Support needs of general practitioners involved in assisted dying: A systematic review

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Preface

It is with great pleasure and a sense of accomplishment that we present this master thesis, a collaborative effort between Lukas Vanden Bulcke, Pauline Somers, and Melanie Coetsier. Throughout the course of this academic endeavor, we have been fortunate to receive invaluable guidance and mentorship from our esteemed supervisors Kenneth Chambaere, Stijn Vissers, and Sigrid Dierickx. Their expertise and unwavering support have been instrumental in shaping our research and directing us towards the successful completion of this thesis.

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Abstract

Achtergrond: Sinds 2002 is euthanasie en hulp bij zelfdoding (E/HBZ) wereldwijd een onderwerp van intens debat en toenemende legalisering. Inzicht in de specifieke ondersteuningsnoden van artsen, in het bijzonder van huisartsen die vaak betrokken zijn bij E/HBZ, is dan ook cruciaal voor het optimaliseren van de zorg rond het levenseinde. Deze studie heeft als doel de wetenschappelijke literatuur over de ondersteuningsbehoeften van huisartsen bij E/HBZ op systematische wijze te onderzoeken. De onderzoeksvraag luidt dan ook als volgt: Wat zijn de ondersteuningsbehoeften van huisartsen die betrokken zijn bij E/HBZ?

Methode: Er werd een search string ontwikkeld gebruikmakend van het SPIDER framework. Met behulp van deze search string werd data verzameld via volgende databases: Pubmed, CINAHL (met behulp van de EBSCO-interface), PsycInfo, Embase en Web of Science. De kwaliteit van de geïncludeerde studies werd beoordeeld met behulp van GRADE en de data werden geanalyseerd door middel van thematische narratieve synthese.

Resultaten: De zoekactie in de verschillende databases leverde 7172 artikelen op. 127 artikelen voldeden aan de inclusiecriteria. 15 artikelen waren gericht op huisartsen. Door middel van de thematische narratieve synthese hebben we zeven ondersteuningsnoden geïdentificeerd bij huisartsen: (1) behoefte aan betere kennis over-, en interpretatie van, de criteria voor correct E/HBZ praktijkvoeren, (2) behoefte aan procedurele ondersteuning door andere professionals, (3) behoefte aan technische ondersteuning, (4) behoefte aan ondersteuning bij het omgaan van externe druk, (5) behoefte aan emotionele ondersteuning, (6) behoefte aan verbetering van tijdmanagement, (7) behoefte aan verbetering van communicatieve vaardigheden.

Conclusie: Deze studie belicht de ondersteuningsnoden die huisartsen ervaren bij het behandelen van E/HBZ verzoeken. Uit de resultaten blijkt dan ook dat deze ondersteuningsnoden multidimensionaal zijn. Aanbevelingen omvatten het aanpakken van onopgeloste kwesties, het verbeteren van onderwijs en training, het bevorderen van palliatieve zorg, en het in ogenschouw nemen van het welzijn van artsen gedurende het proces van E/HBZ.

Background: Assisted dying has been a topic of intense debate and increasing legalization globally since 2002. Understanding the specific support needs of family physicians involved in assisted dying is crucial for optimizing end-of-life care. This study aims to systematically review the scientific literature on the support needs of family physicians in assisted dying.

Methods: Data were collected using a SPIDER framework search string across the following databases: Pubmed, CINAHL (using the EBSCO interface), PsychInfo, Embase and Web of Science. The quality of included studies was assessed using GRADE, and data were analyzed through thematic narrative synthesis.

Results: Initial database searches yielded 7172 studies, with 127 studies meeting eligibility criteria for synthesis. Among these, 15 studies focused on general practitioners. Seven key support needs were identified: (1) need for improved knowledge and interpretation of the legal criteria for careful AD practice, (2) need for procedural support from other professionals, (3) need for technical support, (4) need for support in withstanding external pressure, (5) need for emotional support, (6) need for improvement of time management, (7) need for improvement of communication skills.

Conclusion: This study sheds light on the challenges faced by family physicians in addressing requests for assisted dying. Recommendations include addressing unresolved issues, enhancing education and training, incentivizing palliative care, and considering the well-being of physicians throughout the assisted dying process.

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1. Introduction

As Isaac Asimov once said: *"Life is pleasant. Death is peaceful. It is but the transition that is troublesome."*

Background

According to the World Health Organization (WHO), the mean global life expectancy at birth is now estimated at 71 and 76 years for men and women respectively. These numbers have grown by 4.4% and 4.1% respectively since 2010.(1) This may partially be explained by the growing possibilities in medical care. Due to the accelerating evolution in (preventive) care, diagnoses are nowadays more frequently made in the early stages of the disease trajectory. This implies that patients now have more therapeutic options, often resulting in more successful outcomes. In addition, the pharmaceutical industry is constantly evolving with new medications being approved for utilization in patient care every day.

As a result of this medical progress, patients today are living longer and dying mainly occurs due to noncommunicable diseases.(2) This is illustrated by Belgium's 2021 death statistics which showed that most people died from cancer, followed by deaths due to cardiovascular diseases. The highest number of deaths occurs in the age category 85+ (52.8%).(3) In addition, illness and being sick have taken on a different meaning over time. More specifically, people are currently living hand in hand with illness, whereas in the past, it often signified the beginning of the final stage of life. Nonetheless, it can remain a challenge to maintain and maximize quality of life until death for patients living with illness.(2)

For example, their quality of life is frequently hampered by disease-associated pain, suffering, functional and cognitive decline. Moreover, it is often accompanied by experiences of loss of dignity, such as receiving end-of-life care provided by unfamiliar caregivers in settings that are not preferred by the patients. As a result, these patients regularly experience feelings of diminished personal control over the dying process. Over the last decades, the growing emphasis on patient control and autonomy and self-determination has yielded more patients to request assisted dying (AD).(2, 4) When it comes to Belgium, epidemiological data shows AD cases have been increasing annually since the implementation of legislation: from 235 cases in 2003 to 1807 cases in 2013.(5)

Striking a balance between patient autonomy and the preservation of the patient-physician relationship can pose challenges, particularly within the context of end-of-life palliative care. However nowadays, the perception of medicine as a healing-only profession is held up to this day in several countries. This is also demonstrated by the considerations of numerous opponents of AD to this day.(6, 7)

Consequently, at present, a small number of countries and jurisdictions have legalized or decriminalized certain forms of AD.(6, 8) The countries and jurisdictions where AD has been legalized are shown in table 1.

Conceptual definition of assisted dying

AD is defined as the practice in which a health professional, most often a physician, provides medical assistance in terminating the life of a competent person at his/her voluntary and repeated request by providing, prescribing or administering lethal drugs.(2) The practice of providing or prescribing the lethal drugs is also known as physician-assisted suicide (PAS) while the practice of administering them is also referred to as euthanasia.

In addition, AD practice is considered as a trajectory or process that starts with the phase in which a person has an explicit wish to terminate his or her life and proceeds until the phase after the performance, or, if the wish for AD was not fulfilled, until after the decline of the request.

Legal frameworks include a wide range of different terms used for AD such as medical aid in dying (MAiD) or voluntary assisted dying (VAD). Within the different legal frameworks, physicians are assigned different roles, with some having more active roles than others.

In the case of euthanasia, for example, the physician is expected to perform the euthanasia himself, meaning that he has to administer the lethal medication. On the other hand, in assisted suicide (AS) -also called PAS or physician assisted dying (PAD)- the role of the physician is more passived., The physician provides or prescribes the lethal medication that the patient takes the medication himself, i.e., self-administration of the lethal medication.

However, the meaning and use of these terms are not consistent or universally agreed upon, which results in ongoing confusion and adds to the controversy surrounding them.(2)

Assisted dying around the world

AD is currently legal in several countries and jurisdictions. In Switzerland, unlike conventional legalization frameworks, there is no specific legislation about euthanasia.(9) However, the practice is permitted under the Swiss Penal Code of 1942. The Oregon Death with Dignity Act was the first AD legislation in the USA and came into force in 1997. In the same year, in Columbia a number of legal actions culminated in the resolution permitting the termination of life upon request.

