpatient settings often leads to preventable emergency room visits, which can necessitate hospitalization for urgent symptom control, thus increasing overall health care utilization.[21,22]

Understanding current trends in opioid prescriptions for this population is thus crucial to prevent undertreatment of

CONTEXT

Key Objective
How have the growing restrictions on opioids affected prescribing practices of oncologists for cancer-related pain in patients referred to palliative care?

Knowledge Generated
Opioid prescriptions for patients with cancer pain dropped by 80% between 2016 and 2021 in this study of 375 patients who were referred to outpatient palliative care clinic, raising concern for undertreatment of pain.

Relevance
Educational initiatives are needed for physicians and patients to promote appropriate and safe use of opioids and remove associated misconceptions.

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cancer pain, mitigate risks of opioid use, and prevent misuse. Our study extends from previous research and provides new evidence on current opioid prescription practices of oncologists. Our findings can inform cancer pain treatment protocols, pain management guidelines, and policies, potentially reducing suffering for patients with cancer.

The primary objective of our study was to examine the change in median doses of opioids prescribed by referring oncologists to patients with cancer pain who were seen for consultation at a tertiary cancer center's outpatient palliative care clinic. We hypothesized that due to the growing regulations on opioids, the median dose of opioids prescribed for cancer pain would have declined significantly from 2016 to 2021. Additionally, we analyzed clinical and sociodemographic predictors of opioid prescriptions.

METHODS

Design, Setting, and Participants

This is a retrospective study conducted at the outpatient palliative care clinic of the University of Texas MD Anderson Cancer Center. This cancer center primarily serves patients residing in Texas and neighboring states.

The total study period spanned from September 2016 to August 2021 to align with the institutional financial year. One-year periods were September 2016-August 2017, September 2017-August 2018, September 2018-August 2019, September 2019-August 2020, and September 2020-August 2021.

All adult patients with any stage of cancer, seen for initial consultation for cancer pain at the palliative care clinic, were eligible. Patients with noncancer pain or purely neuropathic pain were excluded.

Sample size collection was based on the ability to detect minimally significant difference in the median morphine-equivalent daily dose (MEDD) between 2016 and 2021, as this was the primary objective of the study. It was estimated that a sample size of 75 per year would provide 80% power to detect a difference of 5 in the median MEDD (from 40 in 2016 to 35 in 2021, these assumptions were based on a previous study), assuming a common standard deviation of 10, using a two-sample t-test with a two-sided significance level of .05. Initial consultations of patients seen for cancer pain at the clinic between September 2016 and August 2021 were screened, with 75 patients randomly selected per study year, totaling 375 patients.

Data Collection

Data were collected by study investigators (authors S.A., P.S.B.) and other trained research staff through a review of patients' electronic health records (EHRs). Data were collected on age, sex, self-reported language proficiency, cancer type, stage, Eastern Cooperative Oncology Group performance status (ECOG PS), CAGE-AID results (Cut, Annoyed, Guilty, Eye-Opener, Adapted to Include Drugs, where ≥1 indicates the potential need to assess for substance abuse),[23,24] Edmonton Symptom Assessment Scale (ESAS),[25] and substance use, among others (Table 1). Data on ECOG, cancer type, and stage were collected from EHR. Advanced cancer was defined as locally advanced, recurrent, or metastatic disease. Substance use information (tobacco, marijuana, cocaine, methamphetamine, other), which is recorded by nursing staff at every clinic visit, was obtained from EHR. Risk of substance use was assessed by the Cut down Annoyed Guilty Eye Opener–Adapted to Include other Drugs (CAGE-AID) questionnaire (score 0-4), which is completed at every palliative care clinic visit by the nursing staff. A score of 1 identifies risk of substance abuse where additional screening is needed.[24]

Assessment of Pain and Other Symptoms

The ESAS, completed by patients and verified by nursing staff at each palliative care visit, is a 12-item patient-

TABLE 1. Demographic, Socioeconomic, Clinical Characteristics, and Opioid Potency Across 1-Year Periods From 2016 to 2021

