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End-of-life medical decisions in French overseas departments: results of a retrospective survey

Sophie Pennec[1,2*], Mélanie Lépori[3], Silvia Pontone[4], Vincent Guion[5] and Adrien Evin[6,7]

Abstract

Background French laws governing end-of-life medical practices forbid euthanasia and affirm patients' right to deep and continuous sedation until death. Cultural traditions and disparities in health care provision, as in overseas France, could limit the enforcement of such laws and modify end-of-life medical practices.

Aim This research aims to describe end-of-life medical decisions in overseas France and to compare with those described in mainland France.

Methods A retrospective study of a random sample of adult patients who died between March 2020 and February 2021 was conducted in four overseas French departments. Physicians who certified the deaths were asked to describe end-of-life care and medical decisions in a questionnaire.

Results A total of 1815 deaths were analysed over 8730 questionnaires sent. Withholding treatments was the most frequent decision (41%), treatment for pain or symptoms was intensified for a third of patients, Deep and continuous sedation until death was implemented in 13.3% cases. The use of drugs to deliberately end life was mentioned in 1.3% deaths. At least one decision was made in 61.6% deaths. More decisions that may hasten death were made before predictable deaths. Intensification of pain and symptoms treatment was more frequent in 2022 than in 2010. Deep and continuous sedation was introduced by law in 2016 without prejudice to other decisions.

Conclusion Physicians in overseas France have implemented recent changes in end-of-life laws, including deep and continuous sedation. Comparisons with 2010 mainland France survey show a better implementation of palliative medicine in 2022, with higher proportions of treatment withholding.

Keywords End-of-life, Medical decisions, Overseas France, Deep and continuous sedation

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*Correspondence:
Sophie Pennec
pennec@ined.fr
[1]Institut National d'Etudes Démographiques (INED), 9, cours des Humanités CS 50004, Aubervilliers cedex F-93322, France
[2]School of Demography, Australian National University, Canberra, Australia
[3]Université de Strasbourg, UMR SAGE 7363, Strasbourg, CEDEX F-67084, France
[4]AP-HP.Nord, Hôpital Universitaire Robert-Debré, Université Paris Cité, 48, Boulevard Sérurier, Paris F-75019, France
[5]Centre Hospitalier de Brioude, Brioude F-43100, France
[6]service de soins palliatifs et de support, Nantes Université, CHU Nantes, Nantes F-44000, France
[7]Université de Nantes, Université de Tours, U1246 SPHERE "methodS in Patient-centered outcomes and HEalthResEarch", Nantes F-44000, France

Introduction

Overseas France and mainland France differ in end-of-life care provision [1] despite sharing the same legal framework and administration, which suggests cultural and socio-demographic differences may influence local policies on care provision. Yet, data on this difference in overseas and mainland France remain scarce. Cultural and socio-demographic differences include lower income and complex households in overseas France as part of an isolated insular lifestyle [2]. Deaths in overseas France, like in other small territories [3], are mainly caused by tumours and circulatory system diseases [4], and occur at home twice more frequently than in mainland [5]. Palliative care in overseas France is provided by fewer specialist palliative care units and fewer generalist palliative care beds in hospitals than in mainland France [6]. These differences in end-of-life care provision could be associated with different care needs and care trajectories in overseas France, as well as different medical decision-making.

Mainland France data were provided by a previous study held in 2010 [7, 8] that reported the frequency of end-of-life decisions by patients' and physicians' characteristics, and described the decision-making processes. Results of this study showed that "of all deaths, 16.9% were sudden deaths with no information about end of life, 12.2% followed a decision to do everything possible to prolong life, and 47.7% followed at least one medical decision that may certainly or probably hasten death: withholding (14.6%) or withdrawal (4.2%) of treatments, intensified use of opioids and/or benzodiazepines (28.1%), use of medications to deliberately hasten death (i.e. not legally authorized) (0.8%)".

French law concerning the rights of patients at the end of life has evolved since this 2010 study, with the creation of new rights in 2016 including the right to continuous deep sedation until death as a last recourse treatment of unbearable suffering [9]. This major legal evolution must have modified medical practices.