In 2002 AD was legalized in the Netherlands and Belgium. Since 2009 Luxemburg, Washington (US) and Montana (US) came along. As from 2013 till 2019 various American states legalized AD: Vermont (2013), California (2015), Colorado (2016), District of Colombia

(2016), Hawaii (2016), Maine (2019), New Jersey (2019) and New Mexico (2021). In 2017, Victoria became the first Australian state to establish a legal framework for AD.(2) Followed by Western Australia in 2019, Queensland, Tasmania, South Australia in 2021 and New South Wales in 2022.(9) Quebec (2014) was the first Canadian province to legalize medical aid in dying. It became legal in all other Canadian provinces in 2016.(10) Germany (2020), Spain (2021), and Austria (2022) have also legalized Medical Aid in Dying (MAID) in Europe.(9) MAID was legalized in November 2022 in New Zealand.(11)
On May 12 of the year 2023 a majority in the Portuguese parliament has approved a proposal for euthanasia, now awaiting its promulgation by the head of state.(12) England and Wales are considering a bill proposal regarding assisted suicide.(13) Finally, France and Italy are also deeply engaged in debates on the subject.(14)

Every jurisdiction where AD has been legalized, has implemented eligibility criteria for patients accessing AD. Most jurisdictions set a minimum age requirement for accessing AD. For example, in Canada, New Zealand, Luxembourg and the United States a person must be 18 years or older to request AD. In the Netherlands, a patient can request AD from the age of 12 (2), while in Columbia it is permitted from the age of 6.(9)
In Belgium there is no age restriction. It is important to note that these are distinct legal criteria specific to Belgium. Any patient, regardless of their age, can request AD, as long as he or she is deemed capable of making informed decisions, also referred to as mental capacity.(2) However, several requirements must be met before the request can be granted in the case of minors, as such, the request can only be granted when there is unbearable physical suffering, and the physician must consult a child and adolescent psychiatrist or a psychologist throughout the process. The procedure is contingent upon the approval of the legal representatives of the minor (parents, guardian). Both the minor and their legal representatives must jointly formulate the euthanasia request.(15)

AD can take various forms (as described above) with legal frameworks varying across countries and jurisdictions. For example, in ten U.S. states and Switzerland, only physician-assisted suicide is lawful. In Belgium, the legal framework exclusively regulates euthanasia. Nevertheless, in practice, PAS is also tolerated by the Euthanasia Commission under the condition that it aligns with the legal requirements for euthanasia. The Euthanasia Commission treats PAS cases similarly to euthanasia cases, emphasizing that they must meet the same legal requirements.
The law does not specify the required methods to perform euthanasia. Nevertheless, a physician must be present at all times to ensure proper performance and must intervene if complications arise. In the Netherlands, Canada, Colombia, Australia (2), New Zealand (16) and Luxembourg, both PAS and euthanasia are legalized and regulated.(2)

In Belgium, the Netherlands, Luxembourg, Spain, Switzerland, and Germany, AD is allowed for patients based on psychological or mental suffering in addition to physical suffering.(17)

Given the diverse terminology employed globally in this field, the decision was made to adopt the overarching term "assisted dying" throughout the remainder of this thesis. This choice aims to maintain clarity and coherence for the reader, avoiding potential confusion and complexity that may arise from the use of multiple terms.

An overview of the countries and jurisdictions where AD has been legalized are shown in table 1 with their respective year of legislation, type of suffering as well as the legal form of assisted dying.

Table 1: Assisted dying around the world (9)

Jurisdiction	Year of legislation	Legal form of assisted dying	Psychological or physical suffering
The Netherlands	2002	Euthanasia and PAS	Psychological and physical suffering
Switzerland	1942	PAS	Psychological and physical suffering
Colombia	1997	Euthanasia and PAS	physical suffering
Oregon (USA)	1997	PAS	physical suffering
Belgium	2002	Euthanasia (and PAS)	Psychological and physical suffering
Luxemburg	2009	Euthanasia and PAS	Psychological and physical suffering
Washington, Montana (USA)	2009	PAS	physical suffering
Vermont (USA)	2013	PAS	physical suffering
California (USA)	2015	PAS	physical suffering
Colorado (USA)	2016	PAS	physical suffering
District of Colombia (USA)	2016	PAS	physical suffering
Hawaii (USA)	2016	PAS	physical suffering
Maine (USA)	2016	PAS	physical suffering
New Jersey (USA)	2019	PAS	physical suffering
Victoria (Australia)	2017	Euthanasia and PAS	physical suffering
Western Australia (Australia)	2019	Euthanasia and PAS	physical suffering
Quebec (Canada)	2014	Euthanasia	physical suffering
Canada (all provinces)	2016	Euthanasia and PAS	physical suffering
Germany	2020	PAS	Psychological and physical suffering
Spain	2021	Euthanasia and PAS	Psychological and physical suffering

Queensland (Australia)	2021	Euthanasia and PAS	physical suffering
South Australia (Australia)	2021	Euthanasia and PAS	physical suffering
Tasmania (Australia)	2021	Euthanasia and PAS	physical suffering
New South Wales (Australia)	2022	Euthanasia and PAS	physical suffering
Austria	2022	PAS	physical suffering
New Zealand	2022	Euthanasia and PAS	physical suffering

Regulatory Instruments

Over the past decades, support and control mechanisms and regulatory instruments have been implemented and developed in order to have societal control over AD practice and to establish good practices.(2, 18, 19) Furthermore, these regulatory instruments have a function of gathering information through the inventory of epidemiological data as well as setting standards for example by publishing good practice policies or organizing training modules for end of life care. Considering a scoping review by Archer et al., these sources of regulation exist in the form of a law, as well as policies, professional standards, advisory documents and system design. In this way, regulatory instruments aim to optimize the support and behaviour of physicians and of other health professionals involved in the process of AD.(19)

The most commonly used control mechanism in permissive countries and jurisdictions is that physicians performing AD have to report the AD case to a review committee after the performance, which assesses whether all legal criteria were met. This is the case for Belgium, the Netherlands and Australia. In Colombia, on the contrary, this evaluation must be done prior to the AD being carried out. In Belgium this committee is called ‘the Federal Control and Evaluation Commission on Euthanasia’ (FCECE), in the Netherlands ‘The Regional Euthanasia Review Committees’ (RTE), in Colombia ‘an Interdisciplinary Scientific Committee’ (ISC), and in Australia ‘The Voluntary Assisted Dying Review Board’.(2, 18-20) In Canada, such review committees do not exist. In most of the other jurisdictions where AD is legalized, such review committees are not specified.(2)

General practitioners and assisted dying practice

GPs are usually the first point of contact of patients requesting AD and perform the majority of euthanasia procedures.(21) In The Netherlands in 2021 80.2% out of 7666 cases were carried out by GPs.(22) These primary care providers have often built a long-lasting and well-established doctor-patient relationship over the years. Their relationship extends beyond the conventional bounds of medical treatment, offering solace and a safe space for patients to

explore the profound questions that arise as they confront their own mortality.(23, 24) Another reason they rely on GPs as the first point of contact is that most patients prefer to receive AD at home, where they feel comfortable. In The Netherlands in 2021 81,2% of 7666 euthanasia cases happened at home.(22) In Belgium this was 54,3% of 2699 cases.(25)

The journey through a protracted illness, particularly when the patient is aware of its inevitable outcome, can be a challenging path. In this quest for understanding, the relationship with their primary care physician becomes all the more critical. The GP, often the last anchor in their healthcare journey, assumes a pivotal role in providing the empathetic care and guidance that patients need.

With the increased prevalence of AD cases in recent years, an increasing number of GPs are confronted with requests for AD. Consequently, challenges are mounting for GPs in AD practice. Conflicting views on professional roles pose a significant challenge, with some GPs seeing AD as incompatible with their duty to alleviate suffering and avoid harm. Concerns about the emotional and psychological impact on GPs, along with religious beliefs and moral values, often lead to GPs refraining from participating in AD despite recognizing patients legitimate reasons for such requests. Additionally, during the AD process, further challenges may arise regarding difficulties in communication with the patient and/or their relatives.(23) These complexities highlight the intricate nature of the decision-making process, requiring careful consideration of various factors in both the medical and relational aspects of AD.

