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Views on medical assistance in dying and related arguments: a survey of doctors and nurses at a university hospital

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Abstract

Background In 2021, a survey was conducted among doctors and nurses at Landspítali Iceland University Hospital (LIUH) regarding their views on *medical assistance in dying* (MAID) and the underlying arguments, the inclusion criteria and modality of implementation. Surveys on identically defined study groups in 1995 and 2010 were used for comparison.

Methods The survey was sent to 357 doctors and 516 nurses working at LIUH. It included seven questions and several subquestions. Participants' answers were compared by profession, age group, and specialisation status. Descriptive and inferential statistics were used.

Results A total of 135 doctors (38% response rate) and 103 nurses (20% response rate) answered the survey, representing 27% of the study group. A total of 145 (61%) participants were positive about MAID, with the most common argument being patient autonomy. The 95% margin of error for this view was ±6.2%. Compared to 19% in 2010, support for MAID had tripled in 2021 ($p < 0.05$). Approximately 18% of participants did *not* support MAID of any kind, mostly due to arguments regarding preserving life or inconsistencies with the role of health care professionals. Finally, 19% of participants were uncertain of their views towards MAID, mostly due to the high level of complexity of the matter.

Conclusion Compared to previous surveys, a large increase in positive attitudes towards MAID was observed among this study population. The results revealed the reasons for participants' attitudes; weighing patients' dignity/autonomy against professionals' duty to "not to kill"/palliate and showing some differences between professions.

Keywords Medical assistance in dying (MAID), Views on euthanasia and physician assisted suicide (PAS), Health care professionals, Legal loophole, Arguments, Modality, University hospital, Iceland, Nordic country

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Introduction

Views on euthanasia among physicians and nurses working in clinical wards at Landspítali, Iceland University Hospital (LIUH) had not been surveyed for more than 10 years, and the underlying ethical arguments were unknown. In April 2021, we conducted an online survey of this study population to explore this topic. In the study, euthanasia was defined as professional *medical assistance in dying* (MAID) provided to a person who requests assistance in ending his or her life. In this study, MAID is defined as *any* medical assistance in dying (direct or indirect) from a physician, either legally permitted or made possible through some sort of impunity, including a legal loophole. MAID is an overarching term that refers to *all* medical assistance in dying, including what the European Association of Palliative Care [1] and several scholars [2–4] have defined as *euthanasia* (the direct administration of lethal drugs by a physician ("killing on request") upon "that person's voluntary and competent request") and *physician-assisted suicide* (PAS, the prescription of a lethal drug for patient self-administration upon voluntary and competent request). Since the meaning of MAID encompasses more than just these two terms, euthanasia and PAS, it better fits the scope of possibilities examined in this study and is a translation of the original Icelandic terms used (a further explanation is provided below).

At the global level, attitudes towards MAID have gradually changed since it was first legalised in a few countries around the turn of the last century [4]. Although there has been a slight increase in the number of countries that have agreed to MAID since, most countries are against it, especially in Asia and Africa, where no countries have agreed to assisted dying. By the end of 2023, the following countries had legalised MAID: the Netherlands, Belgium, Luxembourg, Spain, Portugal, Canada, New Zealand, and Colombia. In the United States (US) and Australia, states have autonomy over whether to legalise assisted dying. Since assisted dying was allowed in the US state of Oregon in 1998, 10 other states have authorised it. All of Australia's six states, which have independent legislation, have legalised assisted dying; in contrast, it continues to be prohibited in the two common territories. Examples of courts in certain countries permitting it indirectly through impunity are also known, such as in Germany from 2020 by the German Federal Constitutional Court but no legal framework for MAID is in place there [5]. In Switzerland [6] and Austria [7] assisted suicide is allowed.

The main versions of legalised MAID have the following in common: the petitioner must be diagnosed with an incurable health problem, experience unbearable suffering and fully understand the finality of the act. Upon receipt of a patient's request, two doctors are required to confirm the validity of the request. The difference between the various legal implementations is that in Benelux countries, the patient does not have to be dying, as elsewhere (<6 months expected survival in most places). Additionally, whether lethal drugs should be given directly by the physician (direct MAID), are only self-administered by the patient (indirect MAID), or a choice of either is provided varied between countries [8].

MAID is illegal in Iceland. Article 23 of the Icelandic law on patients' rights [9] stipulates that a dying patient's suffering must be alleviated and the right to die with dignity is stated in Article 24 of the same law. However, it does not refer to medically or otherwise assisted dying, as it is illegal in Iceland according to Article 213 of the 1940 Penal Code [10].

In 1995 and 2010, surveys on the attitudes of doctors and nurses at clinical wards of LIUH were carried out. LIUH is by far the largest hospital in Iceland, is the only tertiary referral centre, has all specialties, and directly serves approximately 64% of the inhabitants of the country (in Reykjavík and adjacent towns). Next in size are 6 secondary hospitals (and 5 smaller hospitals) that are distributed around the country, each serving approximately 4–8% of the population.[1] Both surveys were named "Views of Icelandic physicians and nurses towards limitation of treatment at the end of life" and were also conducted online [11, 12].[2] In Iceland, an open discussion about MAID in the medical community had barely begun at the time of the former study in 1995 but was well underway when the second survey took place in 2010. Since then, the discussion has grown and continued, including at several medical conferences in 2015 and 2016 and in journal writings, repeatedly at biannual meetings of the Nordic Medical Ethical Council since 2013 and at international medical associations, including the World Medical Association's World Congress in Reykjavík in fall 2018. The general discussion in Icelandic society has taken place rather widely, for example, at the forum of the Icelandic Ethical Humanist Association (Siðmennt) in 2015 [13], at Iceland's Right to Die Society (Lífsvirðing) since 2017, at the University of Iceland's Institute of Continuing Education in 2019, and in Iceland's Parliament (Alþingi), which produced parliamentary resolution proposals in 2016–2017 [14] and 2023 [15]. Most recently, in spring 2024, legislation supporting MAID was proposed [16].

Only a few surveys on the topic of MAID have been conducted in Iceland. Siðmennt, the Icelandic Ethical Humanist Association, conducted a general survey on MAID (carried out by Maskína Inc.) among 782

[1] Calculated from online information available at Iceland National Registry for 2021.