Characteristic	Overall 2016-2021[a] (N=375)	2016-2017[a] (n=75)	2017-2018[a] (n=75)	2018-2019[a] (n=75)	2019-2020[a] (n=75)	2020-2021[a] (n=75)	*P*
Age, years, median (IQR)	61 (50-59)	59 (52-68)	62 (49-68)	61 (52-67)	62 (51-71)	60 (48-70)	.37
White race/ethnicity, No. (%)	254 (67.7)	53 (70.7)	51 (60.0)	50 (66.7)	51 (68)	49 (65.3)	.61
Female, No. (%)	189 (50.4)	41 (54.7)	35 (46.7)	40 (53.3)	35 (46.7)	38 (50.7)	.80
English language proficiency, No. (%)	342 (91.2)	71 (94.7)	66 (88.0)	66 (88.0)	69 (92.0)	70 (93.3)	.48
Private insurance, No. (%)	196 (52.3)	42 (56)	34 (45.3)	40 (53.3)	37 (49.3)	43 (57.3)	.44
Advanced-stage cancer, No. (%)	298 (79.8)	59 (78.7)	66 (88.0)	60 (80.0)	57 (76.0)	56 (74.7)	.29
Solid tumor, No. (%)	357 (95.2)	73 (97.3)	70 (93.3)	71 (94.7)	72 (96)	71 (94.7)	.82
ECOG ≥2, No. (%)	258 (68.8)	58 (77.3)	50 (66.7)	56 (74.7)	52 (69.3)	42 (56.0)	.05
Positive CAGE-AID, No. (%)	66 (17.6)	15 (20.0)	18 (24.0)	13 (17.3)	12 (16.0)	8 (10.7)	.28
Current use of tobacco, No. (%)	31 (8.3)	5 (6.7)	6 (8.0)	8 (10.8)	6 (8.0)	6 (8.8)	.93
ESAS pain level, median (IQR)	5 (3-7)	6 (4-7)	6 (4-8)	5 (3-8)	6 (3-8)	5 (3-6)	.03
ESAS total SDS, median (IQR)	37 (27-51)	38 (27-48)	45 (30-55)	37 (26-48)	35 (24-49)	36 (24-45)	.23
Total MEDD, median (IQR)	15 (0-60)	37.5 (0-90)	30 (7.5-65)	7.5 (0-50)	10 (0-45)	7.5 (0-30)	<.001

Abbreviations: IQR, interquartile range; CAGE-AID, Cut Down, Annoyed, Guilty, Eye-Opener, Adapted to Include Drugs, ECOG, Eastern Cooperative Oncology Group; ESAS, Edmonton Symptom Assessment Scale; SDS, Symptom Distress Score on Edmonton Symptom Assessment Scale; MEDD, morphine equivalent daily dosing

[a]Total study period spans from September 2016-August 2021. One-year periods span September 2016-August 2017, September 2017-August 2018, September 2018-August 2019, September 2019-August 2020, and September 2020-August 2021

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reported scale measuring 24-hour symptom intensity on a 0-10 scale. Symptoms include pain, fatigue, nausea, drowsiness, shortness of breath, sleep, appetite, anxiety, depression, well-being, and financial and spiritual distress. Symptom severity ranges from none (0) to severe (7-10), with clinically significant reduction defined as a ≥1 score reduction. ESAS subscales include physical distress (pain, fatigue, nausea, drowsiness, appetite, shortness of breath; 0-60) and psychological distress (depression, anxiety; 0-20).[25-27]

The Total Symptom Distress Score (total SDS), calculated by adding physical and psychological ESAS subscales and well-being score (0-90), served as a comprehensive measure of symptom assessment.[26,27]

Opioid Data

Opioid use and prescription data were collected through EHR and state prescription drug monitoring program. At each palliative care clinic visit, nursing staff and physicians document clinical symptoms and opioid history, including medication name, daily dosing, frequency of use, time of last dose, and potential side effects. Frequency of use is documented as the number of doses of opioid taken in a 24-hour period.

For this study, the frequency of use of long- and short-acting opioids at consultation (first visit) was recorded. Opioid dose was calculated as total MEDD, representing mg/day, using standard conversion ratios. Total morphine-equivalent daily dosing was inclusive of short- and long-acting opioids. This methodology has been used in our previously published study examining opioid prescription trends.[16] Opioids taken for nonpain indications were excluded. If patients were not prescribed an opioid, or were not taking any opioids for pain, they were assigned MEDD = 0.

