

Analysis of opioids analgesics consumption in Africa: A 20-year continental perspective and disparities between English- and French-speaking countries

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Abstract

Background: Opioid analgesics are essential medications for acute and some chronic pain management in diseases like cancer and palliative care. However, inadequate access to opioids is a major public health concern in many developing countries, including those in Africa for such conditions.

Methods: The present study updates and expands upon the International Narcotics Control Board (INCB) data obtained from 1999 to 2021, which displays the trends of opioid consumption and

evaluates the national data in all African countries over the last 20 years. In addition, opioid consumption between French- and English-speaking African countries was also compared to identify possible disparities. To explain trends in opioid consumption, we also extracted data from the Global Cancer Observatory (Globocan) database to compare if the amount of opioid consumption is proportional to the incidence of cancer in African countries.

Findings: Our result showed that the opioid consumption trend has been stagnant from 1999 to 2021 and that there was a huge disparity between English- and French-speaking countries (high versus low consumptions, respectively). Also, we demonstrated that opioid consumption increases along with income level. A huge gap was observed between English- and French-speaking African countries in the upper middle- and high-income countries. Besides, we also found that cancer incidence is increasing in all countries, which is not correlated to the trend of opioid use. Furthermore, we demonstrated that the use of opioids in French-speaking African countries is even lower compared with their English-speaking counterparts.

Interpretation: This article highlights the trends in the doubling use of opioids globally. However, in the African continent, specifically the French-speaking African countries, consumption continues to remain stagnant and insufficient. Therefore, these results necessitate policy change to improve opioid access in Africa for cancer pain and palliative care, particularly in French-speaking African countries.

Funding: The authors receive no financial support for the research, authorship, and publication of this article.

Keywords: *African countries, analgesics, cancer, cancer pain, opioids, French-speaking, English-speaking*

Research in context

Evidence before this study

Evidence considered before this study drew on the previous publication by Berterame et al. (2016) on the worldwide, regional, and national data for opioid analgesic use from 2001 to 2013. No previous research has focused specifically on the situation in African countries with such a proposed time frame of 20 years and sub-analysis by regions, languages, and cancer incidence perspective.

Added value of this study

Our findings provide specific and recent up-to-date data and analysis of opioid analgesic use in all African countries from the INCB over two decades (data from 1999 to 2021). We have also provided an analysis that shows the disparity in opioid use between English- and French-speaking African subregions. The persistence of stagnation within African countries over the past 20 years is particularly alarming given the ongoing escalation in cancer incidence, highlighting an enormous unmet need for the safe access and use of opioid analgesics when indicated. In addition, opioid analgesics are especially indispensable for effective cancer pain management and end-of-life care within the African region that grapples with the dual burden of being seriously affected by the lack of essential medication, and concurrently facing the highest projected increases in cancer incidence by the year 2040.

Implications of all the available evidence

Despite the initial report and call for action in 2016 (Berterame et al), the issue of lack of opioid access and use for medical purpose continues to afflict African nations, with stagnant or only minimal progress evident over the past two decades. Furthermore, our analysis herein highlights pronounced disparities within African countries in the use of opioids, particularly between the French- and English-speaking regions. This underlines the critical need for further research to delve into the cultural and political determinants driving these observed inequities. Urgent attention and concerted efforts must be directed towards overcoming the multifaceted challenges faced by these nations. Besides, international and national policies should be revised to pave the way for timely and impactful changes. Additional emphasis should also be given to the French-speaking African counties on top of the effort for entire Africa as a whole in providing tailored solutions and enhanced support to address the larger predicament across Africa.

Introduction

Opioid analgesics are medications recommended for short use in acute nociceptive painful events and some very limited chronic pain conditions, particularly cancer and palliative care. In cancer pain, no medication other than opioid analgesics can offer immediate and effective relief of severe nociceptive pain in palliative treatment regimens.¹ In 2021, the World Health Organization (WHO) listed codeine, fentanyl, morphine, and methadone as essential medicines for pain and palliative care.² Comparably, the number of people worldwide who use opioids has doubled every 10 years.³ However, it was reported that 92% of the available opioids globally were consumed by only 17% of the world's population residing in high-income countries. In contrast, the remaining 8% of opioids were attributed to low- and middle-income countries, which constituted 83% of the global population.⁴ According to the World Drug Report 2022, the doses of pain medication in North America were 7500 times higher than the West and Central Africa, even after the decline in

availability in North America since 2013.⁵ This highlights the significant disparity in global opioid consumption, with some continents and regions experiencing excessive usage while others suffer from insufficient consumption and access to opioid analgesics.⁴ Several factors result in the overuse of opioids in high-income countries such as long-term prescriptions for non-cancer pain³ and drug abuse.⁶ For example, the mortality rate in the United States due to opioid overdose increased by 120% between 2010 and 2018, and a further substantial increase was also observed during the pandemic.⁶ However, opioid consumptions in European countries are more regulated by national surveillance as compared with the US, and hence the opioid crisis has not developed in Europe to the same degree as in the US. Therefore, it is inaccurate to refer to global opioid consumption as a homogenous block, the opioid epidemic is not observed worldwide and opioid consumption in developing countries like Africa should be emphasised more to ensure adequate access to opioids for pain treatment.