Aim of the study

It is within this context that the present research is situated, with the main aim of identifying and mapping the support needs of GPs engaged in AD practice. By undertaking a systematic review, this research seeks to shed light on the diverse support needs encountered by GPs when dealing with AD cases. Moreover, despite the growing prevalence of AD in medical practice, there has been a paucity of systematic reviews dedicated to exploring the specific support requirements of GPs involved in these ethically and emotionally demanding situations. Through this research, we aim to bridge this gap and provide a comprehensive inventory of the support needs of GPs engaged in AD practice. By doing so, we aim to generate valuable insights that can inform healthcare policies and practices, improve the quality of care, and, ultimately, enhance the experiences of both patients and the healthcare professionals.
We aim to answer the following research question: What are the support needs of GPs in AD?

2. Methods

We seek to answer our research question by conducting a systematic literature review.

This master thesis is situated within a Ph.D. and, consequently, a broader project aiming to develop a clinical guideline for physicians based on the support needs of several different stakeholders. However, due to time constraints we were obliged to limit the review to a smaller study population. Since the three researchers (MC, LVB and PS), master after master students were GPs in training themselves, our interest went to the group of professional caregivers who are directly involved in the care and support of patients with a wish for AD, and we limited our inclusion criteria more specifically to the subgroup of GPs only.

Prospective registration of the review protocol

This systematic review adheres to the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) guidelines for the reporting of systematic review protocols.(32) The study protocol is registered through the PROSPERO registry of systematic reviews: CRD42022341266.

Systematic Search

Search strategy and sources

The PubMed database and syntax was used as a starting point for the construction and validation of the search strategy for the other electronic databases. For the search strategy, search blocks were defined in analogy with the SPIDER framework, based on Medical Subject Headings (MesH) terms and free text words. Search terms for the main concepts of the review question ([Assisted dying OR related terms] AND [Support needs OR Related terms] AND [date: 2002-2022]) (presented in the table below) were used. We choose to restrict the year of publication to the period spanning 2002 to (June) 2022 with the aim to focus on recent literature and evidence regarding support needs.

Relevant studies resulting from a scoping review were consulted for MesH terms and relevant free text words to set up and/or refine the search strategy. A specialist librarian, Peggy Tahir, specialized in the development of search strategies, database searches and systematic review of literature was consulted throughout this process. The PubMed search strategy was then modified in function of data extraction for the other databases (CINAHL (using the EBSCO interface), PsychInfo, Embase and Web of Science).

Search String

Table 2: Search String

Concept	Search String
Concept 1: Assisted dying	("Euthanasia"[Mesh] OR (euthanasia[tiab] NOT (animal OR animals OR veterinar*)) OR "Suicide, Assisted"[Mesh] OR "assisted suicide*"[tiab] OR "assisted death"[tiab] OR "assisted dying"[tiab] OR "physician-assisted death"[tiab] OR "physician-assisted suicide"[tiab] OR "medically assisted suicide"[tiab] OR "aid in dying"[tiab] OR "assistance in dying"[tiab] OR MAID[tiab])
Concept 2: Support needs	("euthanasia requests"[tiab] OR "end-of-life decisions"[tiab] OR "Attitude of Health Personnel"[Mesh] OR "Attitude to Death"[Mesh] OR attitude[ti] OR attitudes[ti] OR need[ti] OR needs[ti] OR experience[ti] OR experiences[ti] OR perspective[ti] OR perspectives[ti] OR view[ti] OR viewpoint[ti] OR viewpoints[ti] OR preference[ti] OR preferences[ti] OR complexity[ti] OR complexities[ti] OR ((patient[tiab] OR patient's[tiab] OR patients'[tiab]) AND (need[tiab] OR needs[tiab] OR experience[tiab] OR experiences[tiab] OR perspective[tiab] OR perspectives[tiab] OR view[tiab] OR viewpoint[tiab] OR viewpoints[tiab] OR preference[tiab] OR preferences[tiab] OR complexity[tiab] OR complexities[tiab])))
Concept 3: Date	2002 until 2022
Combination of concepts:	1 AND 2 AND 3

Inclusion criteria

Results were screened based on a priori eligibility criteria (cfr table 3), focusing on the country, study population, phenomenon of interest (AD) and evaluation (support needs) to be included. We define AD, as the practice in which a physician provides medical assistance in terminating the life of a competent person at his/her voluntary repeated request by providing, prescribing or administering lethal drugs.(2) In addition, we consider AD as a practice or a process that starts with the phase in which a person has an explicit AD wish and proceeds until the phase after the performance or, if the wish for AD was not fulfilled, until after the decline of the request.

To identify support needs we use the definition described by Asadi-Lari and colleagues:

"The need to be supported or guided in a certain situation and which can therefore be fulfilled by others or by certain (material) resources."(26)

We included GPs with lived experiences of AD practice, gained through first-hand and direct involvement in AD practice rather than through representations constructed by other people.(27) Original qualitative, quantitative or mixed-methods studies were included, using the categories of the mixed methods appraisal tool (MMAT) version 2018. Full text studies in

English and Dutch languages were included. In addition, the search was restricted to studies published from 2002 onward, focusing on the last 20 years and including recent literature.

Table 3: Eligibility Criteria

Criteria	Inclusion Criteria	Exclusion Criteria
Language	English	Publications in a language other than English and Dutch will be excluded from the study
	Dutch	
Year of Publication	All publications from the year 2002 onwards	
Full text	Text including necessary details on used methods and findings in order to assess eligibility and quality appraisal for study inclusion	Fulltext unavailable/ -non-existent
Country	Studies from countries with a legal framework supporting the practice of AD	Studies conducted in jurisdictions where AD has not been legalized
	Studies conducted in Switzerland	Studies conducted before the implementation of a legal framework on AD
Study population	General practitioners	Animal studies
		Research that does not include the direct experiences of those involved in AD practice
Phenomenon of Interest	Euthanasia	Withdrawal of treatment
		Death wish

	PAS			Wish to hasten death
	Medically assisted suicide			passive euthanasia
	Assisted suicide			palliative sedation
	VAD			LAWER (life-terminating act without explicit request)
	Assisted death			
	PAD			
	MAID			
Study Design	Empirical Studies	Qualitative Studies	Ethnography	
			Phenomenology	
			Narrative research	
			Grounded theory	
			Case study	
			Qualitative description	
		Quantitative research	1. Quantitative randomized controlled trials: Randomized controlled clinical trial	
			2. Quantitative non-randomized controlled trials: Non-randomized controlled trial, Cohort study, Case-control study Cases, Cross-sectional analytic study	

			3. Quantitative descriptive studies: Incidence or prevalence study without comparison group, Survey, Case series	3. Quantitative descriptive studies: Case report
		Mixed Methods	Convergent design	
			Sequential explanatory design	
			Sequential exploratory design	
				Literature reviews of academic and/or grey literature
Evaluation	Support needs: Attitudes, perceptions, views, experiences based on lived experiences in relation to AD practice (as defined in Phenomenon of Interest)			Attitudes and perceptions of needs not based on lived experience or involvement in AD practice, such as based on religion or personal ideology
Publication Type	Original research article			Opinion pieces
				Conference abstracts/ papers
				Letters to the editor
				Non neutral reports such as argumentative publications and normative publications

Study Selection

Excel was used to upload all references of selected studies; to extract all titles, abstracts and pdfs; and to deduplicate search results. Study selection took place by a two-phase method: title/abstract screening and full text screening.

Title/abstract Screening

We screened the abstracts at random in three parts among us. Abstracts of studies were marked as ‘included’, ‘excluded’ or ‘uncertain’. Abstracts marked as uncertain were discussed by the three researchers together upon agreement. When consensus could not be reached, a fourth reviewer of the research team, Stijn Vissers or Sigrid Dierickx or Joni Gilissen were consulted for arbitration. Also, a random 20% of abstracts from each reviewer’s part, were independently screened by another researcher to assess accuracy.

