

BMJ Open Emotional impact on healthcare providers involved in medical assistance in dying (MAiD): a systematic review and qualitative meta-synthesis

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To cite: Dholakia SY, Bagheri A, Simpson A. Emotional impact on healthcare providers involved in medical assistance in dying (MAiD): a systematic review and qualitative meta-synthesis. *BMJ Open* 2022;**12**:e058523. doi:10.1136/bmjopen-2021-058523

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-058523>).

Received 12 November 2021
Accepted 24 June 2022



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ABSTRACT

Background Medical assistance in dying (MAiD) traverses challenging and emotionally overwhelming territories: healthcare providers (HCPs) across jurisdictions experience myriad of affective responses secondary to possible tensions between normative and interwoven values, such as sanctity of life, dignity in death and dying and duty to care.

Objective To determine the emotional impact on HCPs involved in MAiD.

Methods Inclusion restricted to English language qualitative research studies from four databases (OVID Medline, EMBASE, CINAHL and Scopus), from beginning until 30 April 2021, and grey literature up to August 2021 were searched. Key author, citation and reference searches were undertaken. We excluded studies without rigorous qualitative research methodology. Included studies were critically appraised using the Joanna Briggs Institute's critical appraisal tool. Analysis was conducted using thematic meta-synthesis. The cumulative evidence was assessed for confidence using the Confidence in the Evidence from Reviews of Qualitative Research approach.

Results The search identified 4522 papers. Data from 35 studies (393 physicians, 169 nurses, 53 social workers, 22 allied healthcare professionals) employing diverse qualitative research methodologies from five countries were coded and analysed. The thematic meta-synthesis showed three descriptive emotional themes: (1) polarised emotions including moral distress (n=153), (2) reflective emotions with MAiD as a 'sense-making process' (n=251), and (3) professional value-driven emotions (n=352).

Discussion This research attempts to answer the question, 'what it means at an emotional level', for a MAiD practitioner. Legislation allowing MAiD for terminal illness only influences the emotional impact: MAiD practitioners under this essential criterion experience more polarised emotions, whereas those practising in jurisdictions with greater emphasis on allaying intolerable suffering experience more reflective emotions. MAiD practitioner's professional values and their degree of engagement influence the emotional impact, which may help structure future support networks. English language literature restriction and absence of subgroup analyses limit the generalisability of results.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ An eligibility criteria and subsequent search strategy that focuses on emotional impact of medical assistance in dying (MAiD) on healthcare providers (HCPs) with qualitative research methodology.
- ⇒ Use of Joanna Briggs Institute's critical appraisal tool for assessment of risk of bias and use of the Confidence in the Evidence from Reviews of Qualitative Research approach for assessing the methodological limitations, relevance, coherence and adequacy of the evidence after completion of meta-synthesis.
- ⇒ Qualitative signals of absence of subgroup analysis, eligibility criteria limited to published English language literature and fast-moving pace of research on emotional impact of MAiD on HCPs likely contribute to significant publication bias.
- ⇒ Generalisability of evidence limited by presence of selection bias in included studies.

INTRODUCTION

Medical assistance in dying (MAiD) poses ethically complex challenges that can be a major source of distress to participating healthcare providers (HCPs)—especially since MAiD may involve navigating conflicting personal and professional values. These values are contextual, dynamic and often not in alignment with each other; for example, professional values of duty to care and reducing suffering in case of terminal illness through MAiD may conflict with the moral value of preserving sanctity of human life, as the later may involve forbidding any action that hastens a patient's death in the dying process.^{1 2} In the context of assisted death, an HCP often has to navigate value conflicts between respect for autonomy and patient's right to self-determination versus respect for individual human life, and human life in general. Except for Switzerland, all other countries require HCPs to be at the

forefront in discussing and executing eligible requests for assisted death within their defined jurisdictions.³

Assisted death in selected jurisdictions: overview and current status

The number of jurisdictions across the world with medically assisted death legislation continues to grow. Switzerland, Netherlands, Belgium, Luxembourg, Canada, besides jurisdictions in the USA (Oregon, Vermont, California, Washington State, Colorado, the District of Columbia, Hawaii, Maine and New Jersey) alongside the states of Victoria, Tasmania and South Australia in Australia and Columbia in South America, and most recently Spain and New Zealand, have legalised medically assisted death in some form.^{3,4} Assisted death legislations in Canada, the State of Victoria in Australia and the Benelux countries include both assisted suicide and euthanasia. Jurisdictions in the USA and Switzerland allow only assisted suicide.

Broadly speaking, the 'Benelux' countries (Belgium, Netherlands and Luxembourg) have less restrictive rules in place for MAiD than the American jurisdictions that permit this practice. For example, Benelux countries allow advanced directives, and terminal of illness is not a requirement for MAiD eligibility in Belgium and Netherlands. Jurisdictions in the USA, on the other end, have strict eligibility criteria that the illness must be terminal and there must be some timeline to foreseeability of natural death—commonly 6 months in most jurisdictions.

Intact decision-making capacity translating to ability to give informed consent for MAiD, voluntariness of request and suffering from a terminal illness are the mainstay of the eligibility criteria for MAiD, with each criterion receiving variable emphasis, depending on the legislative jurisdiction. For example, 'reasonable foreseeability of natural death' criterion was removed from Canada's MAiD eligibility criteria following recent changes in the legislation.⁵⁻⁸

HCPs and MAiD: current knowledge and knowledge gaps

From an ethics perspective, among the HCPs, the physician's role in providing MAiD is perhaps the most ambiguous. Historically, medicine as a profession is rooted in the ethical principle of 'first, do no harm' while providing care. While this is true, medical futility and the sense of powerlessness and loss of control at end of life are a reality in modern medical practice, which is often reflected as physician ambivalence to participate in MAiD.⁹⁻¹¹

While this sense of moral ambiguity may distance physicians from the practice of MAiD, nurses also share the complex attitudes and polarised feelings towards MAiD.¹² This complexity is often due to the dual role that nurses play in most healthcare systems around the world: on one end, they act as a strong advocate for patient's wishes, whereas on the other end, they only have a supportive role in medical decision-making process. A recent synthesis of qualitative studies describing registered nurses' experiences with MAiD from Belgium, Netherlands and Canada

showed that while the nurses played a central role in providing important 'wrap-around' care for patients and family, their participation in MAiD required significant moral work.¹³

A recent scoping review exploring the challenges faced by HCPs while handling MAiD requests found lack of clear guidelines/protocols, role ambiguity, difficulties in evaluating capacity/consent, conscientious objection, lack of interprofessional collaboration and difficulties in assessing nature and severity of suffering as major barriers in developing comprehensive care models for implementation of MAiD.¹⁴ Furthermore, the scoping review also pointed out that HCPs need substantial degree of time and emotional commitment to participate in a MAiD request. A scoping review and thematic meta-synthesis of qualitative studies exploring HCPs' attitudes towards assisted death practices in Belgium, Netherlands, Israel, Australia, Germany and the USA showed that their attitudes were shaped by a deep sense of moral responsibility and contextual care relationships.¹⁵

This empirical evidence provides valuable insights on experiences and attitudes of HCPs towards MAiD; however, the nature and extent of emotional impact remains unexplored. Preliminary evidence suggests that the shift away from the medicine's fundamental values of cure/control of disease to hastening death with the aim of alleviating intolerable suffering can have significant emotional effects on participating HCPs. These can range from feeling overwhelmed with a sense of powerlessness on one end, to a rewarding and a positive experience on the other.^{16,17}

Objectives

To determine the emotional impact on HCPs involved in MAiD.

METHODS

Search strategy, screening and eligibility criteria

The inclusion and exclusion criteria were developed in line with the Sample, Phenomenon of Interest, Design, Evaluation, Research type.¹⁸ In order to ensure qualitative richness of themes, we included all qualitative research studies and excluded surveys, personal anecdotes, attitudes and experiences without in-depth qualitative analysis published on this topic.

Relevant definitions

For the sake of this review, we define an HCP as a person 'lawfully entitled under the law of a province to provide health services in the place in which the services are provided by that person'.¹⁹ This definition includes pharmacists, nurses, nurse practitioners, social workers, spiritual health practitioners, psychotherapists and clinical psychologists who are legally authorised to practise within their respective scope of practice. We included 'Assisted suicide assistant' and provider in 'Right to die' societies in Switzerland as unique MAiD care providers who contact

the eligible participant and liaise with the physician and pharmacist in the conduct of MAiD.

For the sake of this review, the term 'MAiD' refers to²⁰:

1. The administering by a physician or nurse practitioner of a substance to a person, at their request, that causes their death (euthanasia).
2. The prescribing or providing by a physician or nurse practitioner of a substance to a person at their request, so that they may self-administer the substance and, in doing so, cause their own death (assisted suicide).

Eligibility criteria

1. Includes worldwide published literature on the research question in English language, inclusive of all age groups; articles published up to 30 April 2021.
2. Includes all qualitative studies evaluating the emotional impact through qualitative research methodologies like grounded theory, semistructure interviews, narrative inquiry or others, and describes/mentions:
 - a. 'HCPs' and 'MAiD' as defined above.
 - b. The emotional impact on HCPs in terms of emotions/affective responses experienced or expressed while accessing, discussing, participating or caring for the patient who has made a valid MAiD request.
3. Excludes case studies, anecdotes or studies without a description or mention of a rigorous qualitative research methodology.

Search strategy

An iteratively developed search strategy was developed and piloted with the help of three librarians with expertise in systematic review search strategies. Considering the interdisciplinary nature of the objective, the search strategy was conducted on OVID Medline, CINAHL, EMBASE and Scopus databases. The search terms included three main domains—MAiD, HCPs and qualitative research methodology and their synonyms. Full search strategy on the four databases is available in online supplemental appendix 1.

In addition to database searches, the study team conducted a grey literature search²¹ which was informed by search methods outlined by Godin *et al.*²² using the same search terms and their synonyms. Grey literature was retrieved between 10 December 2018 and 1 March 2019, and updated on 10 August 2020, and 10 August 2021, from:

1. Databases including Google Scholar, the Canadian Electronic Library and the Canadian Institute for Health Information.
2. OpenGrey, Bielefeld Academic Search Engine and the OAIster catalogue of open access resources that includes digital thesis sources like the WorldCat.

The grey literature search strategy and results are included in online supplemental appendix 1. For the purpose of feasibility, reports from the year 2000 and beyond were retrieved. In addition, backward citation tracking was conducted by hand searching the reference lists of all included papers.

Study selection process

All identified records were imported into the reference management software, Zotero, and duplicates removed by the lead researcher (SYD). Twenty per cent of the titles and abstracts of peer-reviewed records were independently screened by two reviewers (AS and AB) based on the eligibility criteria; SYD screened the remaining 80% for eligibility and reviewed the results with AS and AB in regular team meetings. Given that a substantial portion of grey literature did not include abstracts, the grey literature screening process was initiated at the full-text phase. SYD consulted the keywords of yielded academic records if the title and abstract lacked clarity in relation to core concepts and reviewers AB and AS independently assessed any records for any discrepancy and/or uncertainty regarding their inclusion. The researchers met at the beginning, middle and end of the screening process to ensure consistency. SYD, AS and AB independently screened the full texts of the academic and grey literature, applying the same inclusion and exclusion criteria in successive team meetings to resolve any discrepancies.

Patient and public involvement

No patients were involved.