Cancer is a pervasive health challenge globally, affecting millions of lives each year. Opioid analgesics are indispensable for treating severe pain in cancer. Accessibility to such medicines should be classified as a fundamental human right, which is in parallel with international agreements like the Universal Declaration of Human Rights on medical care accessibility.⁷ Pain is experienced by 55% of cancer patients during anti-cancer therapy⁸ and 70–80% of patients with advanced-stage cancers.⁹ Children are also at a higher risk than adults to experience inadequate pain management. Statistically, 98% of children requiring palliative care are resided within low- and middle-income countries in which half of these are in Africa alone.¹⁰ Untreated or inadequately managed pain severely impacts the physical and psychological health, functional status and quality of life of cancer patients.¹¹ In the worst-case scenario, severe cancer pain can even result in a reluctance to medication adherence and evoke thoughts of death.¹¹ Hence, the integration of palliative care with curative treatment should be emphasised in cancer pain management to improve cancer patients and their families' quality of life.¹²

While the burden of cancer is felt worldwide, it is particularly severe in Africa, where it is now the fifth leading cause of death.¹³ The situation also poses significant challenges along with the growing population and limited healthcare resources. The African population has surged from 778.2 million in 2000 to 1.3 billion in 2021, exacerbating cancer's impact.¹⁴ With the increasing population, the incidence of cancer in Africa has also risen significantly from 0.3 million in 2000 to 1.1 million in 2020.^{15,16} Furthermore, the trend of cancer incidence is also forecasted to rise fastest in Africa compared to other world regions between 2020 and 2040.¹⁷ Despite the increase in cancer incidence, previous studies showed that opioid consumption in African countries was stagnant from 2001–2003 to 2011–2013.³ Nonetheless, the opioid consumption data at present that focuses on African countries are very poorly documented. Within Africa, there is also a disproportionate focus on Sub-Saharan Africa, which is mainly an English-speaking region. At the same time, little to no data are available for other regions within Africa, especially those who speak French.¹⁸ Hence, this study aims to provide an assessment of (1) the opioid use trend in African

countries for the past two decades, using data from 1999 to 2021 and (2) explore differences in use across African countries. To the best of our knowledge, this is also the first study that compares opioid consumption between French- and English-speaking African countries in a 20-year timeframe to determine if any disparity exists. This information will then help in deliberating and assisting in specifying policies to improve the availability of opioid analgesics.

Methods

Data sources

Existing historical data on the consumption of opioids in African countries from 1999 to 2021 was obtained from the INCB. These data were assessed in terms of Defined Daily Doses for Statistical purposes (SDDD) to establish the extent of use. It should be noted that the SDDD is only a technical unit of measurement and should not be confused with the prescription dose. SDDD was used because there is no existing internationally agreed standard doses to prescribe for opioid analgesics. Hence, SDDD can provide an approximate measure of the amount of opioids used and allow a fair comparison between countries. Besides, levels of opioid use, expressed in SDDD per million inhabitants per day, are calculated with the following formula: Annual use divided by 365 days, divided by the population in millions of the country or territory during the year, divided by the defined daily dose. The countries of Africa have been divided into French- and English-speaking countries in which the list was provided in Table 1. Total population data¹⁴ and income levels of each African country¹⁹ were retrieved from the World Bank, whereas the epidemiological data on cancer were available from the WHO Global Cancer Observatory (Globocan).^{15,16,20-23}

Results

Opioid analgesics are essential medications for the treatment of acute and chronic nociceptive severe cancer pain. For decades, global opioid consumption has doubled every 10 years.²⁴ North American, Oceania, West and Central European countries have reported a very high level of opioid use (Figure 1a). However, their availability and consumption remain very low in developing countries like Africa (Figure 1b).^{3,25} The consumption of opioid analgesics in African countries has remained stagnant over the past 20 years (Figure 2). The disparity between French- and English-speaking African countries was also evident among African countries. The trending lines in Figure 2 representing the English- and French-speaking African countries show a flat and parallel line over the past two decades, with the former having a higher consumption of opioid analgesics than the latter. Besides the trend lines, the differences in SDDD of English- and French-speaking in each year demonstrate that the disparity between the English- and French-speaking African countries is still present since 1999 (Figure 3). The SDDD in English-speaking African countries was 3-fold higher compared with French-speaking African countries in 2001–2003, but the gap difference has been reduced slightly down to 1.5-fold in recent years (2019–2021).

Nonetheless, there remains very little progress in closing the gap between English- and French-speaking African countries.

Next, the evolution of opioid consumption from the intervals 2001–2003, 2011–2013 and 2019–2021 was displayed in the form of heatmaps (Figure 4). Berterame et al. have previously presented data on world opioid consumption, including Africa, from 2001–2003 to 2011–2013.³ However, no comparison was made between the English- and French-speaking African countries. Thus, this study presents an update from the previous study with the inclusion of the 2019–2021 data. On top of that, the African countries were also subdivided into English- and French-speaking African countries to determine the specific difference between these groups.

For English-speaking African countries, there are several countries that show a decrease in opioid consumption throughout the intervals of 2001–2003, 2011–2013, and 2019–2021. These countries include Angola (SDDD: 15 [2001–2013]; 7 [2011–2013]; 3 [2019–2021]), Libya (SDDD: 35 [2001–2013]; 35 [2011–2013]; 0 [2019–2021]), Sao Tome and Principe (SDDD: 37 [2001–2013]; 24 [2011–2013]; 0 [2019–2021]), and Tristan da Cunha (SDDD: 240 [2001–2013]; 0 [2011–2013]; 0 [2019–2021]). In contrast, Cape Verde (SDDD: 7 [2001–2013]; 32 [2011–2013]; 86 [2019–2021]), Egypt (SDDD: 46 [2001–2013]; 75 [2011–2013]; 107 [2019–2021]), Eswatini (SDDD: 20 [2001–2013]; 0 [2011–2013]; 95 [2019–2021]), Kenya (SDDD: 20 [2001–2013]; 0 [2011–2013]; 89 [2019–2021]), Mauritius (SDDD: 50 [2001–2013]; 87 [2011–2013]; 178 [2019–2021]), Namibia (SDDD: 94 [2001–2013]; 118 [2011–2013]; 128 [2019–2021]), and South Africa (SDDD: 405 [2001–2013]; 338 [2011–2013]; 812 [2019–2021]) have an increased opioid consumption throughout the intervals of 2001–2003, 2011–2013, and 2019–2021.