Differences in end-of-life care legislation in France (both mainland and overseas) between 2010 and 2020 include the passing of a law giving to patients the new right to have access to a deep and continuous sedation until death when confronted with unbearable suffering at the end-of life. Health system is the same in both territories but differences remains with a differential provision of palliative care, more home-oriented than hospital-oriented in overseas than in mainland France. In overseas France, the percentage of deaths at home is higher and mainland France can learn whether and how to ensure that more people can get their wish to die at home fulfilled.

The aim of this study was to describe end-of-life medical decisions in overseas France, including starting, intensifying, withholding, or withdrawing treatments as well as sedating or ending deliberately life and to compare with the 2010 data in mainland France.

Methods

Study design

This study was a survey of physicians held between September 2020 and July 2022 about decedents of whom they had signed the medical certificate of death from March 2020 to February 2021. It was an extension to overseas France (represented by French Guiana, Guadeloupe, La Réunion, Martinique) of a similar survey held in mainland France in 2010). An exploratory mission to ensure the feasibility of the survey in overseas France was carried out in La Réunion. The methodology of the 2010 survey is detailed in a previous publication [8] and the protocol of the 2020 study is published in a repository [10].

Study population

The sample of deaths derived from death certificates provided by The Regional Health Agency of La Réunion and the CépiDC (French National epidemiological centre for death certificates) for other overseas France. Physicians were identified by extracting their details from death certificates and were sent the survey as a paper self-questionnaire. All deaths from any cause and at any location over a one-year period (March 2020-February 2021) were retained except those certified by medical examiner, on-call network, and over the upper limit of deaths per physician we set.

Data collection

Data were collected in four months waves to limit recollection bias between death and survey. Due technical problems, wave 3 for French Guiana was cancelled.

Physicians used a pre-stamped envelope to return one completed questionnaire per decedent, with up to four decedents per physician and per wave (no limit for head of hospital departments). Returned questionnaires were processed by a trusted third party, following a protocol similar to postal vote [10] that ensured anonymity of both the physician and the decedent. Participation was maximised by one to three mailed (surface mail and emails) and one phoned reminders.

Questionnaire and variables

The questionnaire [10] covered the same themes as in the 2010 study [8], including characteristics of deceased persons and certifying physicians, place of care and medical decisions at the end of life. New questions were added on medical decisions following the passing of the 2016 law [9] that introduced a right to continuous deep sedation until death, and on social context including religion and family environment [11] that might modify the decision-making process in overseas France.

The questionnaire included a multiple-choice question on medical decisions with six possible decisions: (a) all possible measures were undertaken to prolong life; (b) at least one treatment was withheld; (c) at least one treatment was withdrawn; (d) symptomatic treatment was intensified (higher doses of opioids, benzodiazepines and/or any other treatment); (e) continuous deep sedation until death was performed, and (f) a drug was administered to deliberately end life.

Decisions b, c and d opened to a further multiple-choice question on whether the physician knew beforehand the decision could hasten death, intended to hasten death, or assumed posteriorly the decision hastened death.

These decisions are not mutually exclusive, and the combination of these decisions is one of the outcomes we investigated.

Missing values were computed as missing except for medical decisions where missing values were computed as no decision. Given the nature of decisions (i.e. potentially hastening death), we assumed that if such a decision was made, physicians would be aware of it even if they did not take the decisions themselves and therefore when the yes box was not ticked, we assumed the decision had not been made.

Deaths were classified as either informed if physicians could report on end-of-life care, or uninformed, mostly when physicians had known the patient for a short or no time. In this study, informed death and sudden deaths were analysed in the results on participants' characteristics, whereas only informed deaths could be analysed in terms of medical decisions.

For the comparative part with 2010 mainland France, the methodology is similar [8] with the exception of the question on deep and continuous sedation that was not asked as it is new with the 2016 law.

Statistical analysis

The data set was weighted and standardised using a bounded logit calibration by sex, age, place of death, period of data collection and French overseas departments to account for territorial disparity in response rate and to ensure representativeness of 2020 deaths in these territories.

Categorical data were described using non-weighted frequencies and weighted percentages. Frequencies of decisions for 2010 and 2022 surveys were compared using 95% confidence interval.

Cross tabulations were performed using SAS statistical software version 9.4.