Assessment of risk of bias

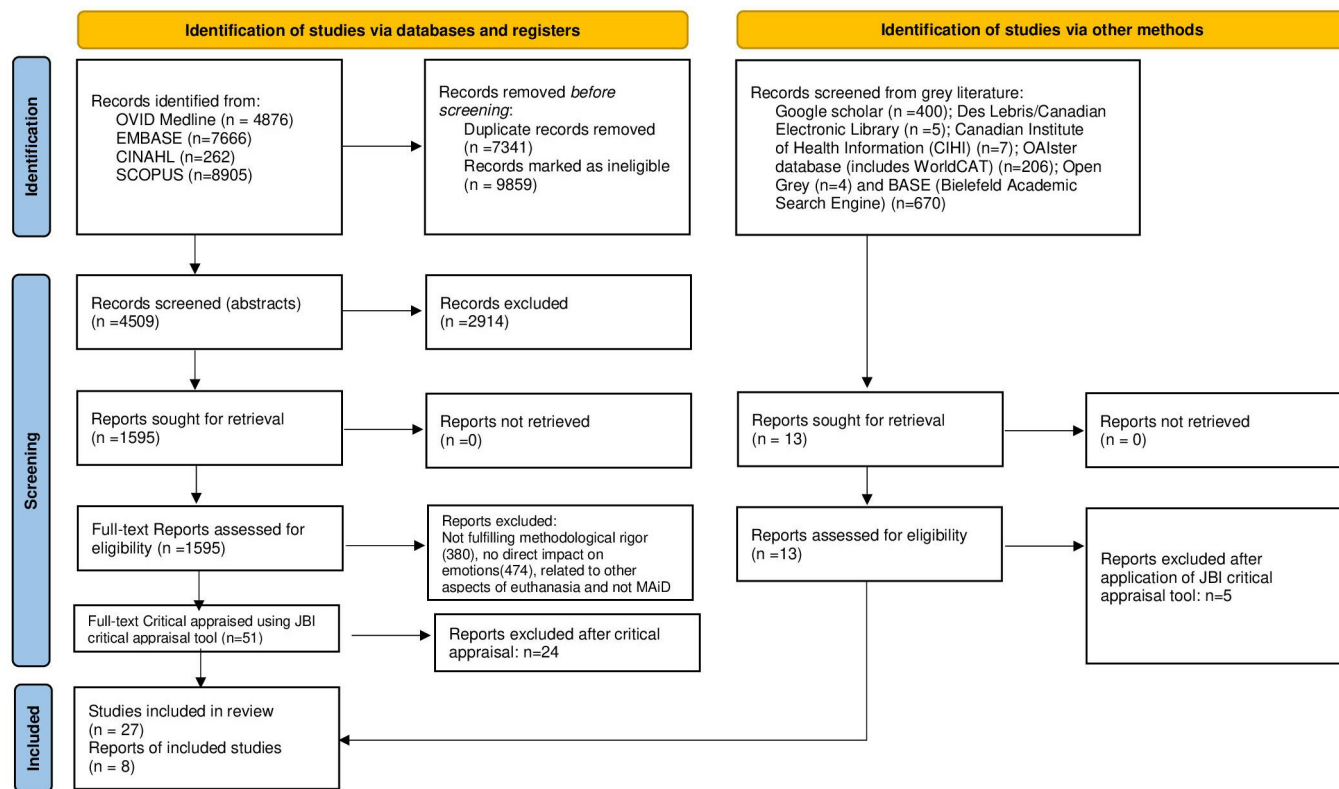
We used the Joanna Briggs Institute's critical appraisal tool for use in systematic reviews: checklist for qualitative research to critically appraise the included studies over 10 constructs. These constructs range from congruency to philosophical construct to theoretical and cultural location of the researcher.²³ The results of the assessment of risk of bias were independently reviewed by AB and AS and are presented in detail in online supplemental appendix 2.

The search results and reasons for exclusion at each stage of screening were recorded and represented in the adapted Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram in [figure 1](#).

Data analysis

Data extraction and data analysis

We adopted a thematic synthesis approach to analyse and synthesise data. Thematic synthesis is an adaptation of thematic analysis and provides a set of established methods and techniques that help synthesise qualitative research outcomes, especially when there is heterogeneity in the outcome variables.²⁴ This approach is especially useful in our case since it enables us to examine the meaning, significance and social constructions around the emotional experience of an HCP involved in MAiD. SYD independently coded each line of text according to its meaning and content. Codes were listed as 'free' codes, without any hierarchical structure. AB and AS cross-checked the coded data for any discrepancy. Subsequent thematic synthesis was done by SYD, AB and AS in the following two stages:



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

Figure 1 PRISMA flow diagram: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram details our search and selection process applied during the review. JBI, Joanna Briggs Institute; MAiD, medical assistance in dying.

Stage 1: identifying the similarities between the codes

All relevant qualitative data from the selected studies were extracted manually from the Results, Discussion and Conclusion sections and are represented in online supplemental appendix 3, table 2. The codes were inductively grouped into descriptive themes so that patterns could be identified. The use of line-by-line coding enabled us to undertake translation of concepts from one study to another. Based on the similarities and differences of emerging codes, descriptive themes were generated, and each theme was entered as boxes and codes from each study illustrated in those boxes, so that constant comparison analysis process could be done (see online supplemental appendix 3, table 3).

Stage 2: development of analytical themes

In this last stage, the descriptive themes were further interpreted using reciprocal translation and constant comparison methods to develop analytical themes. At this stage, the meaning of the patterns of the descriptive themes was analysed against the research question so that a narrative component could be developed.

Once thematic synthesis was completed, each researcher independently evaluated the cumulative evidence from individual studies for methodological limitations, relevance, coherence and adequacy using the Confidence

in the Evidence from Reviews of Qualitative Research (CERQual) approach (see table 1).²⁵

All researchers met during regular research review meetings to resolve any discrepancies and achieve consensus over the assessment.

This systematic review was a part of an academic capstone project and was not registered with any international database. The review protocol is available from the research team on request.

In addition to employing the PRISMA checklist for systematic reviews, we used the Enhancing Transparency in Reporting the Synthesis of Qualitative Research checklist to improve the reporting of our meta-synthesis (see online supplemental appendix 4).

RESULTS

Characteristics of included studies

Thirty-five qualitative research studies were included in the review. The included literature was based in five countries: the USA (7), Netherlands (9), Canada (14), Belgium (1), Switzerland (3), and one study was an international study with participants from the USA and Netherlands. The data included 393 physicians, 169 nurses, 53 social workers in hospice care, 11 allied healthcare professionals (7 personal support workers, 1 pharmacist, 1

Table 1 Descriptive themes and illustrative quotes

Descriptive theme	Illustrative quotes	Country/reference	
Strong, internalised and polarised emotional theme	Positive emotions	'I think when you see the patients that we see, it's very clear that you're doing an incredible service. And that's wonderful. There isn't a single moment when I see these patients that I don't think, "Oh my God, I'm so happy to be here to help you." So that's tremendously reinforcing...'	Canada/Shaw <i>et al</i> ³² , p e397
	Negative emotions	'It was terribly creepy, I never went anywhere with as much lead in my shoes as that morning when I took my bag with the medication in it.' (T, male)	Netherlands/van Marwijk <i>et al</i> ²⁷ , p 611
	Moral distress	'There is just a standard that I have. I could not live with myself if I knew that I broke one of the Ten Commandments. I don't feel that I have the right to do that. I will say that there have been times when I would have liked to do that... And there have been times when I've thought about it, and maybe I got right up to the edge. But I wouldn't—I couldn't go over the line...'	USA/Schwarz ⁵⁵ , p 229
Reflective emotional theme	'I shy away from saying suicide or euthanasia. The act of it, however we name it, calls for the most profound respect as the consequence is that a heart stop beating, lungs stop breathing, forever. I am working and sense making as I go along, being sure that I keep breathing.'	Canada/Beuthin ⁴¹ , p 1684	
Professional value-driven emotional theme	'Patients have the right to make as many decisions as they are able to make for themselves, and we respect those even though they may not be the same decisions that we might make ... and we will advocate for the patients ... to get them whatever they want ... I believe in self-determination, but I think it's (PAS) a sad commentary on our society.' (Social worker)	USA/Norton ⁴⁷ , p.58	

HCP, healthcare provider; MAiD, medical assistance in dying.

genetic technologist and 2 psychologists) and 8 directors of sociomedical institutions and 3 sociocultural animators (applied sociologists who work alongside communities at grass roots to develop and facilitate programmes that support action for local and social changes). A detailed description of the included studies is included in online supplemental appendix 3, table 2.

Thematic synthesis

Stage 1: descriptive themes

Three descriptive emotional themes were derived from the thematic synthesis:

Dimension 1: Strong, internalised and polarised emotions (studies referenced 26–36). These included three subordinate categories/genres:

- ▶ Positive emotions of 'reward', 'relief', 'active openness' and 'overwhelming but uplifting' feelings.
- ▶ Negative emotions of 'powerlessness', 'guilt', 'emotional exhaustion', 'vicarious suffering' and fear of a slippery slope and losing control.
- ▶ Individual conscience-based emotions of 'moral shudder' and moral distress. This emotional dimension was strongly embedded in the cultural and political milieus and the interpersonal communication strategies used by the HCPs.

Dimension 2: Reflective, discourse-based emotions (studies referenced 26 30 36–46)

These included emotions of 'growing with the patient's experience', MAiD as a 'sense-making process', 'de-tabooing the philosophical meaning of death through MAiD' and various degrees of 'dynamic conflict' secondary to a reflective sense of insecurity. These emotions were descriptively laid on a platform of 'interpretative

therapeutic engagement', where they seemed to aid in the larger philosophical and societal discourse around MAiD.⁴⁶

Dimension 3: Emotions that resonate with professional values (studies referenced 28 30 34 39 47–61)

These included emotions that resonated with professional values like 'competency and perfection', 'intimate care', '*colloque singulier*' (singular language of trust and conscience in context of therapeutic relationship) and various degrees of commitment ranging from 'contractual' to 'sacrificial'.

Table 1 illustrates some of the quotes demonstrating the descriptive emotional themes.

Stage 2: analytical themes

Analytical themes in thematic synthesis typically 'go beyond' the findings of the primary studies and generate additional concepts, understandings or hypothesis. At this stage, we used the descriptive themes to answer the review question as to how and why did the HCPs participating in MAiD experience such complex emotions. Each reviewer, initially independent and then as a group, inferred the factors that likely influence the experience of the descriptive themes by questioning how HCPs participating in MAiD represent themselves, or their emotions in the context of their larger healthcare environment. This process was repeated until the new themes were sufficiently abstract to explain all our initial descriptive themes. Altogether, this process resulted in generation of two analytical themes:

1. Legislative emphasis on terminal illness as a necessary inclusion criterion for MAiD influences the emotional impact. In jurisdictions that legislate MAiD with the



central aim to alleviate intolerable suffering in context of terminally ill medical conditions (eg, the USA), the HCPs experience strong polarised emotions that are modulated by their individual cultural/religious background. The extent of emotional impact ranges from positive emotions of reward/relief on one end, to negative (burden, emotional exhaustion) and conscientious-based moral distress on the other. This is in sharp contrast to the emotional impact on HCPs in jurisdictions that legislate MAiD with an emphasis on alleviating intolerable suffering without terminal illness being a necessary requirement (eg, Benelux countries, Switzerland and, more recently, Canada). The HCPs in these jurisdictions experience the emotional impact of MAiD as a ‘sense-making’ process—this allows them to reflect on the emotional dissonance between basic emotions and emotions that conform to legislative rules.

2. Values associated with the HCPs’ profession and their degree of engagement in the MAiD process are strong influential factors that shape the emotional impact of MAiD. For example, because of their everyday involvement with patients and emphasis on professional values of helping others, compassion and patient advocacy, the emotional impact on nurses involved in MAiD (studies referenced [28](#) [30](#) [34–36](#) [39](#) [41](#) [42](#) [45](#) [53](#) [55](#) [57](#) [60](#) [61](#)) demonstrated strong and polarised positive as well as negative emotions. As one nursing participant noted:

... it’s the hardest nursing. I’ve worked [in the emergency department], I’ve worked medicine floor, this is the hardest nursing there is, having somebody pass away, you actually feel something pulled out of you when that person passes. There’s something missing. ... If you take care of somebody for an extended time and they pass away, you just feel, I just feel coldness, or whatever. You just feel drained....³⁶ (p 57)

Appraising the quality of evidence: the Grading of Recommendations Assessment, Development and Evaluation CERQual approach

Evidence from qualitative evidence syntheses is increasingly incorporated into decision-making processes and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) CERQual approach allows the user to make a transparent assessment of how much confidence decision-makers and other users can place in individual review findings from syntheses of qualitative evidence. In order to ascertain the degree of confidence, we graded the evidence in terms of adequacy, relevance, coherence as well as methodological limitations using the GRADE CERQual approach.²⁵ [Table 2](#) illustrates a summary of the findings and the GRADE CERQual profile.

DISCUSSION

Difference in MAiD legislation in Benelux and non-Benelux countries: key features

The substantive and procedural requirements for MAiD across global jurisdictions rest on three main pillars: patients’ right for self-determination expressed through voluntariness of request and a valid informed consent process, foreseeability of natural death due to terminal medical illness and subjective nature of individual suffering.^{62 63} The key difference between the legislations for MAiD in Benelux countries and countries like the USA is the differential emphasis on eminent or foreseeability of death. The MAiD legislations in Belgium, Netherlands, Switzerland and, more recently, Canada have a more permissive legal framework that allows people to access MAiD as a service to end their intolerable suffering that has no prospect of improvement but is not necessarily terminal.