For French-speaking African countries, the countries that show a decrease in opioid consumption throughout the intervals include Burundi (SDDD: 10 [2001–2013]; 0 [2011–2013]; 2 [2019–2021]), Central African Republic (SDDD: 61 [2001–2013]; 0 [2011–2013]; 0 [2019–2021]), and Morocco (SDDD: 375 [2001–2013]; 23 [2011–2013]; 55 [2019–2021]). On the other hand, Algeria (SDDD: 22 [2001–2013]; 43 [2011–2013]; 42 [2019–2021]), Cameroon (SDDD: 6 [2001–2013]; 7 [2011–2013]; 12 [2019–2021]), Gabon (SDDD: 0 [2001–2013]; 5 [2011–2013]; 17 [2019–2021]), Rwanda (SDDD: 1 [2001–2013]; 0 [2011–2013]; 32 [2019–2021]), Seychelles (SDDD: 97 [2001–2013]; 184 [2011–2013]; 253 [2019–2021]), and Tunisia (SDDD: 94 [2001–2013]; 180 [2011–2013]; 285 [2019–2021]) have an increased opioid consumption.

Table 1. Mean per-annum Standard Defined Daily Doses (SDDD) use in all African countries for the year 2001–2003 and 2019–2021. The value represents the mean of 3 years of use (2001–2003 and 2019–2021) to remove annual variations and provide the most stable use data. If a country did

not report data for a year, we divided use data for the available years by the number of years for which data are available. If fewer than three observations were available, we denoted the number of observations with footnotes. Opioid consumption data were provided by the International Narcotics Control Board.

African countries	SDDD use (per day)				
	2001–2003	2011–2013	2019–2021	Absolute change (2001–2003 to 2011–2013)	Absolute change (2011–2013 to 2019–2021)
All African countries					
Africa	54	32	64	–22	32
English-speaking African countries					
Angola	15 [‡]	7 [‡]	3	–8	–4
Ascension Island	23 [‡]	82	39 [‡]	59	–43
Botswana	66 [‡]	113 [‡]	94	47	–19
Cape Verde	7	32	86 [‡]	25	54
Egypt	46	75	107	29	32
Eritrea	2	1 [‡]	0	–1	–1
Eswatini	20	0	95 [‡]	–20	95
Ethiopia	0	0	0	0	0
Gambia	0	0	0	0	0
Ghana	42	20	34	–22	14
Guinea-Bissau	0 [†]	0	0	0	0
Kenya	20	0	89	–20	89
Lesotho	8 [‡]	0	0	–8	0
Liberia	0	0	3 [†]	0	3
Libya	35	35 [‡]	0	0	–35
Malawi	0	26 [†]	12 [†]	26	–14
Mauritania	0	0	2 [†]	0	2
Mauritius	50	87 [‡]	178	37	91
Mozambique	7	10	5 [‡]	3	–5
Namibia	94	118 [‡]	128	24	10
Nigeria	0	1	0	1	–1
Saint Helena	1145	289	1152 [‡]	–856	863
Sao Tome and Principe	37	24 [†]	0	–13	–24

Sierra Leone	21	2 ⁺	9	-19	7
Somalia	0	0	0	0	0
South Africa	405	338	812	-67	474
South Sudan	0	0	0	0	0
Sudan	2	0	0	-2	0
Tristan da Cunha	240 ⁺	0	0	-240	0
Uganda	23	31	27	8	-4
United Republic of Tanzania	9 ⁺	5	2	-4	-3
Zambia	23	32	14	9	-18
Zimbabwe	29	35	22	6	-13
French-speaking African countries					
Algeria	22	43	42	21	-1
Benin	3	9	5	6	-4
Burkina Faso	1 ⁺	1 ⁺	2	0	1
Burundi	10	0	2 ⁺	-10	2
Cameroon	6 ⁺	7 ⁺	12	1	5
Central African Republic	61 ⁺	0	0	-61	0
Chad	0	8 ⁺	0	8	-8
Comoros	2 ⁺	0	7 ⁺	-2	7
Congo	0	0	0	0	0
Cote d'Ivoire	1	1	3	0	2
Democratic Republic of the Congo	1	0	1 ⁺	-1	1
Djibouti	2 ⁺	0	0	-2	0
Equatorial Guinea	0	0	0	0	0
Gabon	0	5 ⁺	17	5	12
Guinea	0	0	1 ⁺	0	1
Madagascar	3	1 ⁺	3	-2	2
Mali	0 ⁺	1 ⁺	6 ⁺	1	5
Morocco	375	23 ⁺	55	-352	32
Niger	0	0	0	0	0
Rwanda	1	0	32 ⁺	-1	32

Senegal	3	4 [‡]	0	1	-4
Seychelles	97	184 [‡]	253	87	69
Togo	1	2	4 [‡]	1	2
Tunisia	94	180	285	86	105

[‡]Two observations in the intervals. [†]One observation in the intervals.

To determine if the consumption of opioid analgesics in African countries is affected by their income levels, we further segregated the English- and French-speaking African countries into low, lower-middle, upper-middle-, and high-income countries. It is observed that the SDDD for opioid consumption increases along with income level (Figure 5). More interestingly, in the upper middle- and high-income countries, there is an apparent difference between English- and French-speaking countries. This suggests that income level is only one of the factors contributing to the disparity in opioid consumption, and further investigation is required to delineate the other factors underlying this problem.

Cancer incidence in Africa has risen significantly over the last 20 years (Figure 6a). Nonetheless, levels of opioid consumption in Africa remain unchanged (Figures 1 and 2). This suggests that the availability of opioids for cancer pain management is far less than the levels suggested by need. Indeed, the relationship between cancer incidence and consumption of opioids in Africa in the year 2020 displays a vast healthcare problem whereby analgesics are not available for cancer pain treatment (Figure 6b). In addition, the figure also shows a similar disparity between English- and French-speaking African countries. Most French-speaking African countries except Seychelles and Tunisia fall near the x-axis where cancer cases have existed, but opioid analgesics are unavailable. In contrast, English-speaking African countries are relatively better as opioid analgesics consumption is higher, albeit only to a certain extent that is still deemed insufficient. Among these English-speaking African countries, Namibia, Saint Helena, and South Africa are among those that have higher opioid consumption, which also fall within the upper middle-income level. The remaining countries have an SDDD of opioid consumption that is lower than 200. Altogether, these results display the unmet need for opioid consumption in cancer pain management.