[2] The latter study, by Hugrún Hauksdóttir, in 2010, was a B.Sc. study essay that was not published.

Icelanders (aged 18–75) in November 2015. The results revealed that 75.9% of the respondents supported MAID, 18% were undecided, and 7.1% were opposed. However, that study was not peer-reviewed or published [13]. In addition to this general survey and our 2021 study of physicians and nurses at LIUH (and preceding studies in 1995 and 2010 on identical study groups), no other surveys on the topic of MAID had been conducted in Iceland before 2021. After we conducted our survey but before this article was published, one other survey on MAID was conducted. This survey was initiated by the Iceland Ministry of Health in May 2023 (carried out by Gallup Inc.) and included study groups of physicians and nurses. This sample was rather small (N=400 for each profession) but represented responders from a wide range of medical and nursing specialties. Among respondent (N=133, 33%) physicians, 56% were supportive of MAID, and among respondent (N=115, 29%) nurses, 86% had positive responses; however, 12% and 7% were undecided, and 32% and 7% were opposed, respectively. However, that survey was not a peer-reviewed or scientifically published study [17].

Considering the abovementioned trend in the spread of legalisation of MAID in Western countries and the continuation of the debate over the 11 years since the second survey of this study group in 2010, we decided to conduct a new survey on MAID among an identically defined study population of professionals. This time, the study was revised and deepened in content, making it more focused and in keeping with the increased awareness and knowledge of the issue. The main aim, as before, was to compare the population's attitudes towards the legitimacy of MAID and, importantly, to explore the reasons for participants' views, irrespective of their positions. This way, we could map the main lines of reasoning that had not, to our knowledge, been explored previously in Iceland or elsewhere.[3]

Within the debate on MAID, the concept itself and the choice of words for it have been discussed. The Greek word *euthanasia* can be directly translated as *a good death* and has since been interpreted as hastening the death of a patient to prevent further suffering [18]. In Iceland during the 20th century, most people used the Icelandic word "*líknardráp*" *(palliative killing)* for *euthanasia*, but in approximately 2010, the word "*dánaraðstoð*" *(assistance in dying)* was introduced, and by 2021, it was widely used in society. It was not known whether health care professionals had any preference between these terms or use other words. Therefore, both expressions were used in all texts of the survey questions to avoid bias. In the English translation, however, the acronym MAID is used here as the common denominator for both these terms, since the distinction between them in English is not necessary.

In our survey, questions and answer options included an explanation of which version was meant in each case. In this way, the research explored the participants' thoughts on the main known implementations: MAID under a high-quality legalised evaluation system or MAID permitted through a legal loophole; assisted dying for the incurably ill, suffering and dying or the chronically ill, suffering and not dying; and assisted dying through direct MAID or indirect MAID. The reason for including a MAID option as permitted through a legal loophole is that it has been advocated for by scholars who are not opposed to it in some instances but have reservations about explicitly legalising it [19, 20]. This had not been surveyed before; to our knowledge, it added some plurality to the possibilities, and it would be interesting to see if this option had any substantial following. With the additional answer option of legal loophole, we preferred to use the overarching acronym MAID instead of a combination of the term *euthanasia* (direct MAID) and PAS (indirect MAID). We did not address all possibilities of MAID (such as in combination with private organisations, lethal drugs given by a nurse, or with less strict criteria) or assisted suicide (AS) including only civilians or civil organisations.

Materials and methods

Study population and composition

The survey, *Ethical treatment issues at the end of life*, was conducted in April 2021. The targeted study population consisted of 357 doctors grouped into specialists and general practitioners and 516 nurses grouped into general practitioners and nurses with a speciality (Table 1). These were all the employed doctors and nurses of the clinical wards involved in active treatment of patients at LIUH.[4] The total number of employees at LIUH in 2021 were 6177 [21]. The choice of departments was consistent with that of the previous two surveys. As a follow-up study, regarding the main question on MAID, care was taken to ensure that the study population was consistent. Since no ward for specialised palliative care existed in 1995 (a small one was established later, with few staff members) it was not included in 2010 or 2021. No criteria were set for equal proportions between professions or sexes when selecting participants. As the sex distribution

[3] Lynøe et al. [3] surveyed arguments for and against PAS among physicians in Sweden (in 2020) but did not give any direct account of its results in their publication.

[4] These wards are:11EG (haem-onc), 12B and E6 (intensive care), 12E (gastro-nephro), 12G (cardio-pulm-opthalm surg), 13EG (abd-uro surg), 14EG (cardio), 21 A (gyn), A2 (med), A4 (ENT-plastic-vascular surg), A6 (pulm), A7 (infect-med), B2 (neuro), B4 (geriatr), B5 (orthopaed), B6 (neuro-ortho surg), B7 (med), K1, K2 and L4 (geriatr) at LIUH at three locations: Hringbraut, Landakot and Fossvogur, in Reykjavík, Iceland.

Table 1 Responses to: what is your position on medical assistance in dying (MAID)?

	Doctors (σ = 357)			Nurses (σ = 516)			All (σ = 873)
	General *N* = 36	Specialists *N* = 99	All doctors *N* = 135	General *N* = 75	Specialists *N* = 28	All nurses *N* = 103	All *N* = 238
a) I do not support MAID of any kind	4 (11%)	29 (29%)	33 (24%) [a]	8 (11%)	2 (7%)	10 (10%)	43 [b] (18%)
b) I support MAID following a legitimate and responsible assessment process of the condition of the dying patient who requests it and experiences ongoing unbearable suffering	19 (53%)	38 (38%)	57 (42%)	41 (55%)	14 (50%)	55 (53%)	112 (47%)
c) I am in favour of the legislature and the health authorities opening a legal loophole for MAID for dying patients who medical professionals can, according to their professional judgement and consultation, provide quietly in humanitarian exceptional cases	4 (11%)	12 (12%)	16 (12%)	10 (13%)	8 (29%)	18 (17%)	34 (14%)
d) I am not sure/have not made up my mind	9 (25%)	19 (19%)	28 (21%)	15 (20%)	3 (11%)	18 (17%)	46 (19%)
e) Other	0 (0%)	2 (2%)	2 (1%)	1 (1%)	1 (3%)	2 (2%)	4 (2%)

N: number in sample. σ: number in the study population. The results are presented as the number (percentage %) of choices for each option

[a] There was a significant difference in the compliance of the specialist doctors with answer option a) compared to that of the general doctors ($p = 0.03$). [b] There was a significant difference in the choice of doctors compared to nurses regarding answer option (a) ($p = 0.003$). According to the combined responses to Items (b) and c), nurses (almost 71%) were significantly more likely to respond positively ($p = 0.008$) than doctors (54%)

is very unequal in the nursing profession and the personal preferences of the few male nurses might be identifiable, it was decided not to ask about sex. Information on the age distribution among the two main study groups was not available.