MAiD legislation and its shaping effect on the emotions of the involved HCP

An important take-home message from this evidence synthesis is how legislations have a shaping effect on emotional responses. The HCPs who practise in the Benelux countries and Switzerland seem to experience more reflective emotions over strong polarising emotions expressed by HCPs who practise in non-Benelux countries like the USA. Canada seems to have a unique transitional position—with the emphasis of the legislation going the Benelux countries’ way, the HCPs’ emotional experiences show a mixture of emotions driven by their professional values as well as the ongoing societal discourse on MAiD. This observation conforms to Michel Foucault’s position on how law acts as an element in the expansion of power(s)⁶⁴; legislatures along with other platforms of knowledge expression modulate every fibre of human society. Our thematic synthesis points out that the law that limits application of MAiD to terminal illnesses provides for a broader range of emotional expression. Thus, legislation on MAiD across the globe provides the HCP with a locus of administrative control which then decides how the emotional discourse around MAiD is shaped; the question is—*how* do we want the *emotional discourse* around MAiD to be shaped?

MAiD legislation, societal values and emotional impact on the involved HCP: a complex relationship

On one end, attitudes of physicians towards MAiD have shown reflective trends to legislative standards; countries like Belgium and Netherlands find much stronger physician support than their USA counterparts.⁶⁵ On the other end, public support towards MAiD has been reflective of the prevailing societal cultural and religious practices; central and eastern European countries have shown a decline in support with corresponding increase in religiosity as opposed to western European countries.^{66 67} While an assisted-death legislation with its rules and safeguards provides an obligatory ‘top-down’ framework to embed

Table 2 Grading of Recommendations Assessment, Development and Evaluation (GRADE) Confidence in the Evidence from Reviews of Qualitative Research (CERQual) evidence profile

Summary finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual GRADE evidence	Explanation of CERQual assessment
<p>HCPs experienced strong, internalised, often polarised and deeply personal basic emotions that were modulated by the HCP's cultural and/or religious background.</p> <p>Level embedded: cultural/religious</p>	<p>Minor methodological limitations concerning location of the researcher theoretically/culturally, and influence of the researcher on the research and vice versa.</p>	<p>Moderate concerns regarding coherence.</p>	<p>Minor concerns regarding adequacy.</p>	<p>No or very minor concerns regarding relevance.</p>	<p>High</p>	<p>Variability in experiences of participants posed a challenge with respect to coherence; however, this also added to the richness of results. Hence, we have graded the confidence in quality of findings as high.</p>
<p>Influenced by the sociopolitical environment as well as the social discourse on suffering and death, HCPs' shared emotions of personal growth/sense-making and relational experiences of deeper compassion and sympathy. HCPs also experienced emotional dissonance over personal emotions and emotions expressed to conform to legislative rules.</p> <p>Level embedded: Sociopolitical</p>	<p>Moderate/minor methodological limitations concerning location of the researcher theoretically/culturally, and influence of the researcher on the research and vice versa.</p>	<p>No or very minor concerns regarding coherence.</p>	<p>No or very minor concerns regarding adequacy.</p>	<p>No or very minor concerns regarding relevance.</p>	<p>High</p>	<p>Paper 6 did not approach the ethics committee and hence does not have ethics committee approval. Apart from this study, all studies in this group contributed to the summary findings in terms of coherence, adequacy and relevance. Hence, we have graded the confidence in the quality of the findings to be high.</p>
<p>HCPs expressed emotions aligned with their individual professional values and belief systems and, most of the time, attempted to align their values associated with the MAiD ideology; at other times, legislation of respective jurisdictions helped shape emotional experiences.</p> <p>Level embedded: Professional/legal</p>	<p>Moderate methodological limitations concerning location of the researcher theoretically/culturally, and influence of the researcher on the research and vice versa. Also, selection of participants. Paper 16, one single hospital.</p>	<p>Minor concerns regarding coherence.</p>	<p>No or very minor concerns regarding adequacy.</p>	<p>No or very minor concerns regarding relevance.</p>	<p>Moderate</p>	<p>Most of the studies in this group had methodological problems of selection bias and lack of generalisability. For example, paper 16 selected participants from a single hospital-based setting. The findings are limited in terms of generalisability to similar groups in different settings. Hence, we have graded down our confidence in the quality of findings to moderate.</p>

MAiD within healthcare, it does not necessarily reflect the integration of MAiD within the value-based relationships that have traditionally defined an individual's healthcare.⁶⁸ Hence, although a MAiD legislation to integrate MAiD into healthcare is a likely reflection of a consensus position of a society, it does challenge the moral environments within which HCPs practise medicine, thereby influencing the emotional impact on HCP. HCPs' subsequent attempt to align themselves with their own professional values, legislative standards and public perceptions can lead to intense emotional responses, both within their internal, personal and external professional spaces.

Emotional discourse among HCPs involved in MAiD: HCP role and ethics of care

The right to choose when and how to die has always been a contentious issue across various societies.^{69–71} Public discourse on MAiD is shaped through societal emphasis on individual as well as contextual factors associated with assisted death—these often range from religious beliefs regarding sanctity of human life and personal meaning of death to loss of autonomy associated with illness-related intolerable suffering. With advancing medical technologies, the potential to prolong life has increased significantly,^{72 73} and the HCPs assume a central position to shape the discourse around assisted death.

In countries where MAiD is legalised but is restricted to terminal illnesses with imminent chance of death, the position of an HCP continues to be one that of a provider of 'Care'. Here, the moral dimension of 'Care' continues to be defined as 'everything we do to maintain, continue or repair our world so that we can live in it as well as possible'.⁷⁴ The value of care in healthcare systems has been traditionally associated with attentiveness, responsibility, nurturance, compassion and meeting others' needs.⁷⁵ While emotional responses to legal requests of hastening death are affected by policies, professional identity, commitment to patient autonomy, personal values and beliefs, the patient–clinician relationship and will vary on a case-by-case basis,⁷⁶ this systematic review raises an important question—how does legalising MAiD with emphasis on alleviating intolerable suffering without the context of a terminal illness change the moral dimensions of care?

CONCLUSION

HCPs involved in MAiD experience a myriad of emotions that include positive/negative emotions; reflective, 'sense-making' emotions; and/or professional value-driven emotions. Emphasis on terminal illness only as an essential criterion, MAiD practitioner's individual professional values and their degree of engagement influence this rich and diverse emotional discourse.

Limitations of the review

This review is limited by its focus of emotional impact on HCPs only and the obvious selection bias in the

included studies—those who could and volunteered to express their emotions are represented in the review. The review is also limited with absence of subgroup analysis with respect to HCPs' age, years of experience and the influence of gender on the results. Restriction to English language studies likely carries a high risk of publication bias.

There are several gaps in our understanding of the emotional impact on HCPs involved in MAiD that would benefit from further research. Intolerable suffering is a common eligibility requirement for assisted death, although HCPs often struggle to understand and assess the nature and normative function of suffering. Is it the very nature of the emotional tone of suffering which is overwhelming or is it more to do with what lies underneath that makes suffering 'intolerable'? Is there room for humanistic narratives around meaning behind and endurance of one's suffering? Such questions confront MAiD practitioners and an in-depth exploration of this nebulous concept of intolerable suffering in context of assisted death may help HCPs navigate their emotional experience while providing MAiD.

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Acknowledgements The authors acknowledge the valuable contribution of Erica Lenton, Heather Cunningham (library services, Gerstein Library, University of Toronto) and Fiona Inglis (library services, Centre for Addiction and Mental Health, University of Toronto) to consultations and assistance with devising the search strategy.

Contributors Study conception and design: SYD, AB, AS. Development of eligibility criteria: SYD, AB, AS. Search strategy developed by Erica Lenton, Heather Cunningham (library services, Gerstein Library, University of Toronto) and Fiona Inglis (library services, Centre for Addiction and Mental Health, University of Toronto) in close consultation with Dr Saumil Dholakia and reviewed by AB and AS. Study selection and data extraction process by Dr Saumil Dholakia and independently reviewed by AB and AS. SYD performed the assessment of risk of bias, which was independently reviewed by AB and AS. Guarantor: SYD. All three authors were involved equally in performing the qualitative meta-synthesis and CERQual assessment. Draft manuscript preparation: SYD with multiple reviews, feedback and edits in form as well as content by AB and AS. All authors reviewed the results and approved the final version of the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This is a systematic review and meta-synthesis of already published and accessible research data and does not require ethics committee or institutional board approval.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information. Data set 'Codes and themes-qualitative analysis_MAiD_HCP_emotional impact' submitted and published at ZENODO and is available at DOI: 10.5281/zenodo.6778236. No unpublished data.

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Supplementary appendix 1:

Database: Ovid MEDLINE(R) ALL <1946 to October 04, 2021>

Search Strategy:

-
- 1 euthanasia, active/ or euthanasia, active, voluntary/ or hospice care/ or suicide, assisted/ (14808)
 - 2 terminally ill/ (6684)
 - 3 Right to die/ (4950)
 - 4 Terminal care/ (29907)
 - 5 advance care planning/ or advance directives/ (9125)
 - 6 ((dying or death or euthan* or suicide or terminal* ill*) adj5 (assist* or hasten*)).tw,kf. (5952)
 - 7 Palliative care/ (58012)
 - 8 exp Practice Patterns, Physicians'/es [Ethics] (812)
 - 9 physician's role/ (30584)
 - 10 Health Personnel/ (52294)
 - 11 ((health care provider or clinician* or doctor* or physician* or nurse or social work* or oncologist* or palliative physician or nursing or psychiatrist* or psychologist* or psychotherapist*) adj3 (experience* or emotion* or feeling*)).tw,kf. (23976)
 - 12 (Interview: or experience:).mp. or qualitative.tw. (1655368)
 - 13 health personnel/ or allied health personnel/ or anesthetists/ or caregivers/ or case managers/ or "coroners and medical examiners"/ or emergency medical dispatcher/ or epidemiologists/ or faculty, medical/ or faculty, nursing/ or health educators/ or health facility administrators/ or medical chaperones/ or medical laboratory personnel/ or medical staff/ or exp nurses/ or nursing staff/ or occupational therapists/ or personnel, hospital/ or pharmacists/ or physical therapists/ or physician executives/ or exp physicians/ (431546)
 - 14 (ethnograph* or grounded theory or qualitative research or thematic analysis or semi-structured interview* or narrative inquiry or focus* group or content analysis or discourse or lived life experience*).tw,kf. (156494)
 - 15 aid in dying.mp. (243)
 - 16 death with dignity.mp. (607)
 - 17 Bill C-14.mp. (24)
 - 18 Bill C-7.mp. (2)
 - 19 MAID.mp. (458)
 - 20 physician assisted death.mp. (309)
 - 21 physician assisted dying.mp. (142)
 - 22 (assisted suicide or physician assisted suicide).tw,kf. (3163)
 - 23 Qualitative Research/ (67825)
 - 24 1 or 2 or 3 or 4 or 5 or 6 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 (55486)
 - 25 7 or 8 or 9 or 10 or 11 or 13 (527655)
 - 26 12 or 14 or 23 (1692068)
 - 27 24 and 25 and 26 (5490)
 - 28 limit 27 to dt=19460101-20210430 [January 1st, 1946 to April 30th, 2021] (5441)
 - 29 limit 28 to english language (5073)
 - 30 limit 29 to abstracts (4876)

Grey Literature databases (December 10th 2018 to March 1st, 2019, updated August 2020 and 2021)

Total # Records after de-duplication: 13. Records selected after applying critical appraisal tool 8.