Our primary outcome was the change in total median MEDD (including long-acting and short-acting opioids) from 2016 to 2021. Secondary outcomes were to evaluate trends in the proportion of patients receiving long-acting opioids and those without an opioid prescription, as well as predictors of MEDD.

Statistical Analysis

Summary statistics described demographic and clinical characteristics overall and for 1-year periods. Analysis of variance or Kruskal-Wallis rank-sum tests were used to compare continuous variables, and chi-square or Fisher exact tests were used for categorical variables. Rank-sum tests were used to compare total MEDD by patient characteristics. Multivariable linear regression was performed to identify predictors of total MEDD, with beta coefficients used to assess the strength of the association. For multivariable analysis, we included all variables with significant *P* value in the univariable analysis. Additionally, we included variables of age and cancer stage as they may affect opioid prescriptions.[1,28] All statistical analyses were performed using Stata/MP v17.0. The two-sided significance value was set to .05.

This study was approved by the Institutional Review Board of the University of Texas MD Anderson Cancer Center and informed consent was waived due to retrospective design. All data collected were stored securely on institution-approved Redcap server.

RESULTS

Population Characteristics

Of the 375 included patients, the median age was 61 (range, 19-85) years, 50.4% were women, 67.7% were non-Hispanic White, 91.2% self-reported English proficiency, and 52.3% had private insurance. Ninety-five percent of patients had solid tumors (GI, 22%, breast 15%, genitourinary 14%, respiratory 13%, head and neck 12%, gynecologic 8%, and other 11%). In all, 80% had advanced (locally advanced, recurrent, or metastatic) disease, and 68.8% had ECOG PS of ≥2. Study populations across all 1-year periods were balanced in sociodemographic and clinical characteristics other than slight decreases in median pain and ECOG over time (Table 1).

Outcomes

Between September 2016 and August 2021, the median total MEDD at consultation decreased from median (IQR) 37.5 (0-90) to 7.5 (0-30), $P < .001$, sharply declining after the 2017-2018 period (Table 1, Fig 1). Declines were also seen in the median MEDD for short-acting opioids through the study period from 22.5 (0-60) to 7.5 (0-30), $P = .005$, whereas the median MEDD for long-acting opioids was 0 throughout (Fig 2). The proportion of patients on long-acting opioids decreased from 26% to 12% ($P = .019$) and the proportion of patients on short-acting opioids decreased from 71% to 57% ($P = .16$; Fig 3). The proportion of patients without opioids (MEDD = 0) increased from 28% to 41% ($P = .008$; Fig 3).

In univariable analysis, PS (ECOG ≥2), current tobacco use, CAGE ≥1, and pain level (ESAS) were associated with higher MEDD, whereas language other than English was associated with lower MEDD (Table 2). For multivariable analysis, we adjusted for age, advanced stage, pain on ESAS, total symptom distress score, and the other covariates that were significant in univariable analysis. Pain scale on ESAS (β coefficient, 5.7 [95% CI, 2.6 to 8.9], $P < .001$), CAGE-AID (β coefficient, 43.2 [95% CI, 23.3 to 63.1], $P < .001$), and non-English language (β coefficient, −26.9 [95% CI, −53.1 to 0.8], $P = .043$) were independent predictors of MEDD (Table 3). Although CAGE-AID and pain scale were associated with higher MEDD, non-English language was associated with lower MEDD.