The survey consisted of seven questions with up to four subquestions. The only mandatory question in the survey was about which profession the participants belonged to, but participants were free to skip other questions. Age was surveyed through placement into age groups. The answers were given as multiple-choice statements, and for most questions, there was an "Other: ___" answer option, where participants could describe their opinions freely if they differed from the choices provided. Since we used in our survey the more overarching term MAID (rather than PAS and euthanasia) and investigated directly the reasons behind the views (of which we found no preceding examples of), we created the questionnaire from scratch. In its construction, we focused on placing the more important aspects first, followed by less important and more specific questions. We were not interested in degrees of agreement or disagreement, so we did not use Likert-type scaling. The questionnaire was written in a way that could be easily understood by people with its targeted professions. For better content validity and clarity, an expert opinion was sought from one experienced philosopher and one scholar in Icelandic outside the research group. It was also reviewed by an ethics committee (see below). The full range of questions in the questionnaire are provided in Tables 1, 2, 3, 4, 5 and 6 and in a supplemented spreadsheet that also includes the survey data.

Implementation

After permission was obtained from the Ethics Committee for Administrative Research at Landspítali (paper no. 5/2021, approved 23.03.2021), an information letter and a link to the survey was sent by e-mail to the participants. A repeat reminder e-mail was sent three times. The online survey *Limesurvey 1.92+* format was used. Participants provided informed consent prior to taking part in the survey. No cancellations of participation were received during the active study time or until the writing of this article. Participants' responses were not accompanied by any personally identifiable information.

Statistical processing

The *R* and *Microsoft Excel* programs were used. The chi-square test was used for statistical calculations of two-sided and noncontinuous variables for which a p value < 0.05 indicated a significant difference. Margins of error were calculated for the *yes*-results of the sample groups for the main response items with confidence level at 95%, assuming normal distribution. The participants'

Table 2 Responses to: "What is your attitude towards MAID?" By age group, regardless of profession

Age groups (years):	**20–39** ***N*** **= 81**	**40–59** ***N*** **= 114**	**≥ 60** ***N*** **= 43**	**All** ***N*** **= 238**
a) I do not support MAID of any kind	9 (11%)	19 (17%)	15 (35%)	43 (18%)
b) I support MAID following a legitimate and responsible assessment process of the condition of the dying patient who requests it and experiences ongoing unbearable suffering	42 (52%)	57 (50%)	13 (30%)	112 (47%)
c) I am in favour of that the legislature and the health authorities open a legal loophole for MAID for dying patients who medical professionals can, according to their professional judgement and consultation, provide quietly in humanitarian exceptional cases	10 (12%)	15 (13%)	9 (21%)	34 (14%)
d) I am not sure/have not made up my mind	20 (25%)	21 (18%)	5 (12%)	46 (19%)
e) Other	0 (0%)	2 (2%)	1 (2%)	3 (2%)

N: number in sample. The results are presented as the number (percentage %) of choices for each option

Table 3 Participants' chosen reasons why they did "*not* support MAID of any kind"

Participants who chose that they did not support MAID of any kind	**Doctors** ***N*** **= 33**	**Nurses** ***N*** **= 10**	**All** ***N*** **= 43**
Dying people in existential angst should receive the best palliative care available, and this is how health professionals can best help them.	25 (76%)	5 (50%)	30 (70%)
Killing people is not in line with the goals of nursing or the medical profession.	21 (64%)	5 (50%)	26 (60%)
The risk is that people feel compelled to ask for assisted dying due to difficult circumstances or pressure from others/society.	21 (64%)	3 (30%) [a]	24 (56%)
It can never morally be the patient's right (and the doctor's duty) to be assisted in dying before the event of natural death.	11 (33%)	7 (70%) [b]	18 (42%)
All systems make mistakes. Death is final, so a potentially wrongly decided euthanasia cannot be reversed. It is a too steep of a price.	13 (39%)	4 (40%)	17 (40%)
The sanctity of life is unquestionable. No one should shorten a person's life under any circumstances.	3 (9%)	1 (10%)	4 (9%)
Other:	3 (9%)	0 (0%)	3 (7%)

N: number in sample. The results are presented as the number (percentage %) of choices for each option

Participants could choose one or more reasons

[a] There was an almost significant difference ($p = 0.06$) between professions, but the sample size decreased among the subgroups. [b] Between the professions, there was a significant difference ($p = 0.04$) in favour of this reason

Table 4 Participants' choice of reasons for supporting MAID for dying patients through a legitimate process

Participants in favour of legalised MAID	**Doctors** ***N*** **= 57**	**Nurses** ***N*** **= 55**	**All** ***N*** **= 112**
Dying people in existential agony and in an unbearable condition should be able to choose between palliative treatment or being allowed to request assisted dying within the framework of a safe arrangement.	32 (56%)	33 (60%)	65 (58%)
Autonomy over one's own life to the fullest is one of the most important moral values of every person. A request for assisted dying is a request for help in dying on your own terms, with dignity and at your own time.	30 (53%)	33 (60%)	63 (56%)
Life is the last value of people, but in view of dying and suffering unbearably, assisted dying can be the last good that the requestors wish for from the health care system.	21 (37%)	28 (51%)	49 (44%)
Killing a person is not the goal of health care, doctors or nurses, but MAID is at the request of the dying person and never advised by health professionals. In the eyes of the one who asks, it is a beneficence, not a wrongdoing.	22 (39%)	19 (35%)	41 (37%)
Even though dying people may not have a legal or moral right to have doctors/nurses provide them with MAID, a system of MAID with the optional involvement of health professionals may be justified.	20 (35%) [a]	11 (20%) [a]	31 (28%)
Reasons are not of main importance, but that a solid option for MAID is available for those people who want it and they do not have to be ashamed or in anguish by not being able to look anywhere for it.	6 (11%) [b]	20 (36%) [b]	26 (23%)
The risk of abuse of the solid arrangements of systems around MAID is negligible. Requests must be repeated and evaluated by two doctors.	10 (18%)	10 (18%)	20 (18%)
Other:	2 (4%)	2 (4%)	4 (4%)