Database	Search strategy	#records screened	# new records and records after de-duplication and applying the critical appraisal tool
Google scholar	With the exact phrase: "Medical assistance in dying" ; "physician assisted suicide"; With all the words: "emotional impact on health care providers involved in medical assistance in dying"	400	5
Des Lebris/Canadian Electronic Library	Medical assistance in dying	5	0
Canadian Institute of Health Information (CIHI)	Medical assistance in dying	7	0
OAIster database (includes WordCAT)	Medical Assistance in dying, Physician assisted suicide as key word	206	2
OpenGrey	Medical assistance in dying, Physician Assisted suicide as key word	4	0
BASE (Bielefeld Academic Search Engine)	Subject Heading search: "Medical Assistance in dying"	670	1

Selected records:

Google scholar included Results:

1. Beuthin R. Cultivating Compassion: The Practice Experience of a Medical Assistance in Dying Coordinator in Canada. *Qualitative Health Research*. 2018;28(11):1679-1691. doi:[10.1177/1049732318788850](https://doi.org/10.1177/1049732318788850)
2. Bouthillier M-E, Opatrny L. A qualitative study of physicians' conscientious objections to medical aid in dying. *Palliative Medicine*. 2019;33(9):1212-1220. doi:[10.1177/0269216319861921](https://doi.org/10.1177/0269216319861921)
3. Bruce A, Beuthin R. Medically Assisted Dying in Canada: "Beautiful Death" Is Transforming Nurses' Experiences of Suffering. *Canadian Journal of Nursing Research*. June 2019. doi:[10.1177/0844562119856234](https://doi.org/10.1177/0844562119856234)
4. Alison A. Townsley. Putting a Bow on Death and Dying-Health Care Professionals' Experiences with Medical Assistance in Dying (MAiD): A Foucauldian Discourse Analysis with Agambian Insights. [Practice Based Research Paper on the Internet]. York University School of Social Work;2018. [Cited February 28,2019] Available from: https://yorkspace.library.yorku.ca/xmlui/bitstream/handle/10315/35613/Alison_Townsley_PRP_2018.pdf?sequence=1
5. Gamondi C, Borasio GD, Oliver P, Preston N, Payne S. Responses to assisted suicide requests: an interview study with Swiss palliative care physicians. *BMJ Support Palliat Care*. 2019 Mar;9(1):e7. doi: 10.1136/bmjspcare-2016-001291. Epub 2017 Aug 11. Available from <https://pubmed.ncbi.nlm.nih.gov/28801317/>

OAlster included Results:

1. Implementing Medical Aid-in-Dying in Vermont: a Qualitative Study. *J GEN INTERNMED* **34**, 636–641 (2019). <https://doi.org/10.1007/s11606-018-4811-1>
2. Allyson Oliphant. "If Not Me, Then Who?" The Narratives of Medical Aid in Dying (MAiD) Providers and Supporters Around Their Professional Identity and Role in MAiD [Thesis on the Internet]. MacMaster University; 2017. [Cited on February 10, 2019]. Available from <http://hdl.handle.net/11375/22146>

BASE included results:

1. Sheridan, Laura, "When Patients Ask to Die: The Role of Nurses in Medical Assistance in Dying" (2017). Electronic Thesis and Dissertation Repository. 5041. <https://ir.lib.uwo.ca/etd/5041>

Database:

Embase <1974 to 2021 April 30>

#	Query	Results from search strategy run on October 4, 2021
1	euthanasia, active/ or euthanasia, active, voluntary/ or hospice care/ or suicide, assisted/	18,815
2	terminally ill/	8,339
3	right to die/	4,060
4	terminal care/	38,968
5	advance care planning/ or advance directives/	13,209
6	((dying or death or euthan* or suicide or terminal* ill*) adj5 (assist* or hasten*)).tw,kf.	7,430
7	palliative care/	83,687
8	exp clinical practice/ and medical ethics/	5,575
9	physician's role/	49,149
10	health personnel/	168,037
11	((health care provider or clinician* or doctor* or physician* or nurse or social work* or oncologist* or palliative physician or nursing or psychiatrist* or psychologist* or psychotherapist*) adj3 (experience* or emotion* or feeling*)).tw,kf.	34,589
12	(interview: or experience:).mp. or qualitative.tw.	2,361,122
13	health personnel/ or allied health personnel/ or anesthetists/ or caregivers/ or case managers/ or "coroners and medical examiners"/ or emergency medical dispatcher/ or epidemiologists/ or faculty, medical/ or faculty, nursing/ or health educators/ or health facility administrators/ or medical occupational therapists/ or personnel, hospital/ or pharmacists/ or physical therapists/ or physician executives/ or exp physicians/	1,402,853
14	(ethnograph* or grounded theory or qualitative research or thematic analysis or semi-structured interview* or narrative inquiry or focus* group or content analysis or discourse or lived life experience*).tw,kf.	203,129
15	aid in dying.mp.	293
16	death with dignity.mp.	655
17	Bill C-14.mp.	32
18	Bill C-7.mp.	4
19	MAID.mp.	667

20	physician assisted death.mp.	365
21	physician assisted dying.mp.	171
22	(assisted suicide or physician assisted suicide).tw,kf.	3,620
23	qualitative research/	98,864
24	1 or 2 or 3 or 4 or 5 or 6 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22	73,993
25	7 or 8 or 9 or 10 or 11 or 13	1,525,230
26	12 or 14 or 23	2,406,823
27	24 and 25 and 26	8,659
28	limit 27 to (abstracts and english language and yr="1946 - 2021")	7,666



CINAHL search strategy: Monday, October 4, 2021 3:59:32 PM

#	Query	Limiters/Expanders	Last Run Via	Results
S25	S22 AND S23 AND S24	Limiters - Published Date: 19460401-20210430; Exclude MEDLINE records; Publication Type: Abstract; Language: English Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S24	S10 OR S12 OR S21	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S23 OR S11	S6 OR S7 OR S8 OR S9	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display

S22	(S1 OR S2 OR S3 OR S4 OR S5 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20)	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S21	qualitative research words; Apply equivalent subjects Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S20	TX (assisted suicide or physician assisted suicide)	Expanders - Apply related words; Apply equivalent subjects	Interface - EBSCOhost Research Databases Search Screen - Advanced	Display

			Search	
			Database - CINAHL	
S19	physician assisted dying words; Apply equivalent Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S18	physician assisted death words; Apply equivalent Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S17	MAID words; Apply equivalent Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S16	Bill C-7 words; Apply equivalent Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S15	Bill C-14 equivalent subjects Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S14	death with dignity words; Apply equivalent Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S13	aid in dying equivalent subjects Search modes - Boolean/Phrase	Expanders - Apply related	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S12	TX (ethnograph* or grounded theory or qualitative research or Search modes - Boolean/Phrase	Expanders - Apply related words; Apply equivalent subjects	Interface - EBSCOhost Research Databases Search Screen - Advanced	Display

	thematic synthesis or semi-structured interview* or narrative inquiry or focus* group or content analysis or discourse or lived life experience*)	Search modes - Boolean/Phrase	Search Database - CINAHL	
S11	health personnel or allied health personnel or anesthetists or caregivers or case managers or "coroners and medical examiners" or emergency medical dispatcher or epidemiologists or faculty, medical or faculty, nursing or health educators or health facility administrators or medical chaperones or medical laboratory personnel or medical staff or nurses or nursing staff or occupational therapists or personnel, hospital or pharmacists or physical therapists or physician executives or physicians	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S10	TX (interview: or experience:) or qualitative	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S9	TX ((health care provider or clinician* or doctor* or physician* or nurse or social work* or oncologist* or palliative physician or nursing or psychiatrist* or psychologist* or psychotherapist*) N3 (experience* or emotion* or feeling*))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display

S8	health personnel or healthcare professionals or healthcare workers	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S7	physician role	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S6	practice patterns, physicians AND medical ethics	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S5	TX ((dying or death or euthan* or suicide or terminal* ill*) N5 (assist* or hasten*))	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S4	advance care planning or end of life planning or advance directive or advance care plan or advance decision or advance helth care plan	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S3	terminal care or palliative care or end of life care or hospice	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S2	terminally ill	Expanders - Apply related words; Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	Display
S1	euthanasia or assisted suicide or right to die or physician assisted suicide	or death with dignity Expanders - Apply related words; Apply equivalent	Expanders - Apply related words; Apply equivalent	subjects

Total Number of records from
CINAHL search strategy: 262.

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Scopus

Search Sources Lists



SD

Saved searches

Combine queries...

e.g. #1 AND NOT #3



ID	Name	Query	Documents	Date last run	Actions
#33	scopus 6	(({active euthanasia} / OR {voluntary euthanasia} / OR {hospi View More	8,905	oct 4, 2021	+
#32	scopus 5	(({active euthanasia} / OR {voluntary euthanasia} / OR {hospi View More	9,662	oct 4, 2021	+
#31	scopus 4	(({active euthanasia} / OR {voluntary euthanasia} / OR {hospi View More	9,711	oct 4, 2021	+
#29	Scopus	(({active euthanasia} / OR {voluntary euthanasia} / OR {hospi View More	10,097	oct 4, 2021	+
#28	3	... View More	852,122	oct 4, 2021	+
#27	2	({palliative care} /) OR ({clinic al practice} AND {physician ethi View More	1,458,970	oct 4, 2021	+

... View More

ID	Name	Query	Documents	Date last run	Actions
#26	1	{active euthanasia} / OR {voluntary euthanasia} / OR {hospice}	127,545	oct 4, 2021	+
#25	terminally ill terminal care	{terminally ill} OR {terminal care}	72,266	oct 4, 2021	+
#24	qualitative research	{qualitative research}	570,500	oct 4, 2021	+
#23	physician assisted suicide	{physician assisted suicide}	1,365	oct 4, 2021	+
#22	physician assisted dying	{physician assisted dying}	90	oct 4, 2021	+
#21	physician assisted death	{physician assisted death}	153	oct 4, 2021	+
#20	MAiD	{MAiD}	11,549	oct 4, 2021	+
#19	Bill C-7	{Bill C-7}	38	oct 4, 2021	+
#18	Bill C-14	{Bill C-14}	120	oct 4, 2021	+
#17	death with dignity	{death with dignity}	2,743	oct 4, 2021	+
		... View More			
#16	aid in dying	{aid in dying}	823	oct 4, 2021	+
		... View More			
#15	qualitative methods	TITLE-ABS-KEY (ethnograph* OR "grounded theory" OR "the	439,839	oct 4, 2021	+

ID	Name	Query	... View More Documents	Date last run	Actions
#14	health care provider	TITLE-ABS-KEY ("allied health personnel" OR anesthetists OR	1,203,712	oct 4, 2021	+
#13	qualitative interview qualitative study	TITLE-ABS-KEY ("qualitative interview" OR "qualitative study")	119,016	oct 4, 2021	+
#12	health care provider experience	(("health care provider" OR clinician* OR doctor* OR physicia	85,449	oct 4, 2021	+
#11	health personnel	{health personnel} /	195,852	oct 4, 2021	+
#10	physicians role	{physician's role} /	31,290	oct 4, 2021	+
#9	clinical practice physician ethics	{clinical practice} AND {physician ethics}	25	oct 4, 2021	+
#8	palliative care	{palliative care} /	185,455	oct 4, 2021	+
#7	assisted death	((dying OR death OR euthan* OR suicide OR "terminal* ill*"	12,119	oct 4, 2021	+
#6	advance care planning	{advance care planning} / OR {advance directives} /	27,184	oct 4, 2021	+
#5	right to die	{right to die} /	8,046	oct 4, 2021	+
#3	active euthanasia	{active euthanasia} / OR {voluntary euthanasia} / OR {hospice c	38,053	oct 4, 2021	+

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Table 2: Critical appraisal of studies using The Joanna Briggs Institute Critical appraisal tool for Qualitative Research:

Study (location, number and category of Participants)	JB Check list	Q1:Congruity b/w philosophy and research	Q2: Congruity b/w research method and question	Q3:congruity b/w Research method &Data collection	Q4:congruity b/w Research method & analysis	Q5: congruity b/w Research method & Results	Q6: Statement Locating the researcher	Q7: Influence Of Researcher addressed	Q8: Adequate Representa- tion of Participants	Q9:ethical approval	Q10: Conclusion Flows from analysis	Appraisal	R for exclusion
1.Voorhees et al., US and Netherlands, physicians 23		Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Include	
2.Van Marwijk et al. Netherlands 22 Primary care ph		Y	Y	Y	Y	Y	N	N	Y	Unc	Y	Include	
3. Denier Yvonne et al. 2010. Belgium Nurses- n=18		Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
4. Elizabeth Norton et al. 2012 USA-social worker-9		Y	Y	Y	Y	Y	N	N	Y	Unc	Y	include	
5. JJ Georges et al. 2008. Netherlands 30 GPs		Y	Y	Y	Y	Y	N	N	Y	Unc	Y	Include	
6. Snijdewind et al., 2014 (Netherlands, 28 physicians)		Y	Y	Y	Y	Y	N	N	Y	N	Y	include	
7. Katja ten Cate et al., 2017-33 physicians netherlands		Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
8. Donald G Van tol et al., 2012. Netherlands 15 physicians		Y	Y	Y	Y	Y	N	N	Y	N	Y	include	
9.Veronica Lorraine Fausto Melchor, 2018. USA Hospice social worker 8		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	include	
10. Pamela Miller et al., 2008 Oregon SW-8		Y	Y	Y	Y	Y	N	N	Y	Unc	Y	Include	
11. Deborah Volker et al., 2001. USA Onco Nurse-40		Y	Y	Y	Y	Y	N	N	Y	Unc	Y	Include	