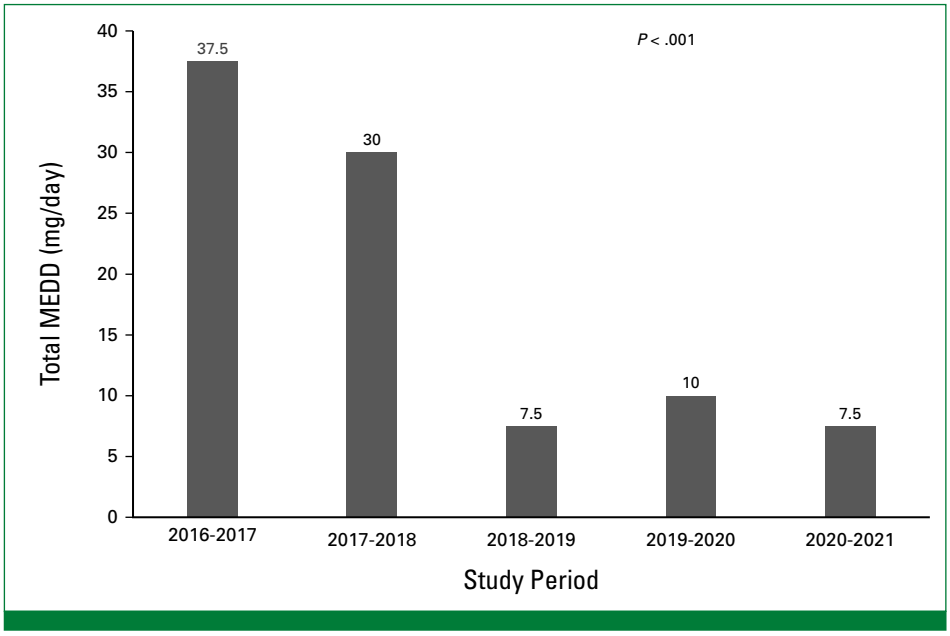

FIG 1. Trends in median total morphine-equivalent daily dosing (mg/day) over the study period from 2016 to 2021. Figure 1 shows bar graphs depicting trends in median total MEDD of opioids prescribed to patients by oncologists who were seen for initial consult at outpatient palliative care clinic between 2016 and 2021. The *x*-axis represents the total study period spanning from September 2016 to August 2021. One-year periods span September 2016-August 2017, September 2017-August 2018, September 2018-August 2019, September 2019-August 2020, and September 2020-August 2021. The *y*-axis shows the median morphine-equivalent daily dosing in mg/day. Graphs show significant decrease in the total median MEDD of prescribed opioids from 37.5 mg/day in 2016-2017 to 7.5 mg/day in 2020-2021 ($P < .001$). MEDD, morphine-equivalent daily dose.

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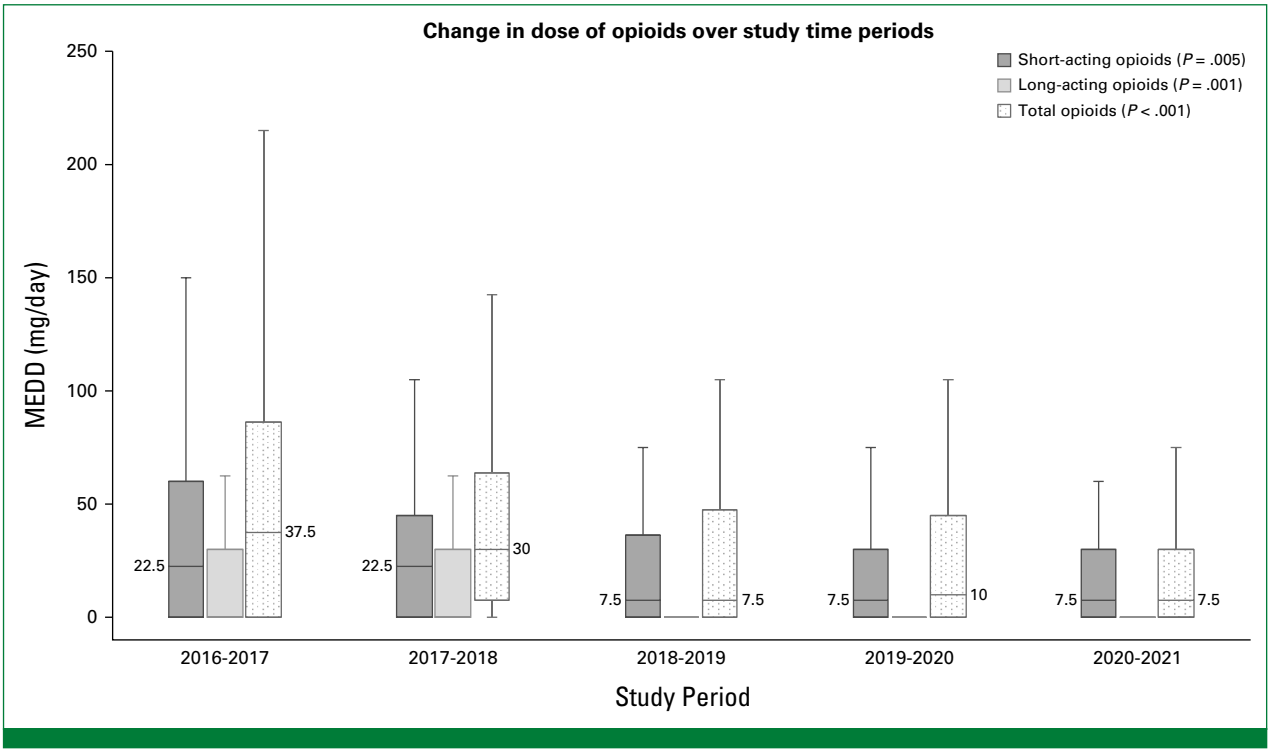