N: number in sample. The results are presented as the number (percentage %) of choices for each option. Participants could choose one or more reasons

[a] Not significantly different ($p = 0.07$). [b] Significantly different ($p = 0.003$) between the professions (mostly because general nurses (17 of 20 nurses) were in favour of this). There was no other statistically significant difference in the responses of respondents between the professions

Table 5 The results of subquestions about the conditions, duties, and issues in the implementation of MAID for those participants who were in favour of legalised MAID

Participants who were in favour of legalised MAID	Doctors *N* = 57	Nurses *N* = 55	All *N* = 112
Regarding the health status of a patient requesting MAID	*N* = 57	*N* = 49	*N* = 106
Only dying patients can be involved	27 (47%)	30 (61%)	57 (54%)
In addition to the dying, there may be chronically ill people in unbearable existential anguish	30 (53%)	19 (39%)	49 (46%)
About choices, rights, or obligations	*N* = 53	*N* = 50	*N* = 103
A patient should have the right to MAID and, consequently, the doctor/health care system has a corresponding duty to perform it.	1 (2%)	12 (24%)	13 (13%)
A patient should have the right to request MAID but not a direct right to have it performed (and therefore the doctor/health care system has no duty to it). Medical assistance in dying should be optional.	52 (98%)	38 (76%) [a]	90 (87%)
About implementation	*N* = 53	*N* = 51	*N* = 104
The patient's physician directly intervenes and performs the euthanasia itself.	7 (13%)	7 (14%)	14 (14%)
A doctor gives a prescription for a lethal drug that the patient takes himself.	11 (21%)	10 (20%)	21 (20%)
A doctor can either perform the euthanasia or issue the prescription.	25 (47%)	22 (43%)	47 (45%)
Other:	10 (19%)	12 (24%)	22 (21%)

N: number in sample. The results are presented as the number (percentage %) of choices for each option

One answer was allowed for each question

[a] Here, a significant difference was found between the professions ($p < 0.05$). There was no significant difference in other response items

Table 6 Results of the participants' reasons for uncertainty about attitudes towards MAID

	Doctors *N* = 28	Nurses *N* = 18	All *N* = 46
The issue is morally complex, and I will reserve judgement on it for now.	24 (86%)	14 (78%)	38 (83%)
There is a lack of discussion among Icelandic health professionals and/or health authorities.	5 (18%)	12 (67%) [a]	17 (37%)
I have not been able to familiarise myself with the matter well enough.	2 (7%)	2 (11%)	4 (9%)
I have felt that there is a lack of meaningful and good information about the matter.	1 (4%)	2 (11%)	3 (7%)
Other:	3 (11%)	1 (6%)	4 (9%)

N: number in sample. The results are presented as the number (percentage %) of choices for each option. Participants could choose one or more reasons

[a] Significantly more nurses chose this answer than doctors did ($p < 0.05$)

answers were compared according to profession, age, and level of education (general or specialist education). A Z-test was used to compare the data with those of previous surveys. The minimum number of subjects for adequate study power, was calculated, assuming the difference (in proportions) of the *yes*-results of the main question between the current and last survey, an alpha error of 0.05 and a power (1-β) of 90%.

Results

Answers were received from 135 out of 357 doctors in the study population (37.9%). The respondents included 36 general practitioners and 99 specialists. From the nurses, a total of 103 responses (19.9%) were received out of 516, comprising 75 from the general group and 28 from nurses with a speciality. Thus, the total number of participants was 238 (Table 1). Together, the response rate was 27.2%, which was considerably lower than that in previous surveys on identical study groups; in 2010, it was 48.6% (48.3% nurses and 48.9% doctors) and, in 1995, 55.3% (51.9% nurses and 59.8% doctors).

The participants were asked about their attitudes towards MAID. Five answer options were given, in addition to an open answer option (Table 1).

Option b) of legalised MAID for dying patients was most often chosen (47%) by both the doctors (42%) and the nurses (53%). More general practitioners (53%) than specialists (38%) chose option b), but the difference was not significant ($p = 0.13$). Over 14% of the participants were in favour of MAID according to answer c) about the legal loophole. Nurses with a speciality chose it relatively more often (29%) than did general nurses (13%), and the difference was almost significant ($p = 0.07$).

Positive responses to MAID according to options b) and c) were chosen by 54% of the doctors and 71% of the nurses, for an average total of 61%. Significantly more nurses than doctors were positive ($p = 0.008$). The calculated 95% margin of error for this result was ±8.4% for doctors, ± 8.8% for nurses and ±6.2% overall.

Option a), i.e., "I do *not* support MAID of any kind", was chosen most often (29%) by specialists, and there was a significant difference ($p = 0.03$) between them and general practitioners, who chose it much less often (11%).

Significantly more doctors (24% overall) than nurses (10%) were *not* in favour of MAID of any kind ($p=0.003$).

The age distribution of both physicians and nurses, in percentages, was as follows: 20–39 years old; 34 (28, 43), 40–59 years old; 48 (50, 47), and 60 years or older; 18 [13, 22]. Of the participants aged 60 and over, 35% did *not* support MAID of any kind, compared to 11% of the participants aged 20–39 ($p<0.05$) (Table 2). The responses by age group showed that the youngest two age groups had significantly more positive attitudes towards MAID than did the oldest age group ($p<0.05$). Compared with older people, younger people were relatively more likely to be unsure of their attitudes towards MAID, but this difference was not significant ($p=0.08$). There was no significant difference between the answers of the two youngest age groups; thus, the oldest group stood out the most.