12. michael Young et al., 2008 Canada nurses-22	Y	N	Y	Y	Y	N	N	Y	Y	Y	exclude	Study done at a time assisted death not legal, so does not meet inclusion criteria.
13. Rosanne Beuthin et al., 2018 Canada nurses-17	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
14. eva Bolt et al., 2017 Netherlands paediatrician-8	Y	Y	Y	Y	Y	N	N	Y	NR	Y	include	
15. Dolores Angela Castelli Dransart et al., 2017 Switzerland-20 nurse, 1 physician, 8 directors, 3 socio-cultural animators.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
16. Marianne Dees et al., 2012 Netherlands-phy-28	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
17. Theresa Harvath et al., 2006. USA hospice social workers-20	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
18. Ina Otte et al., 2017. Switzerland GP's-20	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
19. Ada van de Scheur, Arie van der Arend, 1998 Netherlands Nurse-20	Y	Y	Y	Y	Y	N	N	Y	Unc	Y	include	
20. Belanger E. et al., 2019 Canada-palliative care physicians-18	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
21. Jessica Shaw et al., 2018. canada phy-8	Y	Y	N	Y	Y	N	N	Y	Unc	Y	include	
22. Judith Schwartz 2004. USA nurses-10	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	

23. Dobscha SJ et al., 2004. USA phy-35	Y	N	Y	Y	Y	N	N	Y	Y	Y	Exclude	No theme of emotional impact.
24. Galusko et al., 2015, Germany 19 specialized palliative care physicians.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Exclude	Desire to hasten death-definition ambiguous
25. Susanne Brauer et al., 2015. Switzerland, 12 physicians	Y	Y	Y	Y	Y	N	N	N	N	Unclear	Exclude	Opinions known, but no emotional impact theme
26. Linda (b) Oregon phy-35	N	Y	Y	Y	Y	N	N	Y	Y	Y	Exclude	Physician opinion of patients req
27. Deborah-texas nurses-36	N	Y	N	Y	Y	N	N	Y	Unclear	Y	Exclude	No of the nurses participated in assisted suicide in any way
28. D Van Rooyan, Dutch nurses-7	N	N	Y	Y	Y	N	N	Y	N	Y	Exclude	More with withdrawal of treatment does not meet criteria
29. vanderspank canada Nurses	N	N	Y	Y	Y	N	N	Y	Y	Y	Exclude	SR on nurses experience with withdrawal of treatment- does not meet criteria
30. Joanne Wolfe USA 324 Oncologists	Y	N	N	Y	Y	N	N	N	Y	Y	Exclude	Telephone based survey interviews.
31. Booij et al., 2012 Netherlands 15 physicians	Y	N	Y	Y	Y	N	N	N	Y	Y	Exclude	No particular description of emotional impact
32. Denier et al., 2010 Belgium 18 Nurses	Y	N	Y	Y	Y	N	N	Y	Y	Y	Exclude	More about communicati

													on and communication attitudes and not about emotional impact
33. Bernadette Dierckx 2010 Belgium 18 nurses	Y	N	Y	Y	Y	N	N	Y	Y	Y		Exclude	Stage of carrying out a request, no emotional impact described.
34. sercu et al. 2012	Y	N	Y	Y	Y	N	N	Y	Y	Y		Exclude	Palliative sedation and euthanasia-boundary lines unclear in the paper.
35. Volker 2007 USA. 19 oncology advanced practice nurses	Y	N	Y	Y	N	N	N	Y	Y	Y		Exclude	No engagement in assisted death as illegal in the place of practice.
36. Thulesius et al. 2013 Sweden	Y	N	Y	Y	N	N	Y	N	Y	Y		Exclude	No engagement, assisted death is illegal in Sweden. Majority data from HCPs in Sweden.
37. Marike E. de Boer 2011 Netherlands.	Y	N	Y	Y	N	N	Y	Y	Y	Y		Exclude	Experiences, but no emotional impact
38. Neel De Bal 2006 Belgium	Y	N	Y	Y	N	N	Y	Y	Y	Y		Exclude	Conducted at a time when Euthanasia was still illegal, hence does not meet

												inclusion criteria.	
39. Bernadette 2006 Belgium	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	As above.
40. Veerport et al 2006 USA	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	As above
41. Wright et al., 2017 Canada	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	Data collected in 2012-2013 when MAiD illegal.
42. Curry et al., 2000 USA, Connecticut 909 physicians.	Y	N	Y	Y	N	N	N	N	Y	Y	Y	Exclude	Assisted suicide illegal, Plus experiences and no emotional impact
43. Susan Price 2001 USA, 11 nurses and 10 physicians. North Carolina	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	Assisted suicide illegal in North Carolina, hence does not meet inclusion criteria
44. France Norwood 2009 Netherlands	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	No emotional impact. Evaluates absence of abuse
45. Smith et al., 2013 USA, South Mississippi	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Exclude	Assisted death illegal in mississippi and hence does not meet inclusion criteria
46. Beuthin et al., 2020 Canada 8 physicians.	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	include	
47. Khosnood et al., 2018 19 physicians, Canada	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Include	

48. Pesut et al., 2020 59 RN and NPs, Canada	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	include	
49. Keri-Lyn Durant and Katherine kortes Miller 2020 Canada	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Include	
50. Snijedewind et al., 2016 Netherlands 28 physicians	Y	Y	Y	Y	N	N	Y	Y	Y	Y	include	
51. Mathews et al., 2021. Canada 23 palliative care providers (13 physicians, 10 nurses)	Y	Y	Y	Y	N	N	Y	Y	Y	Y	include	

Grey literature	JBI Checklist	Q1:Congruity b/w philosophy and research	Q2:congruity b/w research method &question	Q3:congruity b/w Research method &Data collection	Q4:congruity b/w Research method & analysis	Q5: congruity b/w Research method & Results	Q6:Statement Locating the researcher	Q7: Influence Of Researcher addressed	Q8: Adequate Representa-Tion of Participants	Q9:ethical approval	Q10: Conclusion Flows from analysis	Appraisal	Reason for exclusion
1.Rosanne Beuthin, 2018. Canada. Nurse-1		Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
2. Evenblij et al., 2019. Netherlands, 1374 phys		Y	Y	Y	Y	Y	N	N	N	Y	Y		Exclude. 12 page questionnaire survey. Indepth exploration of emotion impact.
3. Alison Townsley 2018, Canada. 7 Nurses, SW and PSWs.		Y	Y	Y	Y	Y	Y	N	Y	Y	Y	include	
4. Gamondi et al., 2017, Switzerland. 23 palliative care physicians		Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
5. Bouthillier M-E, Opatry L 2019		Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
6. Joy Cayetano-Penman et al., July 2021 Australia. 21 Nurses.		Y	Y	Y	Y	Y	N	N	Y	Y	Y		Exclude. More a knowledge And attitude Rather than emotion impact.

7 Bruce A, Beuthin R 2019.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	
8. Buchbinder et al, 2019 Vermont, USA. 37 health Care providers	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	include	
9 Allyson Oliphant 2017, Canada	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	include	
10 Kopchek, Lauren 2020, Canada. (masters thesis or Nurses)	Y	Y	Y	Y	Y	N	N	N	Y	Y		Exclude as study explored the ethical decision making experiences rather than emotional impact.
11 Gagnard, ME., Hurst, S. 2019. Switzerland. 26 Palliative as well as Primary care Providers.	Y	Y	Y	Y	Y	N	N	Y	Y	Y		Exclude. Explores Perspective on Existential Suffering and Not on Emotional Impact.
12 Ellen Wiebe et Al, April 2021. Canada. 14 Physicians and 1 NP	Y	Y	Y	Y	Y	N	N	Y	Y	Y		Exclude. Themes of Difficulties Providing MAiD during Covid 19 Rather than emotional Impact.
13. Sheridan, Laura 2017	Y	Y	Y	Y	Y	N	N	Y	Y	Y	include	

Total Included studies (N): 27 (Databases: OVID Medline, EMBASE, CINAHL, SCOPUS) + 8 (Grey literature search)=35

Critical Appraisal tool: The Joanna Briggs Institute Critical appraisal tools for use in Systematic reviews: checklist for Qualitative research Available from:

<http://joannabriggs.org/research/critical-appraisal-tools.html>

Discussion: Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *Int J Evid Based Healthc.* 2015;13(3):179–187.

Grey Literature databases (December 10th 2018 to March 1st, 2019, updated August 2020 and August 2021)

Total # Records after de-duplication: 13. Records selected after applying critical appraisal tool: 8.

Database	Search strategy	#records screened	# new records selected after applying after de-duplication and applying critical appraisal tool
Google scholar	With the exact phrase: "Medical assistance in dying" ; "physician assisted suicide"; With all the words: "emotional impact on health care providers involved in medical assistance in dying"	400	5
Des Lebris/Canadian Electronic Library	Medical assistance in dying	5	0
Canadian Institute of Health Information (CIHI)	Medical assistance in dying	7	0
OAIster database (includes WordCAT)	Medical Assistance in dying, Physician assisted suicide as key word	206	2
OpenGrey	Medical assistance in dying, Physician Assisted suicide as key word	4	0
BASE (Bielefeld Academic Search Engine)	Subject Heading search: "Medical Assistance in dying"	670	1

Selected records:

Google scholar included Results:

1. Beuthin R. Cultivating Compassion: The Practice Experience of a Medical Assistance in Dying Coordinator in Canada. *Qualitative Health Research*. 2018;28(11):1679-1691. doi:[10.1177/1049732318788850](https://doi.org/10.1177/1049732318788850)
2. Bouthillier M-E, Opatrny L. A qualitative study of physicians' conscientious objections to medical aid in dying. *Palliative Medicine*. 2019;33(9):1212-1220. doi:[10.1177/0269216319861921](https://doi.org/10.1177/0269216319861921)
3. Bruce A, Beuthin R. Medically Assisted Dying in Canada: "Beautiful Death" Is Transforming Nurses' Experiences of Suffering. *Canadian Journal of Nursing Research*. June 2019. doi:[10.1177/0844562119856234](https://doi.org/10.1177/0844562119856234)
4. Alison A. Townsley. Putting a Bow on Death and Dying-Health Care Professionals' Experiences with Medical Assistance in Dying (MAiD): A Foucauldian Discourse Analysis with Agambian Insights. [Practice Based Research Paper on the Internet]. York University School of Social Work; 2018. [Cited February 28,2019] Available from: https://yorkspace.library.yorku.ca/xmlui/bitstream/handle/10315/35613/Alison_Townsley_PRP_2018.pdf?sequence=1
5. Gamondi C, Borasio GD, Oliver P, Preston N, Payne S. Responses to assisted suicide requests: an interview study with Swiss palliative care physicians. *BMJ Support Palliat Care*. 2019 Mar;9(1):e7. doi: 10.1136/bmjspcare-2016-001291. Epub 2017 Aug 11. Available from <https://pubmed.ncbi.nlm.nih.gov/28801317/>

OAlster included Results:

1. Implementing Medical Aid-in-Dying in Vermont: a Qualitative Study. *J GEN INTERN MED* **34**, 636–641 (2019). <https://doi.org/10.1007/s11606-018-4811-1>
2. Allyson Oliphant. "If Not Me, Then Who?" The Narratives of Medical Aid in Dying (MAiD) Providers and Supporters Around Their Professional Identity and Role in MAiD [Thesis on the Internet]. MacMaster University; 2017. [Cited on February 10, 2019]. Available from <http://hdl.handle.net/11375/22146>

BASE included results:

1. Sheridan, Laura, "When Patients Ask to Die: The Role of Nurses in Medical Assistance in Dying" (2017). Electronic Thesis and Dissertation Repository. 5041. <https://ir.lib.uwo.ca/etd/5041>

Table 2: Description of articles included in qualitative meta-synthesis:

Study	Number and country of origin of participants	Description of participants	Extent of engagement in the MAiD process	Method of interview	Method of analysis	Emotional theme explored
1. <i>Voorhees et al., 2014</i>	23 physicians, 18 from USA (5 from Oregon), and 18 from Netherlands	@40% from primary care, majority >40 years	Physician assisted dying discussions.	40-70 min, one-one semi structured interviews	Modified 5-step framework-familiarization, identifying a theme, indexing, charting, mapping and interpretation.	Themes related to reflective emotions and sense of growth along with themes emotional labor and conscientious-based emotions.
2. <i>Marwijk et al., 2007</i>	22 primary care physicians, Netherlands	Variable range of experience, 5 PCPs participated in the Support and Consultation Regarding Euthanasia (SCRN)	Discussing and performing assisted death	4 focused groups, homogenized as per age and gender.	Content analysis within a coding frame of three themes of (1) emotional experience; (2) coping (dealing with and managing the event) and (3) role of the physician.	Themes related to reflective emotions and sense of growth along with themes emotional labor and conscientious-based emotions.
3. <i>Denier et al., 2010</i>	18 nurses from 5 provinces of Flanders, Belgium	Registered nurses (13 women, 5 men) of geriatric, oncology, internal medicine, and palliative care. All had positive attitude, except one who was conscientiously objecting.	Discussing and performing assisted death	1.5h in-depth interviews, think back to a specific, recent case of caring for a patient requesting euthanasia and to recount the way in which they experienced this	Grounded theory design	Themes related to role-assigned emotions along with themes of emotional labor.