Results

Characteristics of the population under study

As presented in Fig. 1, 12 895 deaths occurred in the inclusion period, of which 8 730 were investigated. Among them, 4 010 took place in La Réunion, 2 255 in Guadeloupe, 2 041 in Martinique and 424 in French Guiana. A total of 1 815 questionnaires were returned by certifying physicians, including 1 014 from La Réunion, 349 from Guadeloupe, 374 from Martinique, 61 from French Guiana, and 17 with missing data on overseas France. The overall response rate is 22.9% in total, varying from 15,4% in French Guiana to 28,3% in La Réunion [12], with a total of 1407 questionnaires collecting data on informed deaths.

Decedents' characteristics were presented in Table 1a. Decedents were mostly male (53.6%), aged 70 and over (66.4%) and from urban areas (49.7%). Deaths occurred mostly at home (45.7%) and were non sudden (61.6%). Cognitive impairment was reported absent in 44.5% of deaths and severe in 26.4%.

The most reported main causes of death were cancer in 26.6%, cardiovascular disease in 24.6%, neurological or cerebro-vascular disease in 15.5%, infectious disease in 11.8%.

Reporting physicians' characteristics were presented in Table 1b. Physicians were mostly female (54.9%), aged under 40 years (40.9%), general practitioners (50.7%) and employed (63.7%) rather than in independent practices. More than half of physicians reported no training on end-of-life care (59.5%), while 24.6% reported graduate training and 15% post-graduate training on end-of-life care.

Description of all end-of-life medical decisions in overseas France

Overall, 1 407 deaths were included: 325 (22.6%) were sudden and 1 082 (77.4%) were informed deaths. Medical decisions were presented in Table 2, with 2 064 decisions for the total of informed deaths. Decisions to withheld or withdraw treatments were made in 40.6% and 14.9%.

The decision to prolong life was made in 34.8% of deaths. For almost a third of patients (38.9%), the treatment for pain or symptoms with opioids and/or benzodiazepines was intensified. In 13.3% of cases, deep and continuous sedation until death was implemented. The use of drugs to deliberately end life was mentioned in 1.3% of deaths.

Description of overlapping decisions

Types of decisions and their overlapping were shown in Fig. 2. At least one decision was made in 61.6%, among which one or two decisions were made in 43.0%, three decisions in 11.7%, and four to six decisions in 6.0%.

Figure 3 shows the main causes of deaths in different combinations of decisions: only decisions to prolong life,