FIG 2. Trends in median morphine-equivalent daily dosing (mg/day) for short-acting opioids, long-acting opioids, and total opioids over the study period from 2016 to 2021. Figure 2 shows box and whisker plots depicting trends in median total MEDD of opioids (short-acting, long-acting, and total) prescribed to patients seen for initial consult at the outpatient palliative care clinic between 2016 and 2021. The *x*-axis represents the total study period spanning from September 2016-August 2021. One-year periods span September 2016-August 2017, September 2017-August 2018, September 2018-August 2019, September 2019-August 2020, and September 2020-August 2021. The *y*-axis shows median morphine-equivalent daily dosing in mg/day. Boxes represent interquartile ranges of each opioid type within study year and the horizontal line represents median dose. The whiskers show distribution of values 1.5 times away from the interquartile range. Figure shows significant decrease in total median MEDD of prescribed opioids from 2016 to 2021—short-acting from 22.5 mg to 7.5 mg/day, long-acting (0 throughout), and total opioids from 37.5 mg/day to 7.5 mg/day in 2020-2021 ($P < .001$). MEDD, morphine-equivalent daily dose.

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DISCUSSION

In this study, among patients who were referred by oncologists to outpatient palliative care, the prescribed doses of opioids for cancer pain declined five-fold from 2016 to 2021, with a sharp decline after 2017. Prescription of long-acting opioids decreased by over 50%. Although prescriptions of short-acting opioids decreased by 20%, the decline in median MEDD was more substantial (22.5-7.5), likely reflecting the increasing prescriptions of weak opioids like tramadol.[16] There was an almost two-fold increase in the proportion of patients who were opioid-naïve or without any opioid prescriptions for cancer pain. These declines suggest persistent barriers to opioid prescriptions for cancer pain and the broader trend of decreasing opioid prescriptions among physicians whose patients are specifically exempted from rigorous opioid regulations. Our results signal unmet needs and potentially undertreated pain in patients with cancer.

Decreasing long-acting opioid prescriptions over the study period reveal changing practices toward cancer pain management. Insurance prohibitions and current cancer pain management guidelines, which favor short-acting opioids as the initial management strategy, may explain reluctance of prescribers to initiate patients on long-acting opioids.[6,13,29] Long-acting opioids are important for managing chronic cancer pain. Unlike immediate-release formulations that offer short-term relief, long-acting opioids provide consistent, round-the-clock pain control.[2,6,30]

This sustained analgesia effectively manages baseline pain, optimizing patient function and quality of life, and may even decrease the likelihood of taking multiple doses of short-acting opioids, thereby increasing the overall opioid daily dose.[30] In a population-based study, the risk of overdose in patients with cancer prescribed a short-acting opioid alone was higher than those taking scheduled opioids.[31] The data linking risk of overdose and mortality with long-acting opioids have been derived mainly from a cohort of patients with noncancer pain, and more research is needed to evaluate the safety profile of long-acting opioids in cancer pain management.[31-33]