Participants aged 60 and over chose the answer options (a) significantly more often and (b) significantly less often than did those in the other two age groups ($p<0.05$). Twice as many people between the ages of 20 and 39 chose d) (25%) compared to 60 and over (12%), but the difference was not significant ($p=0.08$). There was no significant difference in the frequency of responses ($p>0.05$) from a) to e) between the two younger age groups.

Participants who said they did "*not* support of MAID of any kind" were asked a subquestion about the reason for their position, where they had the opportunity to choose up to six answer options or to provide a reason in writing (Table 3). Most of those who were *not* in favour of MAID agreed on the reasons related to the goals of the profession of *relieving suffering* (70%) and *not killing* (60%). However, nurses (70%) most often emphasised that *assisted dying could never morally become the right of the patient and the duty of the doctor*, which was the fourth most common choice overall. This percentage was significantly greater than that for doctors (33%) ($p<0.05$). The doctors chose that *people might feel compelled to ask for assisted dying* in 64% of cases, which was close to significantly more often ($p=0.06$) than for the nurses (30%). Three participants (7%) chose the option "Other" and were able to report their reasons in writing. One participant stated that he or she was "actually not completely opposed to MAID but could not think of providing it themselves". Another participant said that "individuals who request MAID do so mainly so as not to become a burden on their loved ones". The third participant's comment was off topic.

The participants (47%, answer b) in favour of legalised MAID for people dying or suffering, according to a high-quality process, received four subquestions. The first one gave them the opportunity to explain the reasons for their position, where they could choose up to seven options and/or report their position in writing under "Other" (Table 4). The only significant difference ($p=0.003$) between nurses (36%) and doctors (11%) was in the frequency of choices of; *Reasons are not of main importance, but that a solid option for MAID is available for those (dying) people who want it and they do not have have to be ashamed or in anguish by not being able to look anywhere for it.*

The other three subquestions asked about the attitudes of the supporters of the abovementioned MAID towards the "health status of a patient requesting MAID", about "choices, rights or obligations" and about "implementation" (Table 5).

One answer was chosen for each question. Approximately half (54%) of the participants (regardless of profession) believed that legalised MAID "should only apply to dying patients" and not to "chronically ill people in unbearable existential anguish". Most participants (87%) believed that MAID "should *not* be mandatory in the health care system". Regarding implementation, nearly half (45%) believed that a doctor could *either* perform euthanasia (direct MAID) or issue a prescription (indirect MAID), but 14% chose the former and 20% the latter, as the only allowed options. The remaining 21% ($N=22$) of respondents chose "Other", marking the only instance where "Other" was used by more than a few participants. For those choosing "Other", 8% were unsure of the modality that should be used; 6% added nurses as possible administrators of MAID; 2% said that the *treating* physician should not administer MAID; 2% said the patient should not keep lethal medication at home because of safety hazards; 1% said that no physicians should be involved in administering MAID; and 3% left comments that were off topic.

Participants who said they were unsure of their attitude towards MAID were asked a subquestion about the reason for their uncertainty (Table 6).

Participants could choose one or more answer options or write their own answer under "Other". Most participants who were uncertain about their position on assisted dying chose the reason that "the issue is morally complex, and they postponed judgement on it for the time being" (83%). This view stood out among doctors (86%) compared to other answer options they chose (18% or less). However, among nurses, a "lack of discussion among Icelandic health professionals and/or health authorities" was chosen almost as often (67%) and significantly more often than among doctors (18%) ($p<0.05$).

Discussion

In the survey, 61% of participants were in favour of at least one of the two options for MAID. The participants who followed either a legitimate process (47%) or a legal loophole (14%) (Items b) and c) are shown in Table 1. The number of those who would select the latter option was

unknown before the study; however, it proved to be a substantial portion of the *yes*-sayers (almost one-fourth, 23%). Most surprising was the increase in followers of MAID up to a rough majority.

Comparison with the 1995 and 2010 surveys with an identical study population

Answer options b) and c) (Table 1) were classified as responses in favour of MAID because, for both answers, the respondents considered medically assisted dying justified under some circumstances. A substantively similar question in the 1995 and 2010 surveys reads as follows: Does the participant "consider it justified under some circumstances to euthanise a mentally capable patient with an incurable disease, if he requests it?" This is semantically equal to the content of answer options b) and c) combined, except that medically assisted dying is specified with the additional condition of "persistent unbearable suffering" in option b). Whether that affects the selection rate of this choice cannot be determined, but the additional condition narrows the choice (making non or intermittent sufferers of unbearable pain non inclusive) while it might draw empathic attention to suffering; thus, it can potentially work both ways.

Let us dwell a bit on this issue of wording. In an experimental survey, that was applied to a general population sample in Norway, Magelssen et al. studied if difference in wording affected support among survey responders for PAS or euthanasia. Their results showed that if wording of questions focused mostly on concepts, as in "Physician-assisted suicide should be allowed for persons who have terminal illness with short life expectancy" it received significantly less support (lower mean of 1–5 point Likert scale: 3.78) than if wording was focused on more descriptive topic related context, as in "A dying patient is in great pain. To what degree are you in agreement or disagreement with the statement that a doctor, after careful consideration, and upon the patient's request, should be allowed to prescribe a lethal drug dose that the patient can choose to take to avoid great suffering?" (with a mean of 4.11 in Likert). Authors explain that the contextually focused version portrays a more individualised image that can evoke responders' sympathy, while at the same time underscores the rationale for their choice [22]. When comparing our main question on MAID, between 1995/2010 and 2021 (Table 1: Option b) "I support MAID following a legitimate and responsible assessment process of the condition of the dying patient who requests it and experiences ongoing unbearable suffering" (2021) compared to "Do you consider it justified under some circumstances to euthanise a mentally capable patient with an incurable disease, if he requests it?" in 1995/2010), the conceptual vs. contextual difference in wording, is not to the same extent as the two versions in the study of Magelssen et al. Both have contextual focus, where the former is less contextualised than the latter. If this difference had any significant effect on the *degree* of support for MAID (had we used Likert scale), we don't know if it would have resulted in a significant change in a categorical outcome such as ours. Perhaps it might have, to some extent, but using a more generalising conceptual focus would have made the choices less clear and perhaps have opened more (or other) post study doubts over content validity (such as clear understanding of choices) than the somewhat more specific contextual version we used. Our purpose of adding to the contextual specificity was not to make the choice more emotionally evoking, but to make them more akin to the commonly accepted legal conditions for MAID around the world. A better-informed choice can hardly be considered biased in the sense that it is skewed from an *actual* opinion of a person – if defined by its optimal circumstances as a well-considered, objective and independent view, free from misinformation and distractions.