				process as a whole		
4. Norton et al., 2012	9 social worker hospice practitioners in Oregon, USA.	Represent several health systems in Oregon	involved in discussions with family of those participating in assisted death ('add on') and 'context interpreters'	Focused group	Thematic analysis	Themes related to role-assigned emotions (for example advocacy and feeling of being a 'gate-keeper')
5. Georges et al., 2008	30 general physicians in Netherlands.	71% male, 29% female, 46% had restrictive and 14% had permissive attitudes towards euthanasia.	89% had received explicit requests and were involved in discussions, and 64% had participated in EAS	In-depth interviews	Constant comparative method of analysis	Emotional theme of reflective emotions (example, feeling of sense of growth)
6. Snijde wind et al., 2014	28 General Physicians in Netherlands	Physicians who had received a request from someone suffering from dementia or a psychiatric illness, or who was "tired of living," as these are cases that are often regarded as complex.	Involved in decision making of assisted death for respective patients.	In-depth interviews	Open coding and inductive analysis	Emotional theme of reflective emotions (example, reflecting on individual meaning of suffering)
7. Katja ten Cate et al., 2017	15 General Practitioners in Netherlands	8 GPs with liberal attitude, 5 with conservative attitude and 2 with neutral attitude towards assisted death. Mean age 51.2 years.	1-2/>2 assisted deaths performed.	In-depth interviews	several phases of coding (axial and selective coding); codes were refined, sub codes and overarching codes were assigned and relationships between codes were explored. Interviews were also analysed as a whole, to look for	Emotional theme of reflective emotions (example, reflecting on feelings of what is happening during the last stage of life)

					patterns and inconsistencies in reasoning.	
8. <i>Donald G Van Tol et al., 2012</i>	15 physicians in Netherlands	Fourteen of them were general practitioners. Seven of them were also active as a consulting doctor, one was a nursing home doctor who was also working as a consulting doctor.	Physicians were consulting doctors of Euthanasia and have successfully completed a formal training program.	In-depth semi-structured interviews	Grounded theory approach by Glaser and Strauss and Glaser	Emotional theme of reflective emotions (example 'imagine self', cognitive reflection)
9. <i>Melchor Lorraine 2018</i>	8 social workers in California, USA.	75% female with 60% having an average 5 years of experience in hospice care.	assist patients and family with the death and dying process, may connect them to additional community resources, and offer counseling to improve and maintain emotional, psychological, social, and physical well-being	In-depth semi-structured interviews	Open coding, axial coding, selective coding, and conditional matrix stages of data analysis.	Emotional theme of role-assigned emotions (example, feeling of pro-self-determination and advocacy).
10. <i>Miller et al., 2002</i>	8 social workers in Oregon, USA	2 men, 6 women, age range of 27-64, 3-22 years' experience in hospice care	Active engagement in end-of-life care and assisted suicide discussions.	interviews	Ethnographic study and constant comparative method of analysis	Emotional theme of role-assigned emotions (example advocacy and self-determination)
11. <i>Beuthin et al., 2018</i>	17 Nurses in Canada	NPs, RNs, and LPNs, from urban and rural areas across Vancouver Island, British Columbia, working across	15 nurses had direct experience with MAiD, 7 were involved in some aspect of assisted death in the patient's journey (e.g., providing	In-depth semi structured interviews	Descriptive narrative enquiry and thematic analysis	Emotional theme of reflective emotions (example, a sense-making process)

		settings including acute care, residential care, primary care clinics, and community and palliative care.	information, acting as witness to the medical assessment, providing care before or after, etc.)			
12. Bolt et al., 2016	8 pediatricians in Netherlands	8 pediatricians who were interviewed were 5 men and 3 women, aged 44–62y, working in four academic and three general hospitals	25% had received an explicit request for Physician-assisted death, with 7% in the last two years, and the requests were mostly made by parents (25%) and sometimes by patients (6%)	Semi-structured interviews	Qualitative Analysis Guide of Leuven method was used for the analysis. Mixed method approach.	Emotional theme of role-assigned emotions (example, feeling of duty)
13. Dolares Angela Castelli Dransart et al., 2017.	1 physician, 8 directors of sociomedical institutions or organizations, 10 head nurses, 8 nurses, 10 nursing assistants or care assistants, and 3 sociocultural animators, Switzerland confronted with assisted suicide requests.	27 men, 13 women, mean age 52y.	14 had been faced with suicide or assisted suicide in their personal life, beside the situation of assisted suicide at work. None of the respondents interviewed had physically provided the lethal substance to perform the assisted suicide (a task assigned to Right to Die associations), nor were they directly involved in the decision-making process that enabled the assisted suicide to take place (except for one physician). In fact, the vast majority of these professionals	Semi-directive interviews conducted at workplace.	Grounded theory using 3 types of coding-open, axial and selective.	Emotional theme of role assigned emotions (example, feeling of professional compromise)

			(except for two) declared that not only did they appreciate the fact that Right to Die associations assumed the task of delivering the lethal substance and physically assisting the requestor, but they also did not want to be led to do it themselves in the future			
14. <i>Mariann e Dees et al., 2012</i>	28 physicians in Netherlands	20 males, 8 females, 22 GPs, 1 elderly care 2 GP trainees and 1 psychiatry	once in 3-5 years' experience with assisted death.	In-depth interviews with patients who had explicitly requested assisted death, their most involved relatives and their treating physicians	Thematic analysis	Emotional theme of reflective emotions (example, relational and feeling of trust in physician-patient relationship)
15. <i>Harvath et al., 2006</i>	20 hospice social workers and nurses in Oregon, USA.	--	The 20 hospice social workers/nurses described 33 different cases of terminally ill patients who had requested them to hasten death through physician assisted suicide (n = 22)	Semi-structured, In-depth interviews.	Thematic analysis	Emotional them of role-assigned emotions (example, feeling of professional failure, professional dilemmas and inner debate).

16. <i>Ina Otte et al., 2016</i>	20 General practitioners (GPs) in Switzerland., 3 declined to participate due to personal discomfort with assisted death.	GPs who had chosen to refuse to assist a patient's suicide comprise the largest group in the study and provided the most insights.	Receive 1-3 requests of physician assisted suicide per year. 2/3 rd of the GPs interviewed had chosen to refuse to assist a patient's suicide comprised the largest group in the study and provided the most insight into their handling of requests for PAS.	In-depth semi-structured interviews.	Thematic analysis	Emotional theme of basic emotions with conscience-based avoidance/rejection of MAiD (example, feeling of moral distress)
17. <i>Ada van de Scheur and Arie van der Arend 1998</i>	20 nurses in Netherlands	According to different phases of Euthanasia: Observation of a request for euthanasia: 17 nurses. 2) Decision making: 14 nurses. 3) Carrying out of euthanasia: 12 nurses. 4) Aftercare: 14 nurses	Engagement as per different phases of Euthanasia	In-depth semi-structured interviews.	Thematic analysis	Emotional theme of role-assigned emotions (example, feeling of moral distress)
18. <i>Emmanuelle Bélanger et al., 2018</i>	18 university affiliated palliative care physicians in Quebec, Canada	Participants positioned themselves opposite euthanasia	majority of the palliative care physicians on staff at the palliative care units of two public hospitals located in an urban area of Quebec. All participants were full-time palliative care physicians, and like most palliative care providers in	In-depth semi-structured interviews.	Inductive methodology of Interpretive description.	Emotional theme of role-assigned emotions (example, professional dilemmas and conflicting values with palliative care)

			Canada, the majority of them (16 out of 18) were family physicians. As expected, all participants expressed discomfort with euthanasia as an aspect of end-of-life care. All but one denied the influence of religious or political positions in shaping their views.			
19. <i>Jessica Shaw et al., 2018</i>	Eight physicians who offered MAID in British Columbia in 2016, Canada	3 were from greater Vancouver, 3 were from Victoria, and 2 worked in a small community on Vancouver Island. Seven were family doctors and 1 was a general internist. Their ages ranged from 37 to 64 years. There were 2 men and 6 women; 6 worked full-time and 2 worked part-time.	Collectively, by the end of December 2016, the 8 physicians in this study had assessed 332 people who were seeking MAID and had completed 135 assisted deaths	In-depth semi structured interview via phone call/email	Qualitative thematic analysis	Emotional theme of basic emotions, especially positive emotions (example, sense of fulfilment)
20. <i>Judith Schwarz, 2004</i>	10 nurses who worked in home hospice, critical care, and HIV/AIDS care settings, USA	Four worked in hospice home care, three were advance practice nurses who worked with persons with AIDS, two worked	Nurses were eligible to participate in this study if they believed that a competent patient had made a serious request for their help in dying.	In-depth interviews done at least twice for 7 participants .	van Manen's approach to phenomenology phenomenological interpretation and analysis (phenomenological enquiry)	Emotional theme of role-assigned emotions (example, feeling of human-human response and connectedness)

		in critical care, and one was a clinical nurse specialist in the care of patients with spinal cord injuries. Two of the ten nurses were male, all were Caucasian, middle-aged, well educated (three PhDs; five Masters of Science in Nursing), and clinically experienced (6–35 years)				
21. <i>Marie-Eve Bouthillier and Lucie Opatrny</i> 2019	22 conscientiously objecting physicians in Quebec, Canada	26 to 67 years (mean: 45 years), 12 of them were male (54.5%). 14 Family physicians, 2 oncology and 1 each from psychiatry, neurology, nephrology, intensive care, geriatrics and pneumology. 14 from catholic background.	Physicians had received requests, had discussions with patients regards to MAiD, and conscientiously objected to participate.	Semi-structured interviews. eight open-ended questions Interviews ranged in length from 15 min to 1 h, with a mean length of 24 min (median length = 21 min). think back to their first medical aid in dying request (as some physicians had received	descriptive thematic analysis	Emotional theme of basic emotions (for example emotional labor, burden and fear of psychological repercussions)

				more than one request) and describe the reasons which motivated their refusal.		
22. <i>Gamondi et al., 2017</i>	23 palliative care physicians across Switzerland	65% German, 30% French and 5% Italian speaking	Regularly received assisted suicide requests. The involvement of Swiss physicians is mostly confined to the decision-making phase; medical certification of diagnosis and mental capacity.	Semi-structured interviews.	thematic analysis	Emotional theme of role-assigned emotions (example professional role-related feeling of ambiguity, fear of being stigmatized as physicians, feeling of walking a tight rope.)
23. <i>Rosanne Beuthin, 2018</i>	female, of Anglo-European ancestry, age mid-fifties, living in an urban center, Canada	Doctorate in nursing and was employed as a consultant under an end-of-life Program to enact a new MAiD program.	daily journal entries made over a 6 month period, from the first day of immersion in the role and culture of MAiD from late May to October 2016	Raw autobiographical text held scattered floods of ideas and released emotions into a thick created Story.	autoethnographic approach-reflective analysis	Emotional theme of reflective emotions (example, feeling of embodiment, compassionate care and sense-making reflective emotions. Exploring tensions around language, attitudes)
24. <i>Anne Bruce and Rosanne Beuthin, 2019</i>	15 RNs/NPs/LPNs from British Columbia, Canada.	Participants worked in diverse settings including acute care, community-home care, and specialty areas including emergency	Eight nurses had directly aided with MAiD and cared for the patient at home or in a care setting. Seven had been involved indirectly with patients such as providing assisted	Semi-structured interviews-(1) tell me about your first experience of being asked to participate	narrative inquiry and thematic analysis	Emotional theme of reflective emotions (example fear of desensitization with deeper questioning) along with complex emotions of "compassion

		room and palliative care.	dying information upon request and listening to patients and families as they explored pursuing MAiD	in a medically assisted death and how you came to the decision to participate or not and (2) tell me about the MAiD experience itself. What was most challenging ?		satisfaction” as well as compassion fatigue
25. <i>Alison Townsley 2018</i>	seven nurses, social workers, and personal support workers, Canada	Health care professional enrolled through purposive sampling.	Engaged in discussions and assessments of patients requesting MAiD.	one-on-one, semi-structured interviews with health care professionals	Foucauldian Discourse Analysis perspective. Interview data is analyzed by situating the health care professional as an effect, as a producer, and as a challenger of power-knowledge systems. Philosophical theories of Giorgio Agamben are applied to the data to challenge Foucauldian principles, and to bolster the discussion of defining of the body that deserves to live,	Emotional theme of reflective emotions (example, emotions emerging from engagement of the individual in terms of power, knowledge and individual identity)

					and the body that deserves to die.	
26. <i>Buchbinder et al., 2019</i>	37 health care providers in Vermont, USA.	Health care providers from Hospital and community-based practices. Most were women (68%) and the largest subgroup specialized in internal or family medicine (53%). Most of the nurses and social workers were women (89%) and most worked for hospice and home health agencies (61%).	19 physicians (10 internal medicine, 4 palliative care, 3 neurology, 2 oncology), 12 had participated in Act 39 (The patient Choice and control at End-of-Life Act) as prescribing physicians, the remainder had initiated but not completed the Act 39 protocol (n = 3), participated as a second physician to confirm the patient's diagnosis, prognosis, and decisional capacity (n = 3), or counseled patients (n = 1). The mean age of nurses and social workers (n=18, 9 hospice/home nurse, nurse practitioner 5, inpatient palliative care 2, hospice social worker 2) was 52.5, with most working for hospice and home health agencies (61%). While all professionals in this group engaged in clinical care for patients pursuing Act 39, specialty clinic nurse	One-to-one semi structured interviews	Grounded theory approach	Emotional theme of role-assigned emotions (example pride, burden etc.)