The increased number of patients with cancer arriving at our palliative care clinic without opioid prescriptions suggests possible undertreatment of pain due to reduced

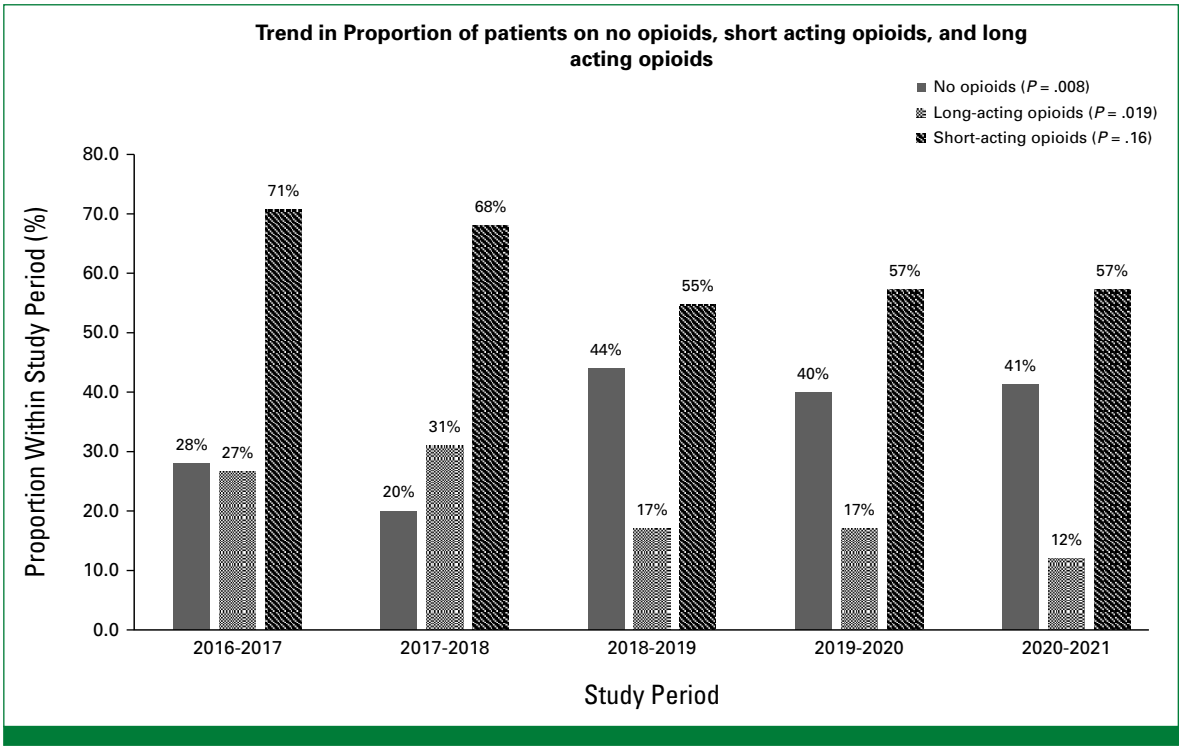

FIG 3. Trends in the proportion of patients on no opioids, short-acting opioids, and long-acting opioids over the study period from 2016 to 2021. Figure 3 shows bar graphs depicting trends in the proportion of patients in each study period on no opioids, short-acting opioids, and long-acting opioids. The *x*-axis represents the total study period spanning from September 2016-August 2021. One-year periods span September 2016-August 2017, September 2017-August 2018, September 2018-August 2019, September 2019-August 2020, and September 2020-August 2021. The *y*-axis shows the proportion of patients within each study period in percentage. Graphs show significant increase in the proportion of patients on no opioids or without opioids from 28% in 2016-2017 to 41.3% in 2020-2021 ($P = .008$). Significant decrease is seen in the proportion of patients on long-acting opioids from 26.7% in 2016-2017 to 12% in 2020-2021 ($P = .019$). Decrease in the proportion of short-acting opioids is seen from 71% to 57% ($P = .16$).