Fulltext Screening

We divided selected studies based on their abstracts and further assessed them according to the inclusion criteria. Fulltexts were divided at random in such a way that each study was evaluated by at least two reviewers, independent from each other. If there was a discussion whether or not a fulltext should be included, we examined the study until a consensus was reached. If not, a fourth reviewer, Stijn Vissers, Sigrid Dierickx or Kenneth Chambaere was consulted. A PRISMA flow chart was used to visualize the flow of information through the different stages of our systematic review.

Quality assessment strategy

We used the mixed methods appraisal tool (MMAT) version 2018 for the evaluation of the quality of each study. MMAT is an essential instrument designed for the critical appraisal stage within systematic reviews that encompass a mix of qualitative, quantitative, and mixed methods studies. It facilitates the assessment of methodological quality across five distinct categories of studies: qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies. To ensure reliability in the appraisal process, it is recommended to involve at least two independent reviewers. Therefore, we applied the MMAT to each study separately. The MMAT has two screening questions and other criteria to rigorously appraise different study designs within five methodological domains. When responding ‘No’ or ‘Can’t tell’ to one or both screening questions might indicate that the paper is not an empirical study, and thus cannot be appraised using the MMAT. It is discouraged to calculate an overall score from the ratings of each criterion. Instead, it is advised to provide a more detailed presentation of the ratings of each

criterion to better inform the quality of the included studies.(28) Studies answering 'No' or 'Can't tell' to one of the methodological quality criteria questions within the category of study designs are deemed to have a decreased level of quality.
The quality assessment strategy using MMAT will be synthesized in the data extraction form (DEF) in the annex of this thesis (table 4).

Data extraction and synthesis

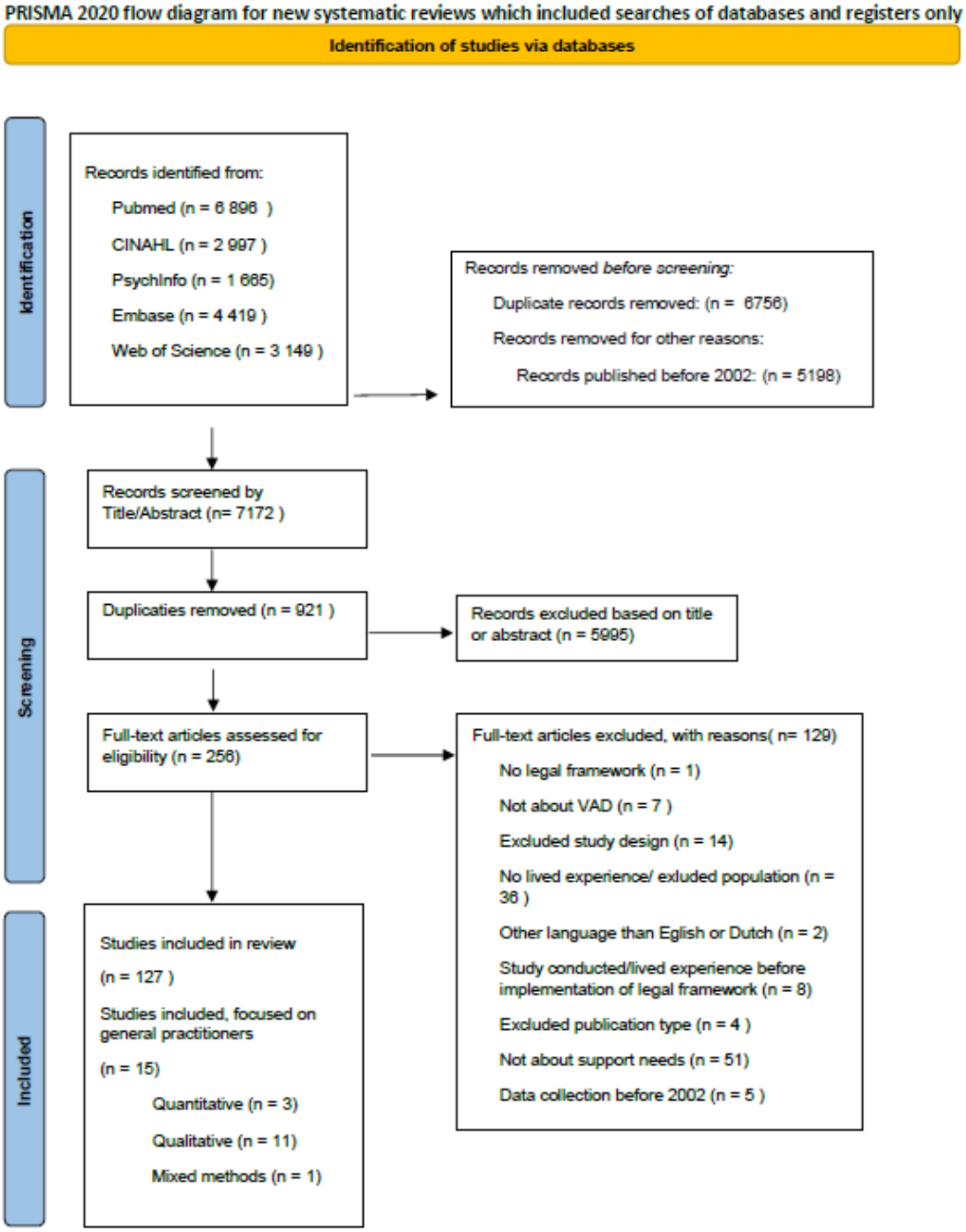
The characteristics of the chosen studies were collected using a data extraction form, which included the following characteristics: authors, year in which the study was carried out, jurisdiction/country, form of AD practice being studied, methods, setting (if applicable) participant characteristics, sample size, results, and our quality score using the mixed methods appraisal tool (MMAT). The characteristics of all studies included are presented in the DEF in table 4.
To answer our research question aiming at identifying the support needs of GPs involved in AD practice, we conducted a thematic narrative synthesis. This was obtained by collaboratively developing concepts and themes among the three of us through an iterative process, in direct response to the findings extracted from the data. Upon thorough examination of the various studies, each researcher identified themes based on the support needs addressed in each study. Subsequently, we collectively deliberated on these themes and reached a consensus that was agreeable to all three of us. This way, we delineated distinct support requirements for each theme, enabling us to delve into various concepts and examples sourced from the included studies.(33-35)

3. Results

Included studies

The electronic database searches yielded 7172 results after deduplication. The above-mentioned title/abstract screening resulted in the exclusion of 6916 of the original 7172 studies. Of these included, we reviewed the full text of 256 studies. 127 studies met the eligibility criteria for the narrative synthesis. 15 studies focused on GPs. The studies included three quantitative studies, eleven qualitative studies, and one mixed method study. The PRISMA flow chart details the stages of inclusion and exclusion (Figure 1).

Figure 1: PRISMA flowchart



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/

Characteristics of included studies

The included studies (n=15) were conducted in six different jurisdictions. The majority of the studies were conducted in the Netherlands (n=10) and there was one study each from the USA, Switzerland, Canada, Belgium, and Australia. Six studies were published between 2007 and 2017 while nine studies between 2018 and 2022.

Seven studies focused solely on the support needs of GPs, five studies addressed the needs of medical specialists and GPs, one study examined the needs of medical specialists, GPs, and relatives, another study explored the needs of physicians and other professionals, and one study examined the support requirements of AD consultants and those seeking advice from an AD consultant.

The studies examined the lived experiences of GPs who were providing care and support to patients accessing AD in different settings. One study focused on performing AD at home (n=1). Several studies were conducted in multiple settings: in hospital, at home and in nursing homes (n=3) or in hospital, at home and in specialized care facilities (n=2), but most of the studies did not explicitly mention the main setting (n=9). With regard to GPs' patients accessing AD, most studies did not provide information about their disease characteristics (n=11). Two studies encompassed cancer, neurodegenerative disorders, heart diseases, and chronic lower respiratory problems. One study compared dementia to other non-dementia-related illnesses. Another study only focused on psychiatric disorders.