			practitioners were more likely to assist with navigating access to the aid in dying. Participating health care professionals worked in ten of Vermont's 14 counties			
27. <i>Allyson Oliphant, 2017</i>	4 physicians. 4 nurses and 6 HCPs (allied health care professional social workers (1), spiritual care providers (1), pharmacists (1), genetic technologists (1) and psychologists (2).) of team ADRAS in Hamilton, ON.	Of the data available, 2 were semi-retired family physicians, One is an intensive care physician with a background in cardiology, and the second is an Emergency Room physician with training in palliative care.	All participants are members of the ADRAS (assisted dying resource and assessment service) who support the practice of MAiD. Every participant had a capacity to be flexible.	One to one semi-structured interviews.	Grounded theory approach	Emotional theme of reflective emotions (example, emotions related to related to professional identity, sense making, feeling of obligation to serve)
28. <i>Laura Sheridan 2017</i>	nine palliative care nurses in southwestern Ontario, Canada	3 males, 6 females. 3 participants worked in residential hospices where MAiD was not supported as an end-of-life option, six participants worked in the community providing home care where MAiD is an option in end-of-life planning. Two participants had	Participants in the study indicated that nurses may act as a liaison between physicians and nurse practitioners who have the authority to assess patient eligibility and provide the intervention of MAiD and the patient, notifying them of an inquiry about or a request for MAiD	One-to-one semi structured interview.	interpretive description qualitative methodology	Emotional theme related to role-assigned emotions (example, emotional expressions ("hard conversations") related to nursing role, struggle related to moral conflicts.

		previous inpatient hospital experience in emergency care and in intensive care specialties.				
29. <i>Khosnood et al., 2018</i>	19 physicians, Canada. Quebec not included.	Half of the participants were palliative care specialists (n = 8), with the remaining representing Family Medicine (n = 4), Anesthesia (n = 2), Hematology (n = 1), and Obstetrics & Gynecology (n = 1). The majority of participants practiced in an urban setting (n = 13).	Average 6.9 MAiD cases.	In-depth semi-structured telephone-based interviews.	inductive thematic analysis approach	Emotional theme of role-assigned emotions (example burn out, negative effect on inter-professional relationships vs. increased feeling of respect)
30. <i>Beuthin et al., 2020</i>	8 physicians, Canada.	Participants included general practitioners (GPs) and Non-specialist physicians from urban and rural communities working in acute and palliative care. Ages ranged from 33 to 62 years (average age 49), with an equal number of men and women. The majority identified no active religious	experience with MAiD provision ranged from 12 to 113 assisted deaths. Only one physician was dedicated to full-time provision.	In-person or telephone-based semi-structured interviews.	interpretive descriptive methodology and thematic analysis	Emotional them of reflective emotions, (example complex emotions of compassion satisfaction, embodied awareness, soul-searching)

		affiliation, and ethnicity was withheld to protect anonymity. Years of experience ranged from 6 to 38 years (average of 23).				
31. <i>Keri-Lyn Durant and Katherine Kortess-Miller 2020</i>	23 physicians of Rural area, northwestern Ontario, most of subarctic Ontario.	23 physician participants ranged in age from 26 to 63, with a mean age of 43 years. Physicians worked in a variety of settings, with 14 in an urban setting – in family practice, as a hospitalist or other specialist, in the emergency department, in palliative care, and in long-term care. Nine participants declared a rural practice, and self-identified as rural generalists, working on a First Nations' reserve, in a community, at a satellite clinic, or 'All of the above'.	11 identifying themselves as acting both as assessor and provider, 1 as assessor only, 4 as providing referrals upon request, and 7 without any direct/indirect experience. These seven were included in the study because they expressed a desire to participate and reported that their practice and the community had been impacted by the legislation. There was also a variance in terms of exposure to death in practice, with an estimated total between 2 and 250 deaths per annum	using 1 semi-structured focus group and 18 semi-structured interviews comprising 9 set of questions	Thematic analysis	Emotional theme of role-assigned emotions (example, feeling of impact on inter-professional relationships, feeling of unpreparedness.
32. <i>Snijder et al., 2016</i>	secondary analysis of in-depth	Respondents were recruited both by the network of physicians	Twenty-two respondents worked as family physicians, and six	One-to-one semi-structured interviews.	Thematic analysis	Emotional theme of reflective emotions (example, those related to meaning

	interviews with 28 Dutch physicians who had experience with a complex case of EAS	working for SCEN (Support and Consultation for Euthanasia in the Netherlands) as well as via a national Questionnaire. Nine of the respondents were female. The respondents' age ranged from 36 to 68 years	worked as medical specialists (three elderly care physicians, a psychiatrist, an internist and a lung specialist). Next to this, six of the respondents also worked as SCEN physicians. All had experience with EAS requests and the performance of EAS.			of suffering, blurring emotional boundaries)
33. Pesut <i>et al.</i> , 2020	59 registered nurses and nurse practitioners in Canada	n = 9 (15%) were conscientious objectors, Spiritual or Religious Affiliation: n = 33 (56%) Neither: n = 15 (25%); Spiritual but not Religious: n = 11 (19%) Home & Community: n = 32 (54%); Acute Care: n = 10 (17%); Long-term care: n = 5 (9%); Hospice: n = 4 (7%); Clinic: n = 3 (5%)	24 of the 59 participants had conducted more than 25 conversations with patients about MAiD, and 11 of the 59 participants had been involved with more than 25 patients who went on to receive MAiD.	Semi-structured interviews conducted on telephone. Question examples: (i) Can you tell us how the process of MAiD occurs in your practice context? (ii) What resources and practice supports are available to assist you in caring for MAiD patients? (iii) Tell us about your experiences with MAiD?	Qualitative approach guided by Interpretive Description. data immersion, open coding, constant comparative analysis, and the construction of a thematic and interpretive account. Transcripts include emotions evident during the interview (e.g., crying).	Emotional theme of role-assigned emotions (example, emotions related to find themselves caught between the proverbial "rock and hard place." With feelings of Emotions of frustration, powerfulness of the experience, feeling drained out)

				The average length of interviews was 55 min.		
34. <i>Deborah Volkar et al., 2001</i>	40 oncology nurses who received requests for assisted death in USA.	48% in hospital/multi-hospital settings. 9 female, 1 male. Mean age 45 y.	30% had received requests for assisted suicide, 6 (1%) engaged in assisted suicide, and 20 (4.5%) admitted to intentionally injecting a drug to end a patient's life.	Recipients were requested to submit a written account or story of receiving a request for assistance in dying from a terminally ill patient with cancer.	Denzin's process of interpretive interactionism with an emic, ideographic approach. That is, individual experience is considered to be unique; discovery of an individual's epiphany and associated meanings is the research focus	Emotional theme of basic emotions (example emotional labor) along with reflective emotions of feeling lack of control (or lack of it) and moral distress).
35. <i>Mathews et al., 2021</i>	23 palliative care providers (13 physicians and 10 nurses) who practiced for 6 months or more before and after the introduction of MAiD, in inpatient and community-based settings that supported assisted death in southern Ontario, Canada.	54% of physicians and 90% of nurses were female with a mean age of 43 years and 42.6 years respectively.	All the participants described having discussions with patients regarding MAiD and 7/23 participants (4 nurses and 3 physicians) described directly witnessing assisted death. 8/13 physicians made referrals for MAiD, 4 conducted assessments, and 3 physicians were MAiD providers; 3 physicians identified as conscientious objectors. None of the nurses identified themselves as conscientious	Semi-structured interview based on pre-determined interview guide	Braun and Clarke's version of Thematic analysis	Emotional theme of role-assigned emotions (example Role-driven emotional themes of Emotional, psychological and resource burden along with theme of emotional labor)

			objectors, although some expressed moral or religious conflict around MAiD.			
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Table 3: Codes and Themes table: This table represents line-by-line coding (underlined) of each study (numbered in parenthesis corresponding to the table 2 above). These codes have been subsequently grouped into descriptive themes in their respective boxes.

A) Over-arching theme of basic emotions:

<p>Theme 1: Emotional labor (positive/negative emotions) Codes: <u>"rewarding"</u> <u>"liberating"</u>, "Well please let someone else do this question", "blood had <u>frozen</u> in my veins", I just felt just totally cold all over. I had no idea of what to do. I realized there was no help I could get from anywhere . . . I . . . felt as though I was . . . <u>impotent to help</u> them. "If possible, I would run away. But I see it as the last part of my care. I have taken care of that patient for years and now at the moment . . . when she needs me most . . . I would be a <u>coward to run away</u> then. (1) <u>"I felt very lonely"</u> <u>"heroic feelings"</u>, <u>"tense"</u>, <u>"scary"</u>, <u>"terribly creepy"</u>, <u>"felt pressured to succeed"</u>, "suffer a loss yourself when someone like that dies" <u>"terribly manipulated"</u>, "felt slightly put upon, <u>angry"</u> 'let off steam' (2) <u>"feeling of ambivalence"</u>, <u>"intense"</u>, "gradually feel less secure, <u>less fearful"</u>, "surprisingly <u>grateful"</u> . "very <u>demanding and emotionally distressing"</u> (3) "very demanding, generally like to avoid", <u>"drastic"</u>(5) , <u>"moral pressure"</u> , <u>"uncertain, complex"</u>(6), <u>"very hard"</u>(7), "feeling choked up or shedding a tear" "Feeling positive emotions of <u>peace and amazement</u> were more surprising and often shared cautiously in public" , "had difficulty finding effective words for the paradoxical experience of witnessing death that is, <u>both "sad" and "beautiful."</u> (11). "felt reluctant as it is difficult to predict" (12). "feeling of <u>enrichment"</u>, "feeling of sorrow and intrusive thoughts", "feeling like weathering the storm", "<u>empathy and emotional closeness"</u>, "<u>personal compromise"</u> (13). "<u>do not feel competent"</u> (16).</p>	<p>Theme 2: Conscience based emotions. Codes: "making pluses and minuses about it . . . but . . . 'What's it doing to me? I'm going to kill someone tonight.' [respondent began to cry], "I have to do no harm, and I just feel that if you're assisting someone in dying . . . it's against what I've been trained . . . It's not up to me to decide when the patient dies . . ." (1); <u>"killing another person is not the solution. It's in the ten commandments"</u> <u>"sense of guilt.</u> I feel as if I'm an executioner. Who am I to have the right to do this?" (2); <u>"Conscientiously, I find it hard to come to terms with euthanasia"</u> (3); Clarity of conscience- "a <u>sort of trap</u> that can't be avoided. That in spite of everything you can offer, a terminal stage can be so heavy, perhaps too heavy for a patient. In fact, I always see it as an emergency exit. When I am talking about it with a patient I say, "yes we will consider it, if you don't want to go on any longer and if I have nothing more to offer you to make it better"(5); "I am a Christian so I have <u>strong feelings because of my belief and my background, believe that no human being should be in the position to hasten death."</u> (10); <u>cannot bear the idea of killing one</u> of my patients", I do not feel competent to deal with the topic...especially for my personal psychological health, "<u>challenges my belief</u>, I do not understand how it can be meaningful" (16)</p>
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<p>“rewarding work”, “honor”, “bit overwhelming”, “proud”, “incredible” “feeling like being on call all the time (19), “emotional burden”, “fear of psychological repercussions”, “uncomfortable”, fear of stigmatization (21), “fear of stigma/isolation, feeling of ambiguity” (22), “feeling courageous” (23), “satisfying and gratifying” “roller coaster”, “transformational feelings of beautiful death” (24), just feel coldness, or whatever. You just feel drained ...”(28), “unexpected rewards”, “enriching capacity of caring”, (30), “anxiety, shock, self-doubt”, “deep inside...conflict” (34); “walking quiet a tight rope”, was as prepared...but went outside and felt like I was about to throw up”, “actually, find them. . . they’re such beautiful experiences with family. It’s the shared experience with the family that you’re with that you have an opportunity to help.” (35)</p>	<p>“to see somebody lying there, to whom you brought a cup of tea that morning. And you know that everybody who gets a heart attack can die as well, but this was no heart attack. You know that, of course. So, somebody has been killed, just like that. . . That makes it different.” (17) “conflicted, trying to reconcile their own personal moral stance with facilitating the end of someone’s life” (28) “What would my family think that I’m working on a unit that does that [Medical Assistance in Dying]? Do I hide it from them. . .what if people find out that we do it? Are people going to come up here and start protesting? <u>People will see that as evil.</u>” (35)</p>
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B) Overarching theme of reflective emotions.