Discussion

Trend of Opioid Consumption in African Countries

Global consumption of opioid analgesics was increased significantly throughout the past 30 years.²⁴ The worldwide use of opioids has doubled from 2001–2003 to 2011–2013, mainly driven by Western countries like North America.³ Nonetheless, the increase in opioid consumption in Africa has been negligible since the 1980s.^{3,24} To the best of our knowledge, for the first time, in

this study, we have demonstrated that opioid consumption in African countries has been stagnant from 1999 to 2021. Furthermore, we showed that English-speaking African countries have a higher opioid consumption than their French-speaking counterparts, albeit both groups are still very deprived of opioid availability.

Disparities between African countries according to income level and language spoken

The significant disparity between developed high-income countries like America and underdeveloped low-income countries like Africa and South Asia has demonstrated that it is inaccurate to refer to global opioid consumption as a homogenous block. North America has experienced a considerable elevation in opioid consumption between 2001–2003 and 2011–2013. Still, it is doubtful to reflect the actual global scenario as most of the opioids in the specified country are consumed for non-medical purposes.³ Hence, concerns regarding opioid abuse, addiction, and overdose in North America have led to tighter control of opioids and increased reticence from physicians and the public to consume opioids.²⁶ In Africa, opioid consumption reduced from 2001–2003 to 2011–2013, which was shown in the article by Berterame et al.³ However, the level of opioid consumption in 2019–2021 has only been restored to a level as the 2001–2003 period after 20 years. Considering that the population has increased by a huge margin, the similar opioid consumption in these periods suggests a worsening problem where the accessibility to opioids per individual is getting decreased. The limited opioid consumption might be due to the fear of drug abuse and dependence, which neglects the necessity of opioid analgesics for those in need.²⁷

To further understand the potential barriers in opioid accessibility and consumption, we have divided African countries into English- and French-speaking African countries. Previous studies have demonstrated a higher disease burden in French-speaking African countries than in English speakers.²⁸ Herein, we showed that opioid consumption in French-speaking African countries was lower than the English-speaking counterparts. Although the gap difference between English- and French-speaking African countries has reduced slightly from 3-fold in 2001–2003 to 1.5-fold in 2019–2021, there is still a substantial gap between these groups. Therefore, further research is necessary to explore the underlying factors contributing to this disparity, including potential influences such as educational opportunities, language barriers affecting access to scientific resources, potential cultural and religious aspects and other relevant factors. We recognise the significance of exploring this topic further, especially in French-speaking African countries, and have considered it as the next crucial step in our research endeavours.

Next, the access and use of opioids are established not only by physical availability and practical accessibility but also by affordability.³ The accessibility and affordability of healthcare with quality are determined by the income level of a country.²⁸ Our study has supported this statement by showing a proportional increase in opioid consumption along with the income levels

of African countries regardless of the language spoken. Interestingly, opioid consumption was comparable for English- and French-speaking African countries in low- and lower-middle-income countries. However, in African countries with upper-middle and high incomes, English-speaking African countries have a notable increase in the use of opioids when compared with French-speaking African countries. Nonetheless, a certain exception exists, particularly in the case of a lower middle-income country like Tunisia. Of note, Tunisia has the highest consumption of opioids, followed closely by Seychelles, a high-income country, exceeding those of upper-middle-income countries like Equatorial Guinea and Gabon. This trend can potentially be attributed to the strong historical political commitment in Tunisia towards establishing a palliative care system.²⁹ The establishment of organisations such as the Tunisian Association for the Fight against Cancer (ATLCC) and the Tunisian Association of Palliative Care (*Association Tunisienne de Soins Palliatifs in French*; ATSP) most likely enhanced the availability, accessibility and utilisation of opioid analgesics.²⁹ Hence, policy changes to adopt these measures in other countries should be encouraged to ameliorate their existing circumstances, and further studies should also be focused on documenting the impact of such measures on the overall consumption trend.

Unmet Needs of Cancer Pain Management

Pain is a common consequence of cancer. In most cases, moderate-to-severe nociceptive cancer pain can be effectively managed with medications like opioids.³⁰ Opioids are the first-line therapy that offers immediate and effective relief of severe cancer pain, as demonstrated by the WHO analgesic ladder for cancer pain.¹ However, opioid consumption in Africa remained stagnant for the past 20 years despite a significant increase in cancer incidence (Figure 6). This suggests that the opioid analgesics availability in Africa is still insufficient to cater to the needs of cancer pain treatment, which may result in unmanaged moderate-to-severe pain in many cancer patients during their treatment and end of life. Comparatively, English-speaking African countries showed a stronger correlation between cancer incidence and opioid consumption than those of French-speaking African countries. Among all African countries, South Africa is one of the countries with the highest incidence of cancer and corresponding opioid consumption. Despite Saint Helena having a higher opioid consumption than South Africa, cancer incidence data for the country is unavailable. It should also be noted that several countries did not have their cancer data available, which makes the comparison difficult. Furthermore, as cancer incidence is projected to double from 2020 to 2040 and reach 2.1 million,³¹ the stagnant opioid consumption level requires urgent attention to prevent the situation from becoming severe, potentially worsening the unmet needs for optimum cancer care. Hence, there is an urgent need for country-level policies, programs, resources, education and training on palliative care to be in place to improve the overall situation.