In 1995, 16 out of 184 participants answered *yes* to the question (9%) [10], while in 2010, 54 out of 278 (19%) answered *yes* to the question [11]. In the current survey, 146 of the 238 participants answered *yes* (61%) (Fig. 1).

There was a significant difference between the positive responses to MAID in the first (9%) and second surveys (19%) compared to the current survey (61%) ($p<0.05$). The same was true for the difference between the 2010 and 2021 surveys in the percentage of positive responses from nurses (20% and 71%, respectively, $p<0.05$) and doctors (18% and 61%, respectively, $p<0.05$)

The sample population was much smaller (27.2%) now than in 2010 (48.6%). This decrease in the response rate is mainly caused by a decrease in the number of nurses (from 48.4 to 19.9%), while the decrease in the number of doctors (from 48.9 to 37.9%) is similar to what has been observed, for example, in an online survey of physicians in Canada (35%) [23]. However, in a recent Finnish survey in 2020 among physicians on MAID, the response rate was lower (24%) [2]. This is not necessarily the case among other classes (average 44%) [24] and the opposite was the case in a Norwegian survey in 2016 on euthanasia/PAS among physicians (73.1% response rate) [25] and little less in Sweden in 2020 (59.2%) [3]. We do not know why the response rate among nurses dropped so much (by 28.5%) compared to 2010 at LIUH. In comparison, a survey conducted among clinically engaged nurses in 2017–2018 from four hospitals and one home care district in Norway had response rate of 28% [26]. There may be many additive reasons in our study of which we do not have any evidence. This study revealed that significantly more ($p<0.05$) nurses (67%) than doctors (18%) in the group of respondents who were undecided about MAID felt that "there is a lack of discussion among Icelandic

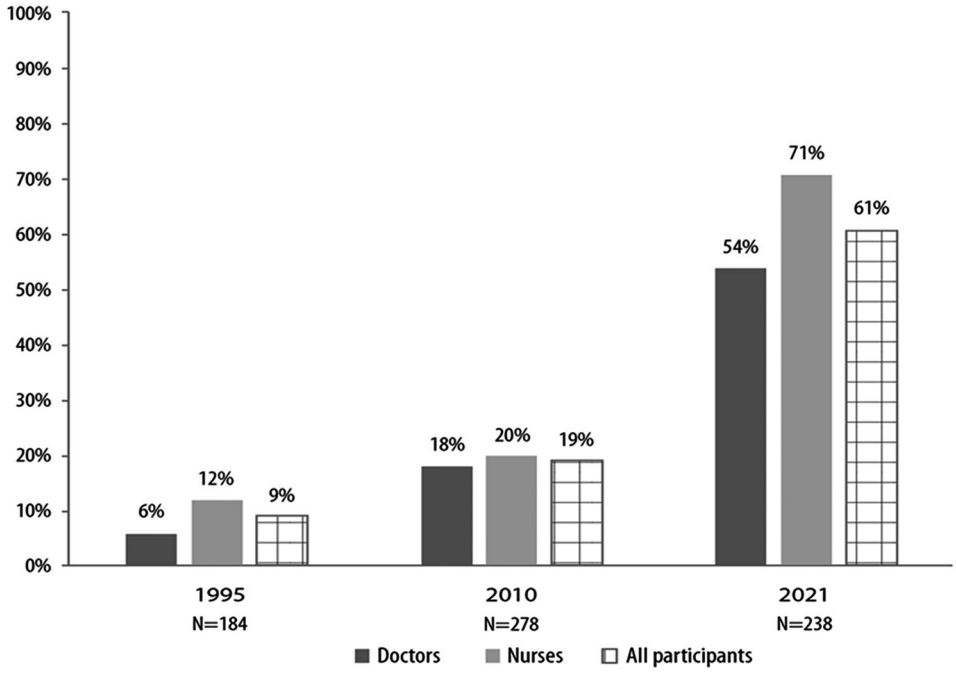

Fig. 1 Changes in positive attitudes towards medical assistance in dying among doctors and nurses at LIUH. N: number of participants. Results are shown in percentages of doctors (dark), nurses (grey) and total participants (gridded) [11, 12]

health professionals and/or health authorities" (Table 6). This may have played a part in decreasing interest in the topic among nurses, but it is speculative. The nurses who participated were undecided (19%) as much as the doctors were (21%), so undecidedness is somewhat unlikely to play a part, although transferability of this equality to the group of nonresponders is not given.

Nonetheless, the statistical power of the sample was sufficient to detect a statistically significant difference in the frequency of *yes* answers between the studies (2010 and 2021), ranging from 18 to 54% for doctors and from 20 to 71% for nurses [11, 12]. There was a significant difference in the rate of *yes* answers between the professions in the study population ($p<0.05$), which was not the case in 2010 [12].

Besides the additional condition of unbearable suffering in the main question of the current survey (2021), participants were asked if they supported MAID either through a legal process (option b) or through a legal loophole (option c). It can be assumed that the participants who chose option c), accept the validity of certain cases of MAID but are not ready to legalise them as a medical act. Since this possibility was not specifically mentioned in the 1995 and 2010 surveys, it may be that this choice has opened more space for positive attitudes. This cannot be discerned. However, if only answer option b) is classified as a *yes* answer, a significant increase ($p<0.05$) in positive attitudes can still be observed, both among doctors (42%) and nurses (52%), for a total of 47%, compared to 19% in 2010 [12]. In comparison to three Nordic surveys, an increase in the positive attitude of doctors towards legalised PAS, from 34.9% (2007) to 47.1% (2020), was observed in Sweden [3]. In Norway, in 1993, euthanasia had support from 17% of respondents, compared to 25.1% in 2016 (or 30.7% for PAS) but since formulation of questions and definitions were different between the two studies, their results were not compared further statistically [25]. There was no significant change in attitude among Finnish doctors between 2013 and 2020, from 46% (2013) to 49% (2020) [2]. We cannot know if our survey would have been answered differently if MAID had been divided into two terms: PAS and euthanasia (as defined earlier). We have no reason to believe it would. The wording of what MAID meant was clear, and this simplified the main question before a subquestion addressed the choices that are equivalent to euthanasia and PAS. This simpler approach is more likely to increase the construct validity of the questionnaire. Euthanasia or PAS are different modalities of MAID, not the main categorical issues (such as the sanctity of life, autonomy or dignity) for the ethical justification of legalisation or rejection of it. However, MAID might have been rejected if euthanasia (direct assistance) was the *only* legal option offered, since some physicians or nurses might take the principled stance that the final responsibility and act should be shouldered solely by the requesting patient him- or herself. We did not ask about this kind of one-way or no way view. Moreover, such a view might be limited to a physician him- or herself, so he or she would not mind that other physicians could deliver