<p>Theme 1: relational “feeling of <u>trust and sympathy</u> in physician patient relationship strong” (14) “<u>human centered, compassionate care</u>” (23), “for somebody to approach you is almost an honor that they trust you enough to have this conversation, and to have to sort of shut them down, or acknowledge how they’re feeling” (empathy) (28), “<u>intimate, emotional engagement-rediscovers</u> the art of medicine”, (30), “indelible nature of the experience shared” (34) “as soon the topic [Medical Assistance in Dying] came up, that I was a conscientious objector and the person said that you’re not on my side, even though she was getting the service [MAID] . . .I was seen as somebody who was not helping her” (35)</p>	<p>Theme 2: Discourse based (control over a natural process of dying) “interesting discourse presented itself through idea of using stages to determine someone’s chances of survival, and the need for professionals to have something finite and concrete to measure”, “discourse that emerged through conversations with participants was how control (or masterhood) equates to people’s <u>sense of wellbeing</u>” “MAiD itself <u>presents a paradox insofar as one can be too sick to access this form of assistance that is exclusively designed to bring death to the most critically ill people</u>” “The most dominant discourse that emerged from this data set was participants <u>aligning what is right and good within the confines of the law.</u>” (25); “medicalization of a social problem” (32); “<u>degree of control over dying process</u>” (34).</p>
<p>Theme 3: Sense making process and related emotions. (Theme of Growth) “<u>You grow</u> with the problems of the patients” (1) “stay closer to their own beliefs” “long road to becoming aware of one’s own views” (2) “<u>meaning full experience</u>” “almost closer than when someone is <u>having a baby</u>” (5) “[EAS] is not an act, it’s a process towards which we both grow” (6), “Being in process, <u>holding an in-between space of uncertainty, reflection, and active sense-making</u>” (11); “pure moment of autonomous self-consciousness” “I am working and sense making as I go along, being sure that I <u>keep breathing</u>”,</p>	<p>Theme 4: Process influenced themes (suffering---relief--death) “<u>Invisible suffering made it harder</u> for the people close by to empathize and come to terms with the patient’s request and his/her death” (6); “for me, a lot of talk, talk about death and dying, talk about life, about saying goodbye, <u>really seeing and feeling what is happening in this last phase of life and reflect on that.</u> But not everybody is capable of talking and reflecting this way, while everybody is going to die. So that’s my problem” (7); “<u>imagine self</u>” and “<u>imagine other</u>” cognitive route. Use of <u>cognitive reflection</u> (8);</p>

<p>“feeling of embodiment, become the face of MAiD”, “bearing witness”(23); “worries of becoming desensitized and ongoing deeper questioning” (24); “their thoughtful silence after speaking or listening represented and solicited from me respect for the dead and the dying, seething inner anger, and perhaps the quietude that one experiences when their physical body feels the effects of being a challenger and resister in the strongest way possible” “Kind of <u>letting them have control over what they can have control over</u>” “<u>beautiful journey of self-reflection</u>”, “<u>grappling with identity</u>” (25); “<u>embodied awareness</u>”, “<u>soul searching</u>” (30); “<u>silent knowing</u>” (34)</p>	<p>“very difficult for me to let...go, to be so aware of saying farewell, and now I notice that as time passes it gets harder and harder for me” (14); “<u>sense of urgency</u> to hasten death” (23); “boundaries of EAS has shifted over time, <u>making feel stretched, tense and insecure</u>” “<u>not feeling competent</u> if suffering is existential” (32); “it’s been a bit of a challenge to delineate what we’re doing in relationship to the request for assisted dying and what normal care still continues to be” “struggle with the rules of a complex legislated and reporting process that determines it”(33)</p>

C) Overarching theme of emotions related to professional values:

<p>Theme 4: Role-assigned emotions</p> <p>Nurses: “predominantly tend to be <u>conformist</u> (following existing conventions rather than using critical reflection) when faced with ethical dilemmas. Combined with the emphasis of the medical responsibility in euthanasia care, and combined with the strong inclination of nurses to respect the patients’ wishes, it seems logical that nurses <u>interpret the gravity of the process in emotional terms</u>”(3); “<u>unchartered territory</u>,” where “there was almost no foundation” for providing this option, and “this is a whole new role for all of us.(being pioneers)” “duty to provide care” is being touted as “you don’t have a choice” and the information isn’t there [about] how to object if you don’t agree with” (11); “<u>moral distress</u>”, “<u>burden</u>”, see somebody lying there, to whom you brought a cup of tea that morning. And you know that everybody who gets a heart attack can die as well, but this was no heart attack. You know that, of course. So, somebody has been killed, just like that. . . That makes it different” (16); “<u>identifying the moral line</u>”, “<u>human-human response and connectedness because of the role played</u>”, “fear the potential for abuse, and the possibility that other health-care professionals might too readily accept a patient’s fleeting wish to die” (20); “taken for granted, feeling terrible” “their own suffering is invisible” (24); “<u>walking alongside patients</u>” like the experience of being able to make [death] a better experience. That celebration of life rather than the mourning of death” (27); “feeling of having hard conversations” (28); “Nurses seeking to provide the <u>compassionate care consistent with such a momentous moment in patients’ lives</u>, without suitable supports, find themselves caught between the proverbial rock and hard place” “<u>powerful experience</u>” “mad as a hell”, “<u>overwhelmed</u>” “...don’t find the provisions so emotionally draining, but it’s more the logistics and it’s <u>a lot of work</u> as a nurse” (33); there’s a sense of ceremony [before Medical Assistance in Dying], So, those all have impacts in terms of resources” (35).</p> <p>social worker: “<u>feeling of being a gatekeeper</u>” (4); “<u>sense of preparedness</u>”, feeling that this option is ‘pro-self-determination which is our job’(9); “<u>inner debate, cannot make peace with that, felt a huge shift in my ethics</u>”, “dying process has a lot to give” “missed opportunity to deepen oneself spiritually”, “<u>missed opportunity to forgive</u>”(15); <u>feeling of advocacy and self-determination in sync with hospice and social work values, and we will advocate for the patients . . . to get them whatever they want . . . I believe in self-determination, but I think it’s (PAS) a sad commentary on our society.</u>” “Our job is to meet the patients where they are” (10); “<u>felt like higher commitment</u>”, “felt like a failure if patient chose EAS” (16).</p> <p>physicians: “<u>heavy responsibility</u>” (5); “<u>implicit ethical tension</u> due to pressure to decide”, “It is the right time for EAS] Only if someone is totally at peace with himself, his life and his death, and if I see and feel that too.’(7); “<u>feeling of duty</u>” (12);</p>

“professional compromise” (13); “fears prosecution”, “burden, not wanting to abandon the patient” (14); extremely personal choice, I feel that part of some of the resistance at times can be related to [the fact that] that this is something new” “feeling of being torn between professional values and patient values (18); “significant administrative burden” (21); “struggle to reconcile to professional values”, sense of responsibility to not create barriers” “walking a tight rope” (22); “tremendous pride”, “burden as well” (26); duty to serve. “if not me than who” (27); “interprofessional lack of trust” “excessive workload and lack of financial satisfaction” (29); “burgeoning relationship between palliative care and MAiD”, “ positive because master of destiny” , “uncomfortable discussing it” (31); “Good palliative care takes a lot of time and interdisciplinary resources. . when a patient is requesting MAiD, most of the resources have been sucked up by that one case ... And all of the high-quality palliative care that we do falls by the wayside for the other patients.” (35)

Supplementary appendix 4: PRISMA and ENTREQ checklist.

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	p.4-6
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	p.2 and p.6
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	p.6-8
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	p.8-9, supplementary appendix 1
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplementary appendix 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	p.9
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	p.9-10
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	p.6-7
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	p.6-7
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	p.9-10, supplementary appendix 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Not applicable
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	p.10-11
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	p.10-11
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	p.10-11 supplementary appendix 3
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	p.10-11
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applicable
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable

Supplementary appendix 4: PRISMA and ENTREQ checklist.

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	high risk, p.20
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	p.5, supplementary appendix 3
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Figure 1, p.7
Study characteristics	17	Cite each included study and present its characteristics.	Supplementary appendix 3
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supplementary appendix 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Not applicable
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Supplementary appendix 2
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	p.11-14. Supplementary appendix 3
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Table 1
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	p.17-20
	23b	Discuss any limitations of the evidence included in the review.	p.17-20
	23c	Discuss any limitations of the review processes used.	p.17-20
	23d	Discuss implications of the results for practice, policy, and future research.	p.17-20
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	p. 11
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	p.11
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	none
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	p.21
Competing interests	26	Declare any competing interests of review authors.	p.21

Supplementary appendix 4: PRISMA and ENTREQ checklist.

Section and Topic	Item #	Checklist item	Location where item is reported
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	p.21

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71
For more information, visit: <http://www.prisma-statement.org/>

Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ Checklist (Tong, *et al.*, 2012)

Item No.	Guide and Description	Report Location
1. Aim	State the research question the synthesis addresses	Background, p.6
2. Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology (e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis)	Data analysis, p.10
3. Approach to searching	Indicate whether the search was pre-planned (comprehensive search strategies to seek all available studies) or iterative (to seek all available concepts until they theoretical saturation is achieved)	search strategy screening and eligibility criteria <i>SPIDER</i> , p.6
4. Inclusion criteria	Specify the inclusion/exclusion criteria (e.g. in terms of population, language, year limits, type of publication, study type)	<i>Eligibility criteria</i> , p.7
5. Data sources	Describe the information sources used (e.g. electronic databases (MEDLINE, EMBASE, CINAHL, psycINFO), grey literature databases (digital thesis, policy reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar) hand searching, reference lists) and when the searches conducted; provide the rationale for using the data sources	search strategy, p.8
6. Electronic Search strategy	Describe the literature search (e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research, and search limits)	Supplementary appendix 1 and p.6-9
7. Study screening methods	Describe the process of study screening and sifting (e.g. title, abstract and full text review, number of independent reviewers who screened studies)	p.9 study selection process, <i>Fig 1 PRISMA flow diagram</i>

Supplementary appendix 4: PRISMA and ENTREQ checklist.

8. Study characteristics	Present the characteristics of the included studies (e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions)	<i>Table 2 in supplementary appendix 3, Characteristics of included studies</i>
9. Study selection results	Identify the number of studies screened and provide reasons for study exclusion (e.g. for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications to the research question and/or contribution to theory development)	Fig 1 - PRISMA flow diagram
10. Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings (e.g. assessment of conduct (validity and robustness), assessment of reporting (transparency), assessment of content and utility of the findings)	Table 1, CERQual approach
11. Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings (e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope [25]; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting)	Appraisal of the methodological limitations of included studies, Table 1, CERQual approach
12. Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required	p.10, independently done by the three researchers and consensus achieved.
13. Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale	Table 1, CERQual approach
14. Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? (e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software)	Data extraction and analysis, p.10
15. Software	State the computer software used, if any	None used
16. Number of reviewers	Identify who was involved in coding and analysis	
17. Coding	Describe the process for coding of data (e.g. line by line coding to search for concepts)	p.10
18. Study comparison	Describe how were comparisons made within and across studies (e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary)	Table 2 in supplementary appendix 3.
19. Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive	Inductive process, p.10

Supplementary appendix 4: PRISMA and ENTREQ checklist.

20. Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation	p.12-13
21. Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct)	Discussion, p.17-20