We identified four studies evaluating euthanasia, one evaluating PAS, one evaluating PAD, seven studies evaluating EAS, one evaluating PAD and two evaluating MAID. All studies delineate aspects related to granted, denied or performed euthanasia requests.

In order to maintain clarity and coherence for the reader, the decision was made to adopt the overarching term "assisted dying" (AD) throughout the remainder of this thesis. Nevertheless, the specific terminology employed in each included study as well as the main characteristics of the included study is delineated in the DEF (table 4).

Quality appraisal

The critical appraisal showed that 7 of the 15 studies (17, 29-34) met all of the methodological quality criteria. One study answered 'Can't tell' to the above-mentioned screening questions from the MMAT, indicating that the paper is not an empirical study.(35)

The other studies fulfilled four of the five criteria (21, 23, 24, 36), two included studies met three of the five criteria (37, 38), and one study fulfilled only two criteria (39).

It was noticeable that within the three quantitative descriptive studies, two failed to achieve a sample of participants that are representative of the target population, which might indicate a

risk for selection bias.(36, 37) One quantitative descriptive study might also have a high risk of nonresponse bias.(37) Among the five other qualitative studies, one did not describe clear inclusion criteria (39), two did not describe the used data analysis (24, 39), one study (23) solely presented the outcomes of GPs who refused to participate in AD, while those who performed were investigated but not described in the results. Two studies failed to address the question 'Is there coherence between qualitative data sources, collection, analysis, and interpretation?' based on the following reasons: purposeful sampling resulted in participants who were not entirely representative of Dutch GPs in general (23) and there is a lack of transparency regarding the sampling method (39). Additionally, there is no mention on how they achieved saturation of results.(39) Only the quality of the qualitative data from the mixed methods study was assessed because only these data were used.(38)The appraisal of the qualitative data did not meet the last criteria about coherence because of the low number of GPs with lived experience.(38)

Identified support needs of GPs involved in AD practices

Following thematic narrative synthesis of the evidence of the included studies, seven support needs were identified that represented experiences of GPs experiences of AD: *(1) need for improved knowledge and interpretation of the legal criteria for careful AD practice, (2) need for procedural support from other professionals, (3) need for technical support, (4) need for support in withstanding external pressure, (5) need for emotional support, (6) need for improvement of time management, (7) need for improvement of communication skills*.

1. Need for improved knowledge and interpretation of the legal criteria for careful AD practice

In this review, in a total of 11 studies, GPs stated the need for improved knowledge of the criteria for careful AD practice.(17, 24, 29-33, 36-39)

1.1 Need for improved knowledge of the legal criteria for careful AD practice

In order to approve an AD request, the attending physician must acknowledge if this request meets the legal criteria for careful AD practice. However, our analysis showed that this knowledge can be absent or even incorrect among GPs, and therefore, could be seen as a support need for GPs.(33, 37)

In 2017, Ten Cate et al. analyzed the data of 33 interviews with Dutch GPs that were conducted in 2010. In these interviews, experiences with AD requests for as well as their reasons for (not) granting an AD request showed a lack of correct knowledge of the legal criteria. For example, several GPs were wrongfully convinced that a life expectancy of two

weeks, unbearable pain, physical suffering as well as a written request were required due criteria for granting AD.(33)

In a survey study from 2020 in Colorado by Campbell et al., primary care physicians (family medicine and general internal medicine) were less likely than medical specialists to have served as an AD consultant (8.0% vs. 19.1%, p=0.01). Second, mentioned barriers to participation in AD differed significantly between physicians who had served as an AD attending physician and/or consultant and those who had not: 12.2% of AD consultants and/or attending physicians described their lack of knowledge as a moderate or large barrier compared to 54% of those who had not served in these roles (p≤0.001).(37)

1.2 Need for guidance on how to assess the legal criteria for careful AD practice

In addition to the knowledge of the due criteria, GPs also indicated a lack of support in how to interpret these criteria, which might hamper a straightforward application in clinical practice.(17, 24, 30-33, 36, 38, 39) As shown by a Dutch survey study by Schuurmans et al., that examined the problems and needs of GPs (N=423) being confronted with an AD request by a person with dementia, GPs stated they especially needed training in how to interpret legal criteria for people with dementia accessing AD (n = 240; 56.7%).(36) Moreover, this ambiguity in assessing these legal criteria gave rise to a substantial amount of feelings of doubt among GPs during the assessment and performance of AD. This was also shown in an interview study with 15 Dutch GPs.(30)

1.2.1 Voluntary and well considered request

First and foremost, the physician must assess whether the patient's request is voluntary and well-considered. Therefore, the patient must be declared decisionally competent by the attending physician. GPs indicated that it is difficult to assess this, especially when the patient suffers from a psychiatric disorder or is losing mental capacity due to dementia.(31, 36, 38) As illustrated by the findings of a Dutch interview study by Pronk et al. where 20 GPs were interviewed about AD cases of psychiatric patients. Some GPs in this study believed that this should be the task of a psychiatrist instead of the GP. GPs indicated that they lacked knowledge on the interpretation of the criteria of due care in case of suffering from a mental illness, on mental competence, as on how to differentiate between a pathological and non-pathological wish to die. For all these assessments, these GPs believed that psychiatrists are better placed to do so.(38)

In the study by Schuurmans et al., the judgment of mental capacity in PWD was perceived by GPs as something difficult in which they felt rather incompetent or inexperienced.(31) When

the AD request concerned a person with dementia, many GPs experienced uncertainty about the assessment of the mental competence of the patient (77; 47.2% versus 51; 12.4%; p=0.015 in the other patients).(36)

1.2.2 Unbearable suffering without prospect of improvement

Moreover, the physician must assess that the patient's suffering is unbearable and without prospect of improvement.(30-33, 38)

In 2016, a qualitative interview study with 15 Dutch GPs described a total of 36 cases of AD request in which GPs experienced pressure. One of the causes of such pressure was having 'doubts about fulfilling the legal criteria'. For example, a GP in this study stated that she needed multiple meetings and more time to assess if this type of suffering was enough to grant the request for a patient suffering from increasing dependency and loss of control. Another GP pondered whether overwhelming fear could serve as a basis for advance directives. She believed that in the moment of crisis, one is ultimately left to make decisions independently.(30)

The ambiguity in interpreting this criterion is also illustrated by the abovementioned study by Ten Cate et al. In this study, participants differed in what they understood and recognized as 'unbearable suffering with no prospect of improvement'.(33)

In the context of AD for psychiatric suffering, GPs experienced that this evaluation of unbearable suffering is even more unclear. It was difficult to determine whether a patient's suffering from a mental illness is unbearable or not, in comparison with somatic suffering. Reasons provided were that the suffering is not clearly visible, as it often is with somatic suffering, it is less objectively measurable than somatic suffering, and the suffering is harder to empathize with because of a lack of psychiatric susceptibility among GPs. This also applies to assessing the criteria of no prospect of improvement in patients. Some GPs commented that one can never know for certain whether a patient can get better.(38)

In another Dutch study by Snijdewind et al., 28 physicians were interviewed. Some respondents confirmed, as stated above, that the problem concerning the invisibility of the patient's suffering was even more noticeable in patients who suffered from a psychiatric condition or dementia because in that case, the disease is not physically manifest. This made it harder for them to understand and evaluate the suffering of a patient with a psychiatric condition or dementia.(32)

In addition, GPs in another study by Schuurmans et al. indicated that unbearable suffering is often an unclear concept that can be interpreted very subjectively, especially in patients suffering from dementia.(31)

Besides, in order to assess the unbearable suffering as well as the absence of prospect of improvement, GPs were also of the opinion that one must know the diseases that lead to these types of suffering very well.(29, 31, 36, 38)

In the study by Pronk et al., GPs indicated that they do not feel at ease with handling a request from a patient suffering from a mental illness. They stated that these requests belong to a psychiatrist since it considers complex psychiatric problems in which they, as a GP, lack experience. One participant stated: *"You know, a GP knows a little about a lot. And the psychiatrist knows a lot about a little, just as any specialist. And I know for sure that I have big gaps in knowledge when it comes to assessing psychiatric patients."* (38)

Similar findings were seen in dementia cases. In the study by Schuurmans et al., GPs stated that disclosure of the dementia diagnosis was often postponed because of the difficulties surrounding the diagnosis process itself. In addition, the prediction of the evolution of unbearable suffering resulting from this disease in the future was considered very difficult for the patient as well as the physician.(31)

Moreover, GPs experienced that postponing this diagnosis conflicts with needing considerable time to consider AD and contributes to difficulties finding the right time to assess these criteria for careful AD practice. This was supported by evidence from a 2011 interview study conducted by Buiting et al. In this study, AD consultants and physicians who had sought AD consultations were interviewed regarding the emergence of palliative treatment options during or prior to AD consultations, and how the independent consultant evaluates the availability of potential palliative treatment alternatives. The consultants reported that the treating physicians sometimes postponed the request for an independent consultation. As a result, the consultation sometimes seemed to come too late for adequate assessment of the criteria for careful practice, for instance, because it had become impossible to talk to the patient. However, whereas some of the treating physicians postponed their request for a consultation, others preferred a consultation in an earlier stage of the disease. Such consultations occurred in situations in which the patient was considering AD but had not yet explicitly requested it. This way, it was sometimes too early to assess whether the criteria were met.(29)

In another study by Schuurmans et al., most GPs (n = 363; 85.8%) stated that they would like to increase their knowledge and skills about dementia care issues, for example in signaling symptoms in cognitive restricted people (n=137; 32.4%), or on the disease trajectory of dementia (n=87; 20.3%) in order to be able to determine a more appropriate time to start an end-of-life conversation and assess the criteria for careful AD practice.(36)

1.2.3 No reasonable alternative treatment available

Lastly, the physician must have come to the conclusion, together with the patient, that there is no reasonable alternative in the patient's situation.(17, 24) In our analysis, we found that GPs needed support in assessing whether no other reasonable treatments are available for patients accessing AD.

In 2007 a focus group study by Van Marwijk et al. explored the attitudes and feelings of 22 Dutch GPs in AD cases. Some GPs regretted their first performance of AD for reasons such as insufficient awareness of other palliative possibilities. This research indicated that GPs could possibly have made a different decision considering the AD request if they were supported with more knowledge about other palliative possibilities for those particular cases.(24)

A Belgian study by Verhofstadt et al. supported this evidence. This interview study was conducted with physicians and other healthcare professionals with at least one concrete experience with AD requests and procedures concerning adults with psychiatric conditions. Some of the participants experienced a hampered end-of-life-care approach illustrated by colleagues not following the life track in which reasonable alternatives to death were insufficiently explored nor applied. In addition, most interviewees reported on poor rehabilitation options available and insufficiently developed palliative care approaches that could focus more on comfort and holistic care needs.(17)

1.3 Need for clear guidelines and permanent training

In order to improve the knowledge about, as well as the interpretation of the criteria for careful AD practice and this way, support GPs in every step of this difficult and long process of assessing a request for AD, GPs stated that education and permanent training is needed. This is why guidelines and protocols were created over time. Nevertheless, results of a study by Schuurmans et al. showed that participants felt that recent guidelines for AD practice were rather vague.(31)

In the study by Marwijk et al., GPs highlighted the lack of formal AD protocols as well.(24)

In the study by Verhofstadt et al., the need for more educational initiatives on the regular academic curriculum of all health care professionals (e.g., physicians, psychologists, nurses, social workers) was expressed by GPs. GPs were of the opinion that LEIF training, i.e., training for Flemish AD consultant, should include more training on AD requests from patients with psychiatric conditions, with an emphasis on both the legal criteria as well as the broad spectrum of possible rehabilitation for patients with psychiatric conditions.(17)

The lack of clear guidelines for GPs was also evident in a 2018 Canadian study by Shaw et al. where the experiences of physicians involved in AD practice in British Columbia were

examined. Findings of this study showed there were few regulations and no protocols that were immediately in place after AD was legalized, and the physicians took it upon themselves to become educated in standards of best practice from international jurisdictions where AD was already implemented.(39)

2. Need for procedural support from other professionals

Three studies provided more insight into the experienced need of GPs for procedural support from other professionals.

In the research by Pronk et al. GPs stated, as indicated above, that psychiatrists are more experienced in psychiatric pathologies and therefore better placed to make end of life decisions together with these patients. Consequently, GPs indicated they favored working together with psychiatrists during the assessment of such requests. This was illustrated in the following quote by a GP: *"I do feel competent, but I believe you should do it together, because a psychiatrist has to tell you what has happened and how it helped. You have to know whether you've missed something. So, I don't think you should do it by yourself, it is a collaboration."(38)*

In the interview study by Schuurmans et al., GPs acknowledged that support and consultation provided by other professionals (e.g. colleagues or peers), are helpful to assess an AD request from patients with dementia. They also stated that the existing services for procedural support could be improved, as well as the professionals' awareness of these services. One GP also mentioned the need for support by a spiritual caregiver: *"Involve spiritual caregivers in the process. They are experienced in ethics and will ask questions which we as practitioners and diagnosticians often do not ask ourselves."(31)*

In the postal survey study by Schuurmans et al., GPs stated that the anticipated need for support in future AD procedures for people with dementia appeared much higher than the requested assistance in AD procedures for the same patients in the past: about half of the GPs who had experience with such procedures, had consulted a support and Consultation on Euthanasia in the Netherlands (SCEN) physician (n = 83; 50.9%), and even more responders would prefer this in the future (n = 291; 68.8%). Furthermore, support of a geriatric consultation team (n = 185; 43.7%), a palliative care consultation team (n = 179; 42.3%) or the expertise centre for AD (n = 184; 43.5%) were most often mentioned as support sources needed. Support of a spiritual care provider or moral deliberation around such cases, had rarely been asked in the past (n = 2; 1.2% and n = 2; 1.2% respectively) and hardly mentioned as needed in the future (n = 16; 3.8% and n = 30; 7.1% respectively).(36)

3. Need for technical support

There is only one study in our research in which we identified the need for technical support among GPs.

The postal survey study by Schuurmans et al. showed that the majority of GPs experience uncertainty around the technical performance of AD. This uncertainty differs significantly when compared regarding AD requests or procedures for people with or without dementia (12; 7.4% versus 107; 26.1% respectively; P = 0.000).(36)

4. Need for support in withstanding external pressure

We identified five categories relating to the pressure that GPs experience in dealing with AD requests, which we found in seven studies (24, 29-32, 34, 36): (1) pressure from patients, (2) (counter) pressure from relatives, (3) time pressure, (4) pressure regarding referred patients, and (5) pressure from society.

4.1. Pressure from patients

Four studies (29, 30, 34, 36) provided evidence on challenges of assessing an AD request due to patient pressure. In a study conducted by de Boer ME, semi-structured in-depth interviews were held with 15 Dutch GPs, revealing instances of emotional manipulation by patients who resort to threats of suicide. GPs experienced cases where patients are so convinced of their control over the AD process that they immediately take charge, without any prior attempts to persuade the GP. For example, a situation arose where the GP was still considering the willingness to discuss AD at an appropriate time, and the patient abruptly declared, *"I have made up my mind, I want it [AD] after my birthday because I still want to celebrate my birthday.' In this instance, the GP began to 'feel pressure because she [the patient] very much took over control."*(30)

When examining a Dutch cross-sectional survey among a randomly selected sample of Dutch physicians with lived experience, we find that among physicians who refuse an AD request, medical specialists feel less pressured by the patient to grant the request compared to GPs (OR 0.35 [0.13–0.95]). There is no difference amongst physicians when the request is granted. Physicians who felt pressured by the patient or relatives to perform EAS were most likely to experience burdensome feelings (OR 1.91 [1.03-3.53]).(34)

In addition, Schuurmans et al. conducted a survey study in 2019 involving 423 Dutch GPs to gain insight into the experienced burden and support needs of Dutch GPs when confronted with an AD request from a PWD. The study indicates that pressure from patients (Patients with another disease than dementia= 155; 37.8% and PWD = 56; 34.4%; P = 0.167) did not significantly differ between patients with and without dementia.(36)

4.2. Pressure from relatives

According to another study by Schuurmans with in depth interviews with 11 physicians, various participants noted that AD requests originate not only from the patients themselves but frequently also arise from their families. "*Children in particular feel they are their mother's spokesperson and will continue knocking on the GP's door … There you have to ...there a line needs to be drawn. I get very few requests from the patients suffering from dementia themselves. It is more often a family member who says "father wouldn't have wished this". So a real question from the patient him- or herself, hardly ever. ...It frequently happens that family members put pressure: "Is this necessary?" and "Please administer extra syringes to make it happen more quickly" I think GPs need to be protected against this kind of pressure when the patient is suffering from dementia and does not ask for it himself."(31)*

Compared to the quantitative study from Schuurmans et al. pressure from patients' relatives did not significantly differ between patients with and without dementia (respectively 42.2% and 42.9%; P = 0.560). In the same study, 39% of the surveyed GPs indicated the need for additional training in communication to effectively navigate pressure from relatives.(36)

In a qualitative interview study conducted by Buiting et al., involving AD consultants and physicians who had sought AD consultations, pressure from the family emerged as one of the factors that at times impeded a thorough assessment and discussion regarding the criteria for careful practice.(29) This was also found in a Dutch focus group study. For example, a patient's son asked a GP (M, male): "*how long will it take with mother? A question that often comes up is: who should be with the patient during the performance of AD? "Half the family was in the room and they said: 'we're going upstairs for five minutes [so the GP could perform the AD, HvM], then when we come back it will be over.' I felt terribly manipulated." (H, female).(24)*

GPs might also face counterpressure from the family to not perform AD. This is indicated by GPs in the study by de Boer ME et al. In such instances, the GPs are initially willing to fulfill the patient's request but encounters opposition from the patient's relatives who strongly object to AD. To counteract this pressure, one GP advised the patient to explicitly communicate to their partner: "I am dying, not you, and I am the one making this decision." In another case, a GP ultimately decided not to grant the AD request because they did not want to "give your [the patient's] wife an unacceptable problem and huge grief to [his] children,' yet they were left with the feeling that 'we could have saved him [the patient] from dreadful weeks." The researchers of the study point out that the process of AD is influenced not only by the physician but also by the patient and their relatives. Being aware of these influences, along with effective communication and clarification of expectations, could help reduce pressure surrounding AD.(30)

4.3. Time pressure

Two studies (32, 36) shed light on GPs' difficulties of making a considered decision regarding AD requests influenced by time pressure.

In the study of Snijdewind et al. physicians shared their experiences and perspectives on the challenges they faced in dealing with patients whose conditions rapidly deteriorated, making the performance of AD increasingly difficult. One physician expressed the frustration of feeling outrun by the disease, emphasizing the urgency and complexity of the situation. Another physician described the heartbreaking moment when communication became impossible, highlighting the emotional toll of witnessing the decline in their patient's condition.

"At a certain moment, you might get outrun by the disease. In fact, that's what happened. It became very difficult for me when we could no longer communicate [our ideas] clearly. That's what happened here. Tuesday he sort of dozed off. You could hardly reach him." (P02, family physician and SCEN consultant)

"I was once caught out by the disease at a weekend. It was a young woman who was severely ill, and we'd talked about her request for euthanasia. I decided to sedate her, because of her bad condition. I realized at that point that I was ignoring her request for euthanasia. I just felt I couldn't organize everything that weekend." (P23, family physician).(32)

In the above-mentioned quantitative study of Schuurmans J. et al, some doctors (40,7%) felt constrained by time for assessments with patients who had diseases other than dementia, while 9.8% felt similarly constrained specifically for patients with dementia. Time pressure did not significantly differ between patients with and without dementia.(36)

4.4. Pressure regarding referred patients

Closely related to time pressure, two studies indicate additional pressures regarding referred patients. In one study, an AD consultant mentions pressure from the referring GP, particularly when arrangements for AD have already been made. The consultant expresses the desire to provide an unbiased opinion and take the necessary time for thorough evaluation, without being bound by pre-existing commitments: *"I certainly do not want a situation to arise that the physician has already made a commitment that it will happen tomorrow and that you just come along to ratify this. I want to be able to give a free opinion and to take the time for this."(29)*

In the other study, closely tied to time pressure, the following is indicated: *"There are cases where the GP feels pressured by the circumstances of a referred patient, with whom he/she lacks time to develop a trusting relationship."* GPs highlighted the challenge of establishing a meaningful rapport with a referred patient within a limited timeframe, contributing to the overall complexity of the AD decision-making process.(30)

4.5. Pressure from society

A single study addresses societal pressures. This study reveals that numerous primary care physicians confront the ethical quandary of their professional obligation regarding end-of-life decisions, including the provision of assisted death (AD). These physicians experience unwarranted societal pressure, often encapsulated by the contemporary ideal of 'being a modern doctor', prompting them to question their moral obligation to engage in AD practices and seek strategies to justify their personal beliefs. Consequently, some primary care physicians may elect not to partake in AD procedures as a response to societal norms and evolving professional standards. *"In the USA, there are people who execute the death penalty on authority of the judge. In Holland, we [as GPs] are appointed as such, to take someone's life."(24)*

5. Need for emotional support

We identified three categories related to the need for emotional support across nine included studies (21, 23, 24, 30, 31, 34, 36, 37, 39): (1) emotional investment, (2) dealing with grief from family and friends, (3) coping with AD requests.

5.1. Emotional involvement

In almost half of all included studies, emotional involvement emerges as a prominent issue. GPs experience various emotions in the context of AD practice. Examples of negative emotions include feeling alone or loneliness (24, 30), feeling used (30), very demanding, powerless (23), responsibility (23, 39), frustration, anger, insecurity (31), moral distress (21, 31), guilt, regret, loss, and abandonment (24). Alongside negative sentiments, positive feelings are also reported in the execution of AD, such as a heroic feeling and a sense of relief in being able to help someone.(24, 31, 39)

"I felt very lonely. I couldn't share that with anyone. Wild stories about the police went round. Nobody could tell you how it [AD, HvM] was done. I had no idea how it would be or how long it [the dying process following AD, HvM] would take. I felt powerless and alone."(24)

"I found it [performing AD, HvM] very hard and lonely the first time, but I felt I'd done a good thing."(24)

"*It's wonderful … and also this feeling of power.. That's, it's a form of heroism. The feeling that I did something good, also for the profession."(31)*

In the quantitative study by Campbell et al., including 583 physicians, with 29.5% being GPs, barriers to participation in AD showed significant differences between physicians who had served as attending physicians and/or consultants and those who had not. Among AD consultants and/or attendings, 22.5% identified their emotional investment as a moderate or large barrier, in contrast to 50.2% of those who had not served in these roles (p=0.004).(37)

In a cross-sectional survey, by Evenblij et al., GPs were approximately twice as likely to perceive performing AD as burdensome compared to psychiatrists (OR 2.00 [0.49–8.26]). In contrast, GPs were half as likely to perceive performing EAS as burdensome compared to medical specialists (OR 0.43 [0.16–1.17]), and almost equally likely to perceive performing AD as burdensome in comparison to elderly care physicians (OR 1.13 [0.53–2.41]).(34)

In the quantitative survey conducted by Jaap Schuurmans et al, it was found that when compared to AD requests or procedures for people with diseases other than dementia, the majority of GPs experienced emotional burden. Specifically, 69.0% of GPs reported emotional burden in cases related to dementia, while 52.8% reported emotional burden in cases related to diseases other than dementia (P = 0.000).(36)

An example of emotional challenges associated with denying AD requests comes from a qualitative study involving six GPs in Colombia."*Saying no to patients does not ever get easier .... It still feels like the worst part of this work because those patients have come seeking help and as a physician I very much want to help them. But I am clear when I cannot and will always work within the [current] law".(39)*

5.2. Dealing with grief from family and friends

In two studies, a different emotional challenge was briefly highlighted, namely dealing with grief from family and friends.(24, 39)

"I didn't know how the children would react after the AD [they reacted positively, HvM]."(24)

5.3. Coping with AD requests

Coping with AD varies among GPs, yet several commonalities emerged from the included studies. Firstly, the study by Otte et al. revealed that uncertainty about their emotional coping ability is one reason for GPs to refuse a request. GPs who avoid discussing AD underscore their uncertainty in emotionally managing the process of AD. They articulate apprehensions about the potential jeopardy to their own psychological well-being, particularly in scenarios characterized by extensive and deeply established patient-physician relationships.(21)

Additionally, the need for both informal and professional support, including the ability to share emotions, was also evident. Coping was described as a personal issue for each physician, while the importance of discussing the experience was emphasized—to "let off steam" immediately afterward, share the experience with colleagues (31, 39), a partner, or a friend, and come to terms with the loss. Especially among younger male physicians, support from colleagues, listening, advice, coaching by an experienced physician, and colleagues supporting the performance itself were highlighted.(24)

In the above-mentioned study by Campbell et al., lack of support of colleagues was one of the barriers mentioned by physicians who had not served as an AD consultant. These barriers did not significantly differ with consulting/attending physicians (p= 0,001).(37)

Addressing these challenges, the identified essential need was for peer support and informal support.(31, 39) Taking a step towards overcoming this barrier, Otte et al. propose further education and training can positively impact GPs and enhance their ability to cope with potential psychological impact of AD.(21)

6. Need for improvement of time management

Three categories for lack of time during the process of AD were revealed in 7 included studies (24, 30-32, 35, 37, 39): (1) Time-intensive care, (2) Administrative workload, (3) Financial reward.

In the quantitative study by Campbell et al., 75% reported that their most recent AD case was emotionally fulfilling and professionally rewarding, though 75% also reported that it was time consuming.(37)

6.1. Time-intensive care

When addressing requests for AD, GPs expressed the need for time to achieve thoroughness. This refers to the time needed to develop or deepen relationships, to decide whether or not to involve relatives and to consider various end-of-life options, such as, comfort care and palliative sedation.(32)

Six studies described the time-intensive care that is associated with AD.(24, 30-32, 37, 39) Most frequently mentioned aspect in that regard concerns the time-intensive consultations for AD requests.(31, 37, 39) In the study of Cambell et al GPs noted difficulties with the need of being continuously available to patients.(37)

In addition to the time invested directly in preparation and performance of AD, GPs also grapple with the emotional involvement and coping associated with this sensitive topic, which further adds to their time commitment. In two studies (30, 31), both consisting of semi-structured in-depth interviews, GPs highlighted challenges in scheduling and recovering from the execution of AD. Moreover, they expressed the difficulty of integrating the process of AD into regular care.

In the study of Schuurmans J. et al. several GPs stated: "*being confronted with AD requests and procedures has a negative impact on the overall quality of care and time left for other patients. Genuine, unprejudiced attention … that takes time …. Yeah, because it interferes with daily affairs, you need to plan extra time for it, I often do this on my day off, … when I cannot be disturbed by other patients."(31)*

In the study from De Boer et al. another GP emphasized the practical challenges of scheduling AD procedures within their practice, stating: *"I have not yet dared to do 'an AD' in the morning, and then do consultations in the afternoon."(30)*

Furthermore, in the focus group study by Van Marwijk, the author underscores the importance for a GP to take time off after the act of AD to emotionally cope with the performance of AD. *“Many physicians find it important to take time after they have performed AD or assisted suicide, to reflect on the event, to bid someone farewell, to take a day off or to do something relaxing. They blame their overall lack of time as a bottleneck for coping.”(24)*

6.2. Administrative workload

For studies offered insights into the administrative burden associated with AD procedures.(24, 30, 35, 39) The administrative burden manifested both at the macro level and at the micro level.

At the macro level the study from White et al., in which the researchers analyzed the operation of a prospective approval model in Victoria, Australia, GPs stated that the primary gatekeeping to AD in practice was by the administrative Secretariat of the oversight body. The most frequently cited factor was the limited accessibility confined to office hours, rendering it challenging to reconcile with the responsibilities of GPs. Additionally, the inability to make progress over the weekend was highlighted as a hindrance.(35)

“So I work as a GP, I’ve got appointments all through the day, so I would then go through to the house on my way home, update him with what’s happened and so forth. And at that point he would make a second [request for assisted dying], you’ll be writing those requests up to the board at night, and then have to go through the board, which is another 24 hours. And then you’d be going through your day surgery and then on the way home again at night, and during this time the board is working 9:00 to 5:00, Monday to Friday. And then we got to a weekend … and there’s nothing until the Monday … it was very shortly after that point that the patient effectively lost consciousness, and so was not able to say to the pharmacist that they wished to have the medication. So, we probably lost – I would say we lost three to four days of actual time because of the process. So, I’m not saying that he would necessarily have taken the medication, but he could have had the option.”(35)

“Of the patients that I've been working with, only four have been able to get through to the completion of the process. It's been one of our issues, is that because it is complicated and because there's a lot of bureaucracy to encounter and a lot of hurdles to jump.”(35)

At micro level the administrative workload was mentioned by GPs in two semi structured in-depth interview studies. In the study from the Boer et al. a GP stated: *“all the arrangements to be made with regard to the pharmacy and the planning of consultations with other patients are referred to as ‘organizational hassle.’”"*(30) In the study from Shaw et al. the author declared: “*Logistical challenges included having to travel to see patients who were bedridden, onerous documentation requirements, a lack of administrative support for arranging the actual MAID process, and privileges being denied by care facilities.”(39)*

To offer some counterbalance to the burden of time that is associated with the administration required for AD, GPs in the study of H. van Marwijk et al. considered the support of regulations such as extensive notification procedures and published requirements for prudent practice as a positive development. One GP stated: *"I find it all much easier now. You discuss (the request for) euthanasia with different people. There are rules. You let someone watch over your shoulder. I find that better."(24)*

6.3. Financial reward

The disparity between the time and cognitive effort required for AD procedures and the reimbursement received, is highlighted in two studies, one study for The Netherlands and one from Colorado (USA).(30, 37) In an in-depth interview in the study from De Boer et al. GPs stated: "*It [AD] takes more time than we get refunded and 'it takes a lot of energy and thinking."(30)* In the study of Campbell et al. on barriers to participation in AD researchers concluded: *"Future research should explore the amount of time required by AD, how that time is allocated in the AD process, and the extent to which payment intersects with time as to influence physician decisions about participating in AD."(37)*

7. Need for improvement of communication skills

Two studies in our research give insight into the need for improvement of communication skills. J. Schuurmans et al observed in their postal study that 39% (n=165) of the GPs expressed a desire to enhance their communication skills to effectively address pressures from relatives. Additionally, 28.1% (n=119) of the GPs stated their intention to improve their skills in communicating end-of-life aspects.(36)

Furthermore Snijdewind et al. observed, through in-depth interviews with GPs, that miscommunication between GPs, patients and family members often contributes to the complexity of AD and that the miscommunication is often arising from implicit differences in expectation. When handling requests for AD, GPs pointed out that the inherently complex nature requires clear and ongoing communication about expectations among everyone involved. GPs experienced that a proactive approach to communication may effectively mitigate the complexities throughout the process.(32)

4. Discussion

Summary of evidence

This systematic review provides insight into the support needs of GPs involved in AD, drawing from their lived experiences with AD. The review identified 15 studies published over the past

20 years, all conducted in six jurisdictions where AD is permitted. 10 of these studies originate from the Netherlands. Our systematic review demonstrates that GPs require support across various domains. More specifically, GPs expressed a need for improved understanding of legal criteria (11/15 articles) and emotional support (9/