euthanasia. We have not come across a survey, after the year 2000, that asks about euthanasia as the only option. Such an approach would not cover the known scope of modalities that are under MAID.

Reasons for the position on MAID

The main question of the survey and its subquestions dealt with attitudes towards MAID and the underlying reasons and arguments. The reasons of those in favour of MAID were often related to factors involving the patient, such as suffering (58%), autonomy (56%) and last wishes (44%), rather than to the health care professional as the acting agent (Table 4) (act of beneficence 37%, optional involvement 28%). Of note, nurses chose significantly more often (36%, $p=0.003$) than doctors (11%) that, irrespective of reasons, dying patients should be dignified with a solid option of MAID and "not have to be ashamed or in anguish by not being able to look anywhere for it". This seems to suggests that, besides the value based objective moral reasoning most often chosen, nurses had more supporters of subjective based (e.g. by virtue of empathy) ethical reasoning than doctors. Otherwise, the frequency of choices of reasons were similar between the professions. According to the official report of the state of Oregon on MAID, from 1998 to 2021 ($n=2159$), three reasons were most often chosen among recipients for selecting the service: loss of autonomy (90.9%), reduced ability to perform activities to enjoy life (90.2%) and loss of dignity of life (73.0%) [27]. These patient-based reasons align with the reasons given by those who chose *yes* among the health care professionals in this survey.

The reasons given by those who were *not* in favour of MAID of any kind were related to the health care system and the responsibilities of the profession (Table 3). One of the most common reasons was that health care professionals can best help dying patients in existential anguish by providing them with the "best palliative care available" (70%). Another common argument was that "killing people is not in accordance with the goals of nursing or the medical profession" (60%). It is also possible to distinguish participants' adherence to specific fundamental principles, such as sanctity of life, which was chosen by 9% of this group. Of note, doctors chose the argument that "the risk is that people feel compelled to ask for medically assisted dying due to difficult circumstances or pressure from others/society" ($p=0.06$) more often (64%) than nurses (30%) (Table 3). In the Oregon State report, service recipients cited being a "burden on family, friends, or caregivers" as a contributing factor 48.3% of the time. This indicates that in approximately half of the cases, the dying not only wanted to be in control of the time and place of their death (92.8% died at home) but also wanted to ease the burden on their loved ones [27]. This aligns with the *slippery slope* argument, which, for unknown reasons, is more emphasised by doctors than nurses in our survey. Nurses, on the other hand, placed significantly greater emphasis on the moral inappropriateness of MAID as a right and duty in the health care system (70%) than did doctors (33%, $p=0.04$).

Implementations of assisted dying practices

In response to the question "Regarding the health status of a patient requesting MAID" (Table 5), there was no significant difference between the choice of participants as to whether MAID should be an option for *both* the dying *and* chronically ill (and suffering) non-dying people (46%) and those who selected that it should *only* be for dying patients (54%). In this way, we can distinguish a certain liberality towards MAID implementation where the legislation is more extensive (comparable to the Benelux countries [28]). This result was not expected based on how little support there was for MAID among the study population in 2010. On the other hand, it was not surprising that the doctors were decisive (98%) in their attitude towards the reply option that "Medical assistance in dying should be optional". This may indicate their consideration of the attitudes of doctors who, for ethical reasons, would not want to assist an individual to die. Currently, in the legalised MAID frameworks worldwide, doctors are not obliged to participate; therefore, this attitude seems to prevail among followers worldwide [28, 29]. Regarding options on the modality of administration of lethal medication, doctors and nurses chose almost equally (47% vs. 43%, respectively, 45% together) that a "doctor can *either* perform the euthanasia (directly) or issue the prescription" rather than only the former (14%) or only the latter (20%) (Table 5). This speaks for the preference for flexibility in these options. However, this question was the only one where many participants chose to write their own answer under "Other" (22%). Roughly one-third of those who chose "Other" described uncertainty, and nearly one-third added nurses as possible administrators of MAID. Several other options were suggested (see in Results above). This diversity of opinions, together with some degree of uncertainty, points to a need for further mapping of this topic through a study that would include more exhaustive list of standardised answer options.

Difference in support of attitudes depending on age and specialisation

There were some differences in the answers between professions depending on whether the participant had a specialisation or not. Specialist doctors had the highest proportion of those who were *not* in favour of MAID (Table 1). Those results go hand in hand with answers based on age groups, as those 60 and older stood out significantly from the two younger groups. Various other

studies on the subject indicate that older people are generally less likely to favour MAID than younger people [2, 3, 29]. It is possible that the opinions of those who are older and have more work experience were shaped by a dominant opinion in the previous era of discussions, or that discussion on "euthanasia" was lacking in their younger age. Possibly, their rich professional experience has, in general, moved them away from MAID. This cannot be determined here, but the moral zeitgeist of westernised culture seems to move, with every new generation, towards more liberality and what Tom L. Beauchamp called the "triumph of autonomy" [30].