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opioid dosing. This increases strain on the already-limited palliative care workforce, which must address unmet pain management needs timely in balance with opioid safety. Undertreated pain can significantly affect patient's quality of life and increase health care utilization.[5,34] A recent study showed that pain was the most common reason for potentially preventable emergency room visits for patients with cancer, whereas encounters due to pain more than doubled between 2012 and 2019.[21] Other studies have shown the association of uncontrolled pain with suicide risk and risk of illicit substance use due to reduced access to prescription opioids[35,36] This growing cohort of opioid-naïve patients observed in our study represents the far-reaching effects of opioid crisis, even to those patients in whom maintaining access to opioids is essential.

The observed inflection point in our data after 2017 may reflect multiple factors such as the impact of Centers for Disease Control's stringent pain management guidelines from 2016, the Surgeon General's letter to physicians in 2016, growth of prescription drug monitoring programs, insurance prohibitions, opioid shortages, and reduced opioid access in 2020 and 2021 in association with the COVID-19 pandemic.[8,29,36-41] Our findings are in line with other studies that have shown similar reductions in opioid prescriptions after 2016 for populations such as patients with sickle cell disease where opioids are essential to manage pain and maintain quality of life.[42]

The intense media coverage and negative portrayal of the opioid epidemic have contributed to declining opioid use by intensifying stigma and influencing patient and physician attitudes.[43,44] Media narratives, personal experiences, and addiction stories can contribute to patients' reluctance to seek pain management.[37,45] Patients may fear judgment from clinicians, pharmacists, and society, experiencing anxiety about being perceived as drug-seekers or denied essential pain medication.[44,46] This pervasive stigma creates additional barriers that compromise comprehensive pain management and patient care. Physicians themselves grapple with professional stigma, facing regulatory scrutiny and potential legal risks when prescribing opioids.[44]

Unlike previous studies, we found no association between most demographic and socioeconomic factors and MEDD. Given existing evidence for disparities in opioid access on the basis of race and socioeconomic status, we recommend

TABLE 2. Variables Associated With Median Total MEDD at Consult on Univariable Analysis

	Univariable Analysis	
Variable	Summary Statistic	*P*
Age, years, correlation	−0.56[a]	.28
Sex, median (IQR)		.435
Female	15 (0*62.5)	
Male	15 (0-45)	
Race and ethnicity, median (IQR)		.281
Hispanic	10 (0-60)	
Non-Hispanic Black	22.5 (5-60)	
Non-Hispanic White	17.5 (5-60)	
Other	7.5 (0-38.75)	
Cancer stage, median (IQR)		.381
Early	10 (0-45)	
Advanced	15 (0-60)	
ECOG, median (IQR)		.016
≤1	7.5 (0-40)	
≥2	22.5 (0-60)	
Current tobacco use, median (IQR)		.017
Yes	45 (5-90)	
No	15 (0-60)	
CAGE-AID, median (IQR)		<.001
Positive	45 (7.5-105)	
Negative	10 (0-45)	
No information	15 (0-67.5)	
Insurance, median (IQR)		.427
Medicare/Medicaid	10 (0-65.5)	
Private	20 (0-60)	
Uninsured	30 (12.5-67.5)	
Language, median (IQR)		.014
English proficient	17.5 (0-60)	
Other	5 (0-22.5)	
Cancer type, median (IQR)		.456
Solid	15 (0-60)	
Hematologic	20 (0-30)	
Other substance use, median (IQR)		.132
Yes	26.25 (0-75)	
No	15 (0-60)	
Total SDS, correlation	0.159[a]	<.001
ESAS pain, correlation	0.23[a]	<.001

Abbreviations: CAGE-AID, Cut Down, Annoyed, Guilty, Eye-Opener, Adapted to Include Drugs; ECOG, Eastern Cooperative Oncology Group; ESAS, Edmonton Symptom Assessment Scale; MEDD, morphine-equivalent daily dose; SDS, Symptom Distress Score on Edmonton Symptom Assessment Scale.
[a]Pearson correlation analysis.