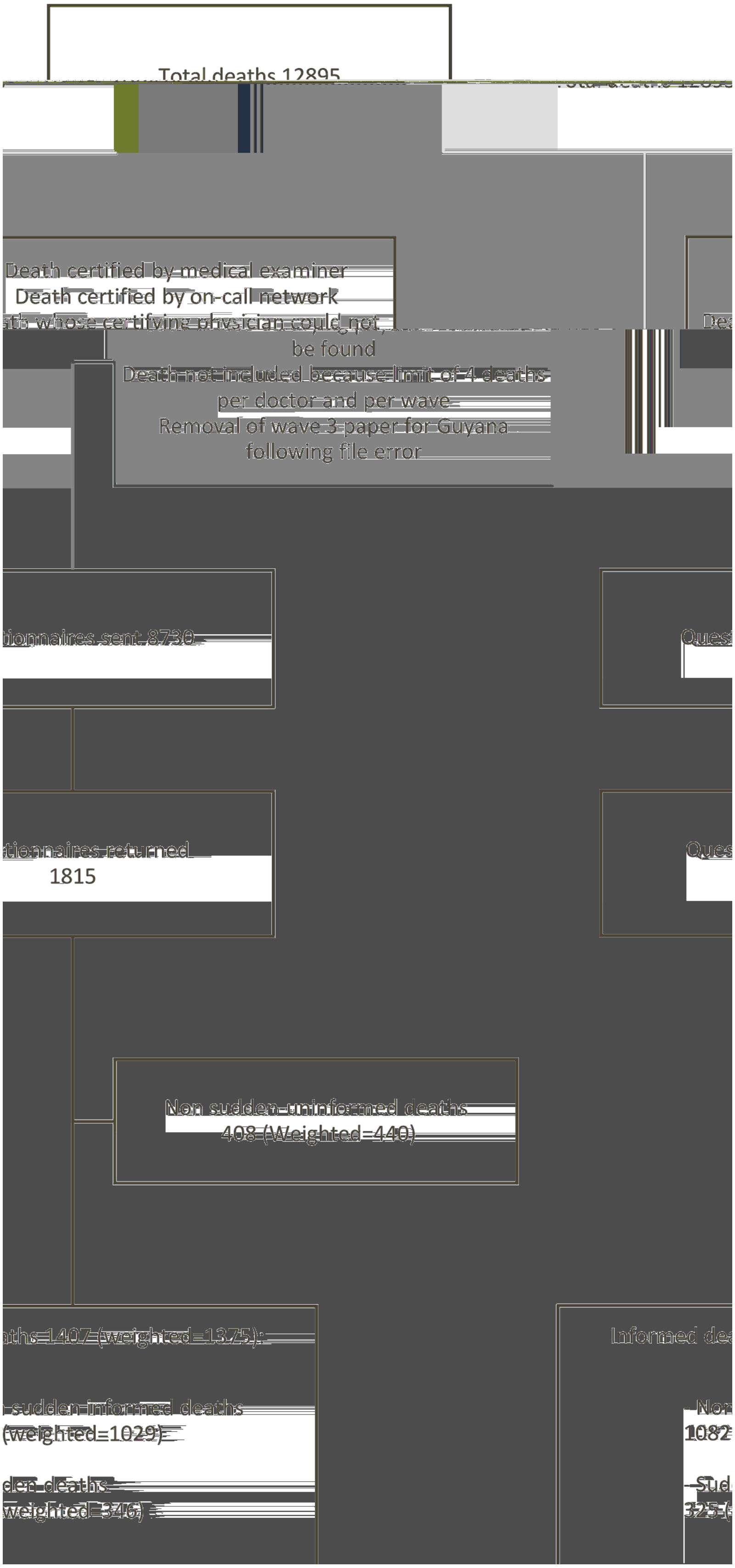


Fig. 1 Flow chart of data collection and sample

Table 1a Characteristics of deceased persons (deaths)

	Deaths	
	N	Weighted %
All	1407	100.0
Sex of decedent		
Male	748	53.6
Female	652	45.9
Missing values	7	0.5
Age of decedent		
Under 40	42	3.3
40 to 59	197	13.8
60 to 69	236	15.8
70 to 79	296	20.1
80 to 89	366	25.8
90 or over	258	20.5
Missing values	12	0.9
Place of residence		
Urban area	725	49.7
Rural commune	612	44.9
Unknown	52	4.0
Missing values	18	1.5
Place of death		
At home	618	45.7
Hospital or private clinic	643	44.3
Retirement, convalescent home, care home, geriatric unit	99	5.1
Street or public place	16	2.1
Other	18	2.0
Missing values	13	0.8
Main cause of death		
Cancer	391	26.6
Cardiovascular disease	336	24.6
Neurological or cerebrovascular disease	223	15.5
Infectious disease	164	11.8
Respiratory system disease (other than cancer)	83	5.7
Digestive system disease (other than cancer)	48	3.4
Mental or psychiatric disorder	35	2.8
Violent death, other causes	111	8.4
Missing values	16	1.3
Sudden Death		
Sudden death	520	37.8
Non sudden death	877	61.6
Unknown	8	0.5
Missing values	2	0.1
Cognitive impairment		
No	642	44.5
Yes, severe	370	26.4
Yes, mild	259	18.1
Unknown	128	10.5
Missing values	8	0.5

Table 1b Characteristics of responding physicians

	Deaths	
	N	Weighted %
	1407	**100.0**
Sex of physician		
Female	772	54.9
Male	626	44.4
Missing values	9	0.7
Age of physician		
under 40	541	40.9
40 to 49	298	19.7
50 to 59	285	19.6
60 or over	271	18.9
Missing values	12	0.8
Medical specialty		
General practitioner	719	50.7
Other specialty	664	47.4
Missing values	24	1.8
Working context		
Hospital, clinic, care home	893	63.7
Independent practice	454	31.5
Hospital at home	37	2.8
Independent and hospital	8	0.7
Mixed structure	5	0.6
Missing values	10	0.7
Training in end-of-life care		
No	820	59.5
Yes, graduate training	350	24.6
Yes, in-post-graduate training	223	15.0
Missing values	14	1.0

only decisions that may hasten death (withholding or withdrawing treatments, intensification of symptoms/pain treatments, sedation), combinations of both, and no decision.

When only decisions that may hasten death were made, cancer was over-represented (47%) whereas infectious or cardiovascular diseases were under-represented (9% and 12% respectively). As a contrary, when no decision was made, cardiovascular diseases were over represented (39%) whereas cancer was under represented (16%). Predictability of death may influence the ability of physicians to identify palliative situations and facilitate their engagement in advance care planning.

Cancer deaths were less commonly associated with combinations involving life prolongation.

When both types of decisions were made, infectious diseases were over represented (23%) which might be COVID-related.

Comparison of results of 2022 overseas France and 2010 mainland concerning decision and their intentions

Intensification of pain and symptoms treatments knowing they possibly hasten death was more frequent in 2022 (38.9 [35.7–42.0] and 33.7 [32.3–35.2] than in 2010. As deep and continuous sedation was only introduced by law in 2016, it does not appear in 2010 decisions but is found in 2022 (Table 2), but without prejudice to other decisions. The proportion of other end-of-life medical

Table 2 Comparison of end-of-life decision and their intention between 2022 overseas France and 2010 mainland

		Overseas France 2022			Mainland France 2010		
		n	**% weighted**	**Confidence intervall 95%**	**n**	**% weighted**	**Confidence interval 95%**
Medical end-of-life practice knowing that they possibly or certainly hastened death							
Treatment withheld		450	40.58	[37.41–43.75]	1608	38.95	[37.45–40.46]
	knowing that the decision may hasten death	438	39.36	[36.21–42.51]	1539	37.29	[35.80-38.78]
	with the intention of hastening death	12	1.22	[0.46–1.98]	69	1.66	[1.27–2.06]
Treatment withdrawn		182	14.94	[12.76–17.12]	544	12.99	[11.96–14.01]
	knowing that the decision may hasten death	169	13.99	[11.86–16.12]	475	11.36	[10.39–12.33]
	with the intention of hastening death	13	0.96	[0.40–1.51]	69	1.62	[1.24–2.01]
Intensification of treatment to alleviate pain and/or symptoms *		444	38.86	[35.73–41.99]	1401	33.73	[32.27–35.18]
	knowing that the decision may hasten death*	425	37.36	[34.25–40.46]	1344	32.35	[30.91–33.79]
	with the intention of hastening death	19	1.50	[0.78–2.23]	57	1.38	[1.02–1.74]
Deep and continuous sedation until death		158	13.31	[11.17–15.46]			
Use of drugs to deliberate end life		17	1.32	[0.64–2.01]	36	0.92	[0.62–1.22]
	at patient's request	5	0.35	[0.04–0.67]	10	0.26	[0.10–0.4]
Medical decision without any intention regarding death							
	Treatment withheld	84	8.09	[6.28–9.90]	329	7.93	[7.10–8.77]
	Treatment withdrawn	19	1.33	[0.71–1.94]	89	2.09	[1.66–2.52]
	intensification of treatment to alleviate symptoms with medication with opioids or benzodiazepines	114	11.47	[9.30-13.64]	395	9.42	[8.53–10.32]
	intensification of treatment to alleviate symptoms with medication other than opioids or benzodiazepines*	22	2.00	[1.11–2.88]	199	4.87	[4.20–5.53]
Life prolonging treatment		398	34.83	[31.78–37.88]	1554	36.96	[35.47–38.44]
None of the investigated decisions		176	17.68	[15.12–20.23]	735	18.75	[17.52–19.97]

decisions was not significantly different, suggesting similar decisions were made before death.

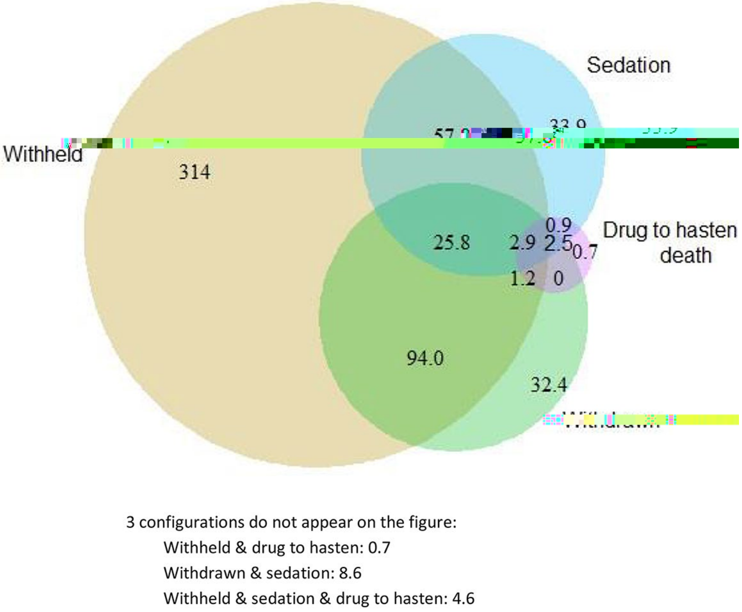
Discussion

Main findings

This study was the first to investigate end-of-life decision making in overseas France and to compare with mainland France.

The frequency of medical decisions in this study illustrates the most likely chronology of decision-making when facing predictable death, where intensification of symptom treatment and treatment withholding come first, followed by treatment withdrawing and by sedation if previous measures were insufficient. Most decisions were made knowing their association with death, suggesting they were based on proper ethical deliberations and only a few are taken with the intention of hasten death. Deliberately hastening death with the use of drugs remained anecdotal.

High standards of care appear to be ensured in overseas France through a thorough adaptation of care provision to socio-cultural differences. The comparison with mainland data [7] shows similar decision making in both settings despite differences in provision of care, including a higher prevalence of home death, a lower provision



3 configurations do not appear on the figure:
Withheld & drug to hasten: 0.7
Withdrawn & sedation: 8.6
Withheld & sedation & drug to hasten: 4.6

Fig. 2 Decisions and their overlapping. *Note*: The N in this figure are weighted N. For 314 deaths, there were only a decision of withholding treatments; for 25.8 deaths, there were decisions of withholding, withdrawing treatments and a sedation. For clarity purpose of the figure, intensification of treatment to alleviate symptoms is not presented

of specialist and generalist palliative care, and younger physicians.

Local adaptation of care is yet performed in compliance with the law. The comparison with 2010 data shows continuous deep sedation until death, legally indicated in 2016 as a last recourse symptomatic end-of-life treatment, adds to the possible combinations of decisions without replacing other decisions.

What this study adds

- Causes and place of deaths:

Compared with mainland France [7], the most frequent main causes of deaths and their prevalence were similar in overseas France, yet with a doubled prevalence of endocrine, nutritional, and metabolic causes in overseas France.

Compared with Trinidad and Tobago [1], a comparable overseas setting, overseas France showed a higher prevalence of deaths due to cancer (26.6% vs. 18.6%) and a lower prevalence of deaths due to cardio-vascular diseases (24.6% vs. 31.9%), but with a sample restricted to home deaths in Trinidad and Tobago.

Home death was highly prevalent in overseas France and may have been slightly stimulated by hospital reorganisations to face the first outbreaks of the COVID-19 pandemic. Yet, place of death in France remained unchanged, unlike in other countries [13].

- Decisions:

Like in mainland France [7], decisions were more frequently multiple – probably consecutive – than one single decision before death.

The decision to prolong life in the last month was less frequent in overseas France than in mainland France (34.8% [31.8–37.9%] and 37.0% [35.5–38.4], respectively). This result shows a statistically non significant difference in practices that is yet scientifically relevant as it suggests a trend towards a higher use of palliative care. More medical decisions seem to be made, with less situations left without medical decisions, which suggests a higher implication of physicians in end-of-life situations [14, 15]. In addition, less life-prolonging decisions suggest a trend toward more individually-tailored decisions at the end of life and thus better palliative care practices. Cancer deaths were less commonly associated with combinations involving life prolongation, as if the prediction of deaths prompted different responses.

Intensification of symptoms treatment was equally decided in overseas France and in French speaking part of Switzerland [16], with occurrences of 38.9% [35.7-42.0%] and 39.8% [36.8-42.9%] respectively.

Directly comparing our data on decision with those in Trinidad and Tobago was not possible due to major differences in follow-up time and inclusion criteria [1].

Decisions in overseas France are therefore close to those in territories with a similar socio-economic level

Fig. 3 Main combination of decisions by cause of death

like mainland France and Switzerland, despite different societal constructs and geopolitical histories.

- Focus on continuous deep sedation until death.

Data on continuous deep sedation until death after the passing of the 2016 law [9] in France are scarce. The prevalence of continuous deep sedation until death was 13.3% [11.2-15.5%] in this study but is estimated 0.9% [0.6–1.2] in specialist palliative care services (hospital or home) [17]. This prevalence varies widely in Europe (2.5% in Denmark, 8.5% in Italy), with an increase to 18% in the Netherlands in 2015 [18]. Differences in prevalence may be explained by differences in definitions of continuous deep sedation until death [19], whose investigation should be completed by qualitative methods. Geographical isolation was no limit to law implementation into practice as showed by the frequency of continuous deep sedation until death only four years after the passing of the law.

Strengths and limitations

Our study provides the largest report of medical decisions at the end of life in West Indies, with 723 questionnaires returned reporting (Guadeloupe, Martinique) on the last month of life in various settings and first in Indian Ocean (La Réunion). A previous study in Trinidad and Tobago reported on 96 home deaths [1]. In addition, one of the main strengths of our study is the robust methodology already used in the 2010 study in mainland France [8], with a complete anonymisation method that allows us to study illegal acts as well. Moreover, the design of data collection ensured a reduced recall bias with different waves of collection to reduce the time between death and sending the questionnaire. The multi-disciplinary scientific research team was key to combining medical and demographic approaches.

A limitation to this study is a lower response than in mainland France in 2010 (22% vs. 40%), due to the postal mail method, driven by the need to investigate potential illegal medical decisions. Response rate was maximised by defining a proper order of questions in the questionnaire, with demographics first [20], but was limited by the target population (physicians usually showing lower response rates than the public [21]), a high rate of physician turnover in some parts of overseas France, and the deliberate absence of financial compensation. The period of data collection, amidst the first COVID-19 outbreaks, may also have limited the availability of physicians for unrelated research despite extensions in the response periods. A general trend toward a lower response rate to surveys over time was previously described [22], but does not lead to a nonresponse bias.

The comparative aspect of this work is limited as it compares results 10 years apart of different territories with a changed legislation. It is difficult to disentangle the reasons for differences (cultural, changes of legislation, palliative care supply…). However, the results show no major difference expressing that health and end of life issues are managed differently in Mainland France in 2010 and overseas France in 2020.

The distribution of causes of deaths in our sample is close to the latest available [4, 5] statistics on causes of death of 2020, and suggest a marginal selection bias. The main challenge was to compare populations and decisions with the existing literature because of the wide disparity in methodology and presentation of results.

Conclusion

The most frequent end-of-life medical decisions in overseas France included treatment withholding and intensification of symptom treatment, ahead of decisions to prolong life, followed by treatment withdrawing and continuous deep sedation until death. Decisions frequently overlap, illustrating the necessary re-evaluation of goals of care at the end of life. These patterns of decisions did not differ from those in mainland France in 2010, except for the emergence of continuous deep sedation until death following the proper implementation of a 2016 law. Continuous deep sedation until death developed without prejudice to other decisions, which would confirm its appropriate use as a last recourse treatment. Overall, results suggest that high standards of care are ensured in overseas France through a thorough adaptation of care provision to socio-cultural differences and geographical isolation.

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Author contributions

SPe was responsible for study design, data collection, data analysis and manuscript preparation. ML, SPo, AE and VG assisted interpretation of the data and in manuscript preparation. SPe acts as the guarantor and accepts full responsibility for the work and the conduct of the study, had access to the data, and controlled the decision to publish.All authors approve the final version of the work.

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Data availability

The survey datasets analysed in the current study are not publicly available due to its embargo until mid-2025 but are available from the corresponding author on reasonable request.

Declarations

Competing interests

The authors declare no competing interests.

Ethical approval

The research and the protocol obtained an approval from the Comité d'Expertise pour les Recherches, les Études et les Évaluations dans le domaine de la Santé (Cérees – March 2018) and an authorization from the Commission Informatique et libertés (CNIL– DR-2018-102 of May 2018). The combination of the approval from the Cerees and the authorization form the Cnil for this type of research correspond to an ethical approval.

Consent for participation

Not applicable.

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