Challenges in Improving Opioid Availability and Accessibility

It is reported that the impediments to opioid availability and accessibility might be attributed to several aspects, such as the lack of training or awareness, fear of addiction, limited resources and difficulty in sourcing, cultural and social attitudes among health professionals and patients.³² According to the INCB survey report published in 2014, the lack of awareness and appropriate training in pain management and opioid prescription among healthcare professionals is the most common impediment to opioid availability.³² For instance, it is reported that only half of the surveyed healthcare staff in Rwanda understand the definition of palliative care.³³ Furthermore, in a study conducted in a Nigeria hospital, 90% of hospital physicians had no formal education on cancer pain management, and only 50% of them would consider using opioids even if the patients are under severe cancer pain.³⁴

Insufficient resources and financial issues can also pose a significant obstacle to opioid accessibility, especially when opioid prices are high.³² The prices can be inflated due to government regulation, licensing, taxation and inadequate distribution systems. For example, the prices of the oral solid immediate-release morphine tablets are 5.8 times higher in lower-middle-income countries compared with high-income countries.³² Previous studies have attributed this disparity to the substantial subsidies given for expensive formulations like fentanyl, which then creates an economic disadvantage for affordable alternatives like morphine tablets.³² Next, many countries have also reported challenges in sourcing the opioid analgesic. Certain manufacturers or importers might prioritise formulations that are more profitable, especially in places where the population is small and there is only a low-market demand. As a result, specific drugs like fentanyl are more accessible than morphine.³² Local production is also hindered by the limited opioid prescription within the country and insufficient demand from the hospitals, which forces these countries to rely on expensive imports from international pharmaceutical companies.³² Notwithstanding that, delays in the supply chain during drug import caused by burdensome regulatory requirements also lead to medication shortages and further restrict the accessibility and consumption of opioid analgesics.³²

On the other hand, several studies have highlighted the negative attitudes and fear of patients in using opioids for treatment.³⁵ Some of the stereotypical reasons for the reluctance of using opioids include the exaggerated fear of drug dependency or the implication that the use of opioids declares the end of life.³⁶ Hence, more educational programs should be offered to educate healthcare professionals on the necessity of opioids in pain management pharmacopoeia and to think for patients that opioids are beneficial in improving their condition if used in the correct way. To improve further, awareness-raising workshops that foster a better understanding of responsible prescribing practices among healthcare professionals and address the misconceptions regarding opioid analgesics and pain management within the patient community should be emphasised. Examples of these workshops include seminars, special training, distributing informative materials as well as working groups with healthcare professionals, medical associations and patients.

Government policies and regulations must also be revised to prevent over-restricted access to prescription forms and other restrictions in opioid prescriptions. For example, workshops organised by the WHO palliative care projects, together with the African Palliative Care Association have addressed the discussion for opioid availability policies, developing advocacy action plans to facilitate accessibility to, and availability of, opioid analgesics.²⁴ Hence, more collaborative workshops should occur to increase the availability and accessibility of opioids for safe and better pain management.

Limitations of the study

Despite our efforts in delineating the African data for the past two decades, there are limitations to our current work. The SDDD used in this study does not serve as an exact representation of the doses used clinically. Alternatively, oral morphine equivalents could be used as an assessment method to yield different rankings for countries, especially if there are significant differences between SDDD and the prescribed dose. Our study, herein, serves as a foundation to demonstrate the disparity in opioid use between African countries and the rest of the world and within the continent, including French- and English-speaking African countries. However, it is very unlikely that the overall picture of opioid use in Africa presented in this study will be altered even with such a representation method. Uncertainty exists in the current consumption estimates due to imprecise population estimates, particularly in low-income countries, or if there are stockpiled or unused opioid medications. However, the regular reporting of stock-on-hand to the INCB and annual estimates of need shall help mitigate the potential impact of these issues. While this study does not provide detailed statistics on every opioid, such information is available in the INCB database. It should be noted that there is no objective standard for determining an adequate level of opioid consumption, especially if it is challenging to precisely assess the estimation of disease burden and the need for pain relief. The actual extent of opioid use may be much lower than what is needed, and it may be appropriate to set even higher targets to improve further. In this regard, our reporting of low use levels serves merely as a guidance, and countries should not be restricted if higher levels of opioid use are necessary. Present challenges include a lack of measurement standards for opioid consumption, and data on disease burden and pain relief needs in developing countries such as Africa and South Asia.

Besides, another limitation of our study is the data extrapolation method to examine the relationship between opioid consumption and cancer incidence. It should be noted that the INCB data does not differentiate between opioids used for cancer and non-cancer indications. However, this current study focuses on this correlation because opioids are primarily prescribed for cancer pain, and we are making a reasonable extrapolation to assess the availability of opioids specifically for cancer pain.

Conclusion

The use of opioid analgesics globally has doubled for the past decade, which is almost exclusively driven by the Western world and the overconsumption in the US, while the rest of the world and especially Africa had very little or no access to such essential medication, particularly for cancer care and end-of-life. To the best of our knowledge, for the first time, in this study, we have demonstrated that opioid consumption in African countries has been stagnant at an extremely low and inadequate level over the last two decades (from 1999 to 2021). Furthermore, we showed that in a continent that suffers from lack of access and use while cancer incidence has dramatically increased, there are further disparities between subregions such as English-speaking African countries and French-Speaking African countries, where the former has a “higher” opioid consumption than the latter, albeit both groups are still very deprived of opioid availability. Hence, there is an urgent need for more specific research to explore even further such disparities and their potential cultural, economic and political context in order to design more tailored solutions to overcome the impediments and facilitate progress towards a better availability and use of opioids especially in cancer care and end-of-life.

Contributors

Yacine Hadjiat conceived and designed the study, which was approved by Serge Perrot. Data were acquired by Yacine Hadjiat from the International Narcotics Control Board (INCB) and analysed by all authors. The report was drafted by Yacine Hadjiat and all authors critically revised it. All authors contributed and approved the final report.

Declaration of interests

The authors declare no competing interest.

Acknowledgements

The authors acknowledge the data, advice and support provided by the International Narcotics Control Board (INCB), International Association for the Study of Pain (IASP), African Center for Research on End-of-Life Care (ACREOL), International French Speaking Federation of Palliative Care (FISP) and Pain Without Borders (Douleurs sans frontières - DSF).

Data sharing statement

Data is available upon request.

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Analysis of opioids analgesics consumption in Africa: A 20-year continental perspective and disparities between English- and French-speaking countries

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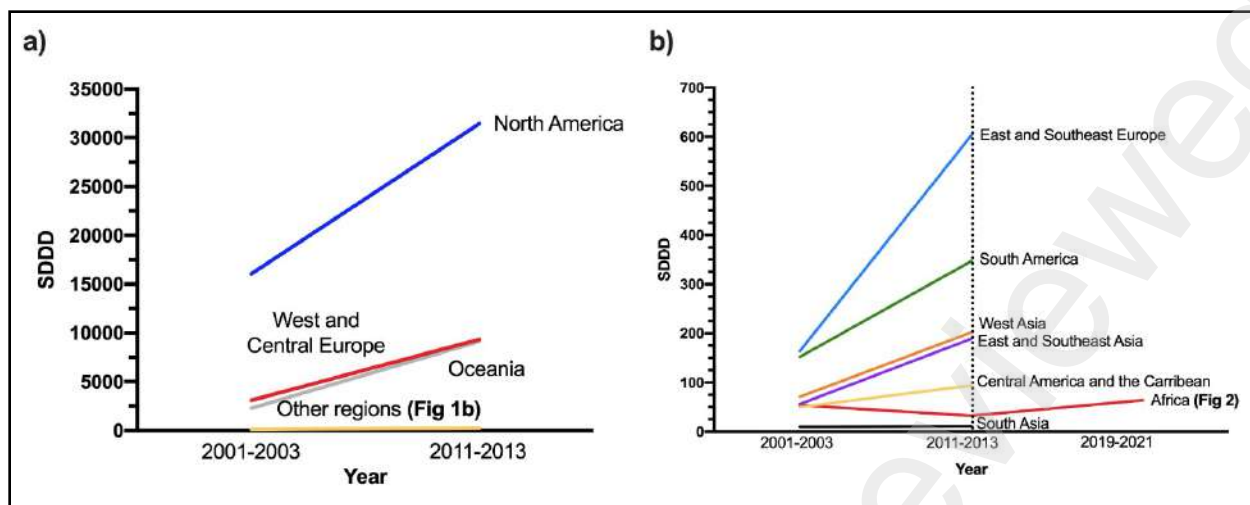


Figure 1. (a) High levels of opioid consumption in North America, West and Central Europe and Oceania. (b) Low levels of opioid consumption in other regions, (a) including Africa. The dotted line divides the data into what has been known previously and what are we showing in this study. The International Narcotics Control Board (INCB) provided data on opioid consumption in Africa, whereas Berterame et al. provided data for other regions.

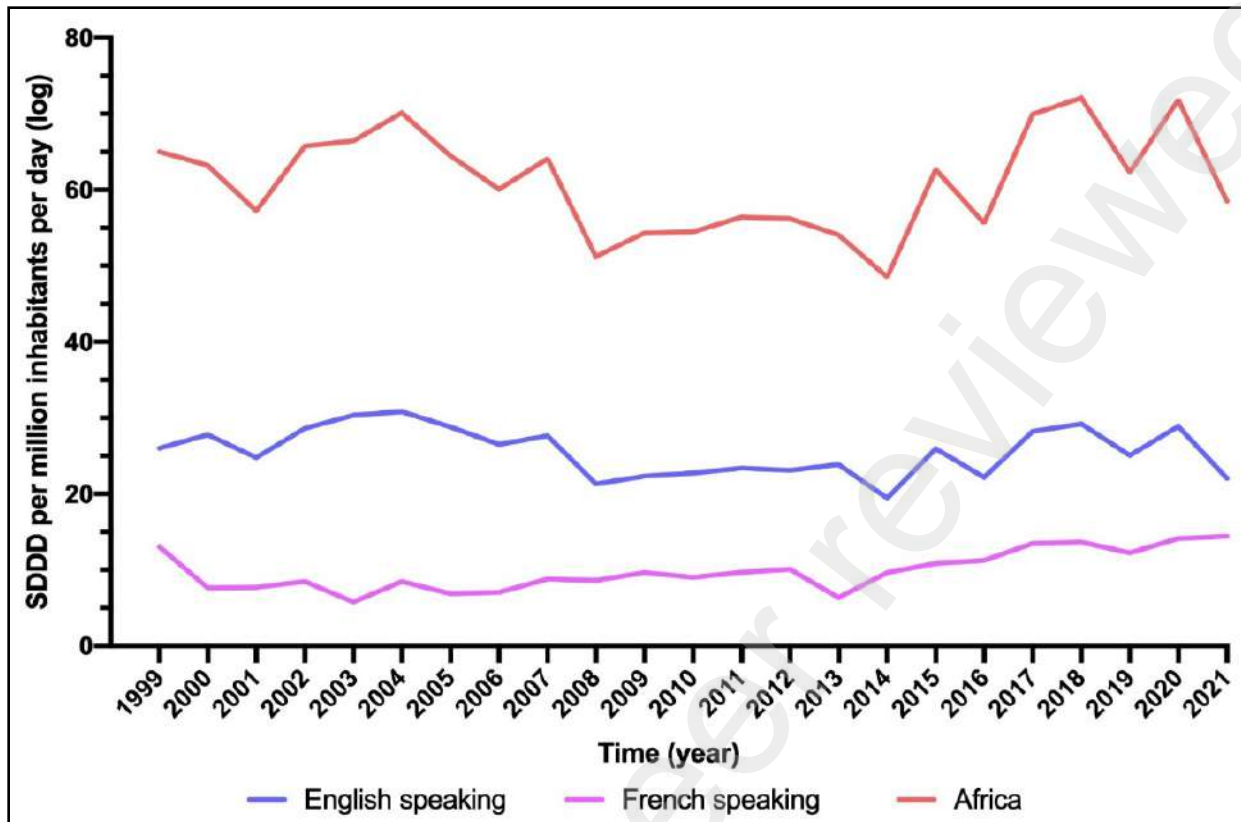


Figure 2. Standard Defined Daily Doses (SDDD) trends of English-speaking African countries, French-speaking African countries and all African countries from 1999 to 2021.

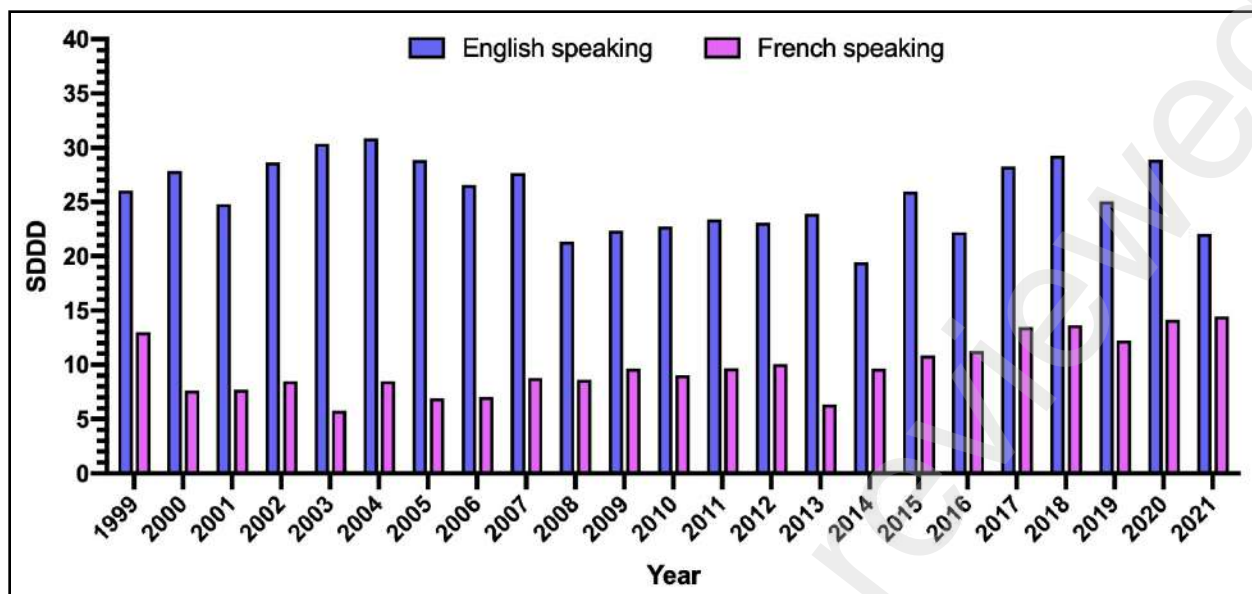


Figure 3. Comparison of Standard Defined Daily Doses (SDDD) between English- and French-speaking African countries from 1999 to 2021.

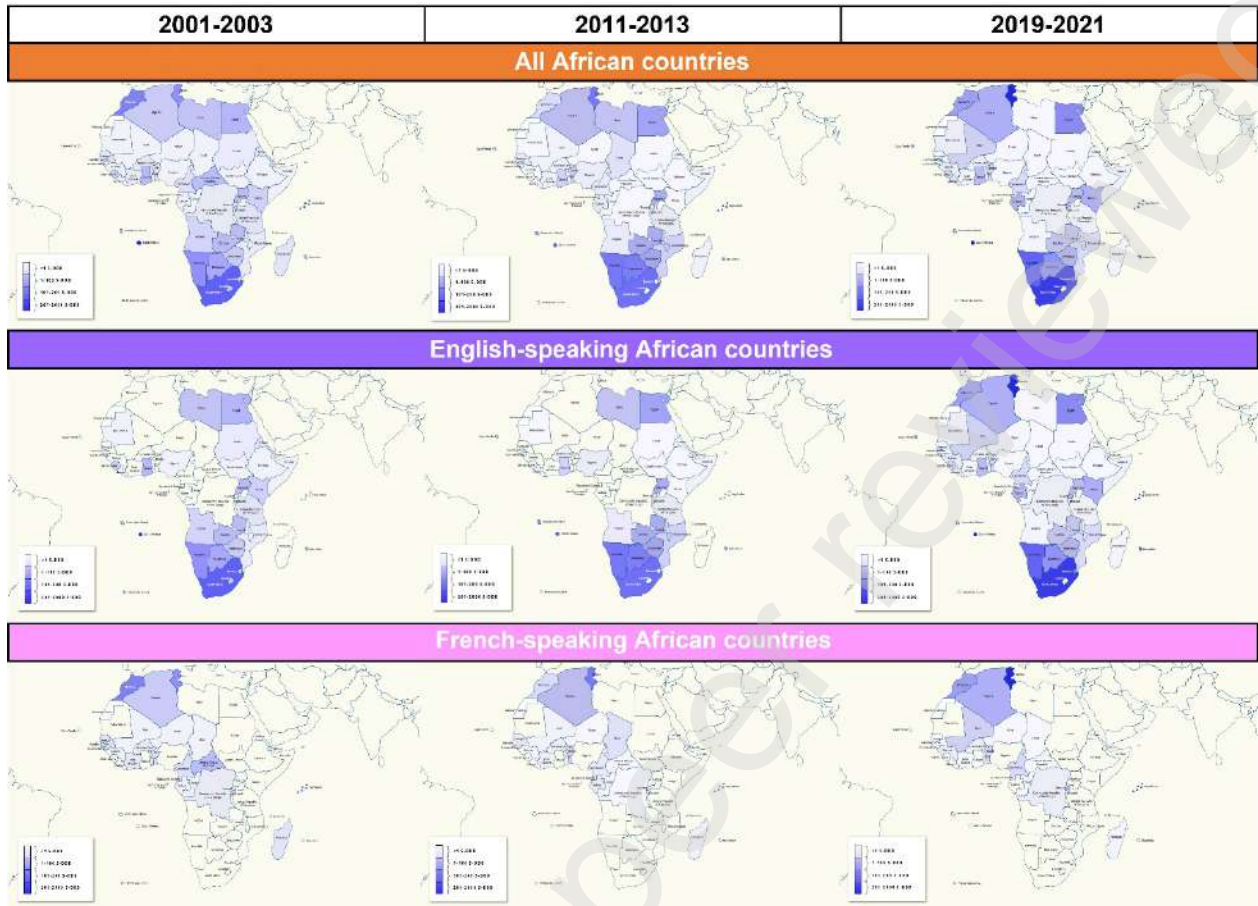


Figure 4. Heatmaps illustration of the evolution of opioid consumption throughout the intervals of 2001–2003, 2011–2013 and 2019–2021 in All African countries, English-speaking African countries and French-speaking African countries.

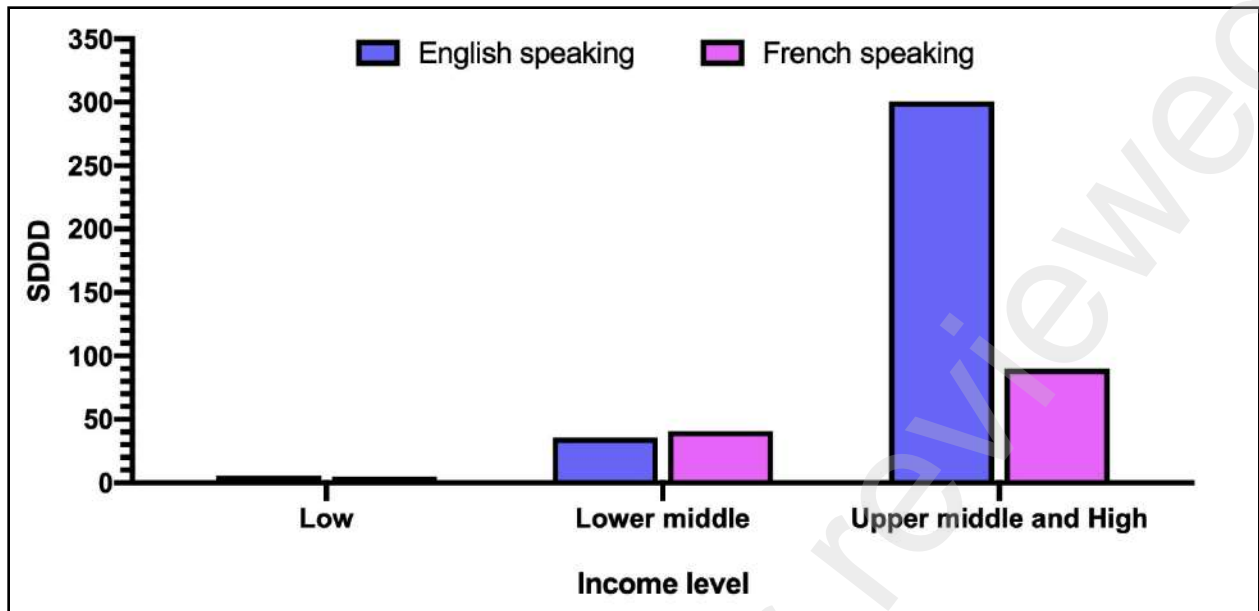


Figure 5. Comparison of opioid consumption in English- and French-speaking African countries, according to their income levels in the year 2021.

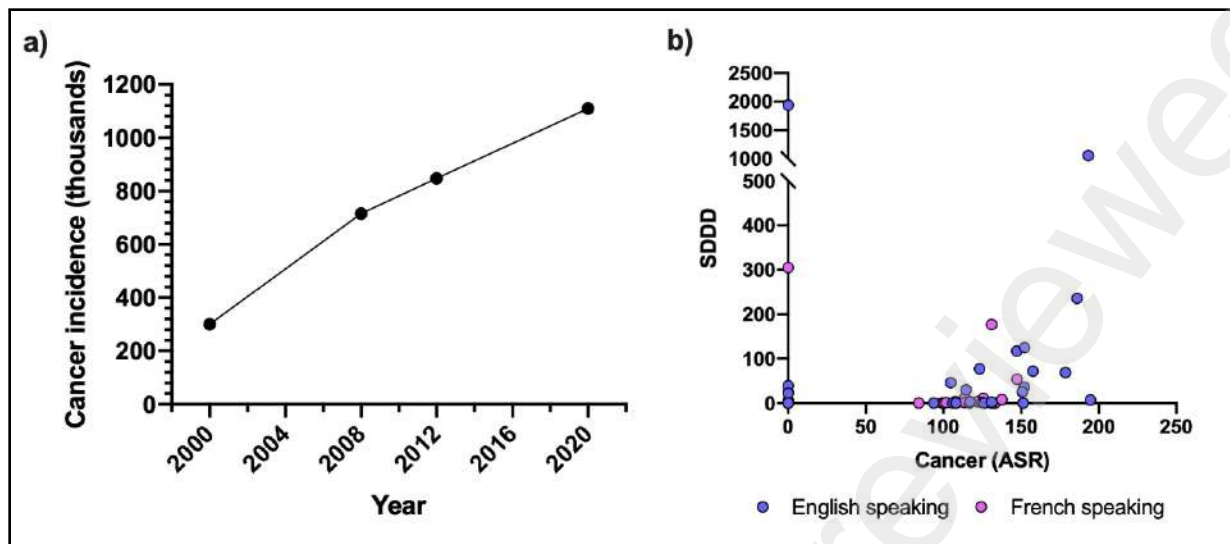


Figure 6. (a) Evolution of cancer incidence in Africa over the last 20 years. Cancer incidence data was retrieved from Globocan 2000, Globocan 2008, Globocan 2012, and Globocan 2020. (b) Relationship between the cancer age-standardized rate (ASR) and consumption of opioid analgesics in English-speaking and French-speaking African countries. Cancer ASR data was retrieved from the Globocan 2020 database. In contrast, opioid consumption data was provided by the INCB. Data that are not available in some countries are registered as 0.