TABLE 3. Variables Associated With Median Total Morphine-Equivalent Daily Dose at Consult on Multivariable Analysis

	Multivariable Analysis		
Variable	Beta Coefficient	95% CI	*P*
Age, years	−0.37	−0.95 to 0.21	.21
Cancer stage	−0.11	−18.6 to 18.38	.99
ECOG	12.72	−3.78 to 29.22	.13
Current tobacco use	−15.65	−42.59 to 1.28	.25
CAGE-AID	43.21	23.3 to 63.09	<.001
Language	−26.98	−53.1 to 0.85	.043
Total SDS	−0.17	−0.63 to 0.28	.46
ESAS pain	5.77	2.60 to 8.94	<.001

Abbreviations: CAGE-AID, Cut Down, Annoyed, Guilty, Eye-Opener, Adapted to Include Drugs; ECOG, Eastern Cooperative Oncology Group; ESAS, Edmonton Symptom Assessment Scale; SDS, Symptom Distress Score on Edmonton Symptom Assessment Scale.

continued investigation in this area, as this may only reflect our data set, not the broader population.[16,47,48]

The ESAS pain score and any positive CAGE-AID score were associated with significantly higher MEDD, whereas self-reported limited English language proficiency was associated with lower MEDD. Although total symptom distress score did not predict higher MEDD in multivariable analysis, the ESAS pain score emerged as a significant predictor, highlighting the importance of patient-reported pain in influencing pain management. We found that CAGE AID positivity, an indicator of substance abuse risk, was the strongest predictor of receiving higher doses of opioids. We have previously reported on the association of CAGE-AID positivity with higher MEDD and nonmedical opioid use; these patients may express pain more strongly and often request higher doses.[16] This underscores the importance of universal screening for risk of nonmedical use when prescribing opioids.[49] The scarce research on limited English proficiency and pain suggests communication and assessment barriers for non-English speakers, potentially explaining our findings.[50] Whether interpreters can mitigate some of these barriers is unknown and was outside the scope of our study. Further research in this area is needed. Altogether, these results suggest how patients express pain influences prescription of stronger pain medications. Our findings highlight the need to assess pain beyond patients' pain expression alone, via comprehensive symptom evaluation and multidisciplinary management to mitigate opioid overprescription risks. Pain management requires a multidimensional, multimodal approach integrating pharmacological and nonpharmacological interventions. Behavioral and integrative strategies such as cognitive behavioral therapy, meditation, coping skills training, acupuncture, and yoga are well-established and guideline-recommended.[51-53] Effective approach involves tailoring interventions to individual patient's needs, ensuring comprehensive and personalized pain management.[52-55]

Our study's greatest strength is its focus on patients who had cancer pain and were therefore highly likely to benefit from opioids. This differs from previous population-based studies, which capture overall opioid trends but make it

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difficult to determine whether the opioids were truly indicated for the population examined.[12,15] We studied several clinical and sociodemographic variables in relation to opioid prescriptions. Through assessment of the total symptom distress score, we were able to study the influence of nonpain symptoms, including psychological, on pain management. Our study also represents the real-world opioid prescribing practices of oncologists in the outpatient setting.

As this study was at a single tertiary cancer institution, our results may not be generalizable. Given design limitations, we were unable to investigate downstream effects such as pain control and health care utilization. We were unable to determine causality but could only report associations. We could not determine the oncologists' reasons for not prescribing opioids. Additionally, our study lacked patient-reported data on attitudes and perceptions about cancer pain management, as this is not routinely collected.

In conclusion, our results raise the alarm on further declines in opioid prescriptions for cancer pain. More research is needed to identify the reasons for this substantial change in practice of oncologists toward cancer pain treatment. Future research should also evaluate outcomes caused by the decline in opioid prescriptions. Continued advocacy and educational initiatives for clinicians and patients are imperative to promote safe and appropriate use of opioids and reduce the associated stigma. Educational initiatives for patients should aim to address misconceptions about opioids, clarify the difference between medical use and misuse, and promote safe practices for opioid use, storage, and disposal.[56,57] For physicians, education should emphasize universal risk screening for nonmedical opioid use, coprescribing naloxone, and implementing interdisciplinary, multimodal approaches to pain management.[58,59] Cancer pain management should be anchored in shared decision making and a patient-centered approach.

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AFFILIATIONS

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Trends in Outpatient Opioid Prescriptions for Cancer Pain Between 2016 and 2021

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