Strengths and limitations

The general strengths of this study are that the survey was performed on an identical study population, three times, over a time span of 26 years, at a single centre and by far the largest hospital in its country, Iceland. This should provide reliable information on how the views on MAID have developed in this important study population. Additionally, both nurses and physicians were surveyed at the same time, resulting in a rare comparison of the views of these two important health care professions in one study. Among other strengths are objectivity in questionnaire content and room for the addition of views. When asking about the reasons for the attitudes, an effort was made to ensure maximum impartiality by providing response options that reflected the main arguments, equally for or against, and perspectives expressed in academic articles and forums on MAID. Additionally, most of the questions provided the "Other" answer option, where participants could offer their own answer if their opinion did not agree with any of the answer options. This offset the disadvantage that standard answers never cover all people's ideas about moral issues. However, the standardisation of replies was necessary to measure the response statistically. The open option was rarely used, except in the subquestion on the modality of MAID (22%, Table 5), which may indicate that there were usually enough response options. It may also indicate a lack of time and other unidentified influences. It is important that random selection determines participation and that participants respond independently. The researchers were not aware of any interests or pressure groups that influenced the participants. One may question whether biases might have formed if the age distribution of the responders (Table 2) was significantly skewed compared with that among the whole study group. We do not know if it was similar, and therefore representative, or skewed, and therefore less representative or biased, since we do not have that data on the latter aspect. However, we do not observe any markedly unexpected or exaggerated percentages of the responders in any of the three age categories, which stray from the commonly known fact that the two younger groups are (each) considerably larger in number than the >60 years old group at LIUH.

The statistical strength of the sample size (1 - ß) was adequate for comparison to the study in 2010 (and 1995) since the difference was large in the *yes*-answer to MAID (legalised or through a legal loophole, 61%) compared to the 2010 study (20%). A sample size of only 56 subjects would have sufficed for an adequate study strength (1-ß 90%, α 0.05) for this difference, but it was 238.

The rather low participation rate (27%) set the margin of error (at 95% confidence level) for the *yes*-reply to the main question, slightly larger (±6.2%) than optimal (±5% or less) [31], but still it was within the commonly accepted 4–8% margin of error. For each profession, it was ±8.4% (doctors) and ±8.8% (nurses) making it less precise when looked at separately. This study was not meant to give highly precise outcomes; rather to give good likelihoods of the size of following behind each opinion and its arguments. In several places, there was a difference between the responses of subgroups that did not reach full significance ($p=0.06–0.10$). Here, there is a possibility of increased β (type II error) since the number of respondents in the subgroups was small.

As aforementioned (in the Study population and composition section), important measures were taken to ensure the necessary quality in terms of content validity and construct validity. None of the respondents expressed complaints about the content or the construction of the questionnaire being unclear during the time of survey application or after. Difference in wording of the main question on MAID, from 1995/2010 to 2021, is not much, since both are contextual in formulation. No pretest pilot studies were conducted to test the validity of the questionnaire, nor were test-retest reliability studies conducted to evaluate internal consistency [32]. This survey was not aimed at testing vague differences in the understanding of concepts or between opinions or scaled degrees of some characteristics in health services, so the need for such testing was not sine qua non, albeit likely to be of value, or at least confirmatory. We cannot know if this affected the study outcome in any way or to some degree significantly, but in view of the measures taken, the relatively low complexity of the answer options and the high degree of education of the professionals in the study group, we find it improbable that it did.

Main findings and possible next steps

The study revealed a statistically significant increase in positivity towards MAID in the last decade among doctors and nurses in the surgical, medical, and most other clinical departments of LIUH. It is not generalisable to all medical or nursing professionals in Iceland, but LIUH is by far the largest workplace of doctors and nurses in Iceland. Support for MAID has grown from one-fifth (2010)

to three-fifths (2021) of the study population (±6.2%). In addition, the results provide information for further understanding the perspectives and common arguments of the differing attitudes towards MAID among participants. In a morally complex issue such as this, this outcome can potentially strengthen the formation of certain norms in the debate and give focus to the discourse. Comparing the two professions, the arguments for supporting MAID mostly align in frequency, although some of the opposing arguments are misaligned. This can spur some interesting research questions on why and how this occurs. The next steps could be to examine the attitudes of *all* registered doctors and nurses in the country towards MAID and compare them with similar surveys from abroad. Similarly, seeing further studies conducted internationally on the underlying ethical reasons for support of, opposition to or uncertainty about MAID, is needed to provide a wider picture of the moral discourse.

MAID is a difficult moral issue that involves evaluating and weighing core human values, and it is important that the discourse on it continues to be based on clear and established information and conducted in an objective, philosophical manner.

Abbreviations

MAID Medical assistance in dying
LIUH Landspítali Iceland University Hospital

Supplementary Information

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Supplementary Material 1

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Author contributions

EBV initiated the study. SS conceptualized and wrote the first draft of questions, and together with EBV and BKÁ, finalised them and designed the study. SS provided technical knowledge of the survey software. EBV defined the study population and sent out invitations. BKÁ gathered and analysed the data, along with SS. The first draft was written by BKÁ (Icelandic) and further analysis, processing and then manuscript writing and revisions in English were done by SS. All authors read and approved the final manuscript.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available due to lack of specific consent from participants for such open access but are available from the corresponding author on reasonable request. The datasets were available to the reviewers prior to publication.

Declarations

Ethics approval and consent to participate

A permission was obtained from the Ethics Committee for Administrative Research at Landspítali Iceland University Hospital (Paper no. 5/2021, approved 23.03.2021). (This study is based on a survey among healthcare professionals and is not a clinical study (no study subjects) and does not include any biological sampling, therefore it has no clinical trial registration number).

Consent to participate

The following information on anonymity, data protection and consent for participation, were given to each person in the study group prior to participation: Participation in the study involves answering an electronic questionnaire asking about job title, length of service and attitudes towards medical aid in dying (MAID). It takes about 15 min to complete the questionnaire. The research will take place in the spring semester of 2021. All nurses and doctors in the clinical departments of Landspítali Iceland University Hospital (LIUH) are invited to participate. Participation is voluntary and there will be no consequences for refusing to participate. The study has been reviewed by the Ethics Committee for Administrative Research of LIUH. The investigation will not be reported to the Person's Protection Agency because according to the Act on Personal Protection and Processing of Personal Information, from July 15, 2018, obligation for such notification was abolished. Survey responses will be anonymous and untraceable. After responses have been submitted, it is therefore not possible to withdraw participation in the study. All research data will be preserved and processed without names or other direct personal identifiers. If participation in the survey brings up difficult memories or feelings, participants can contact LIUH's Support and Advisory Team. By answering the questionnaire, you give your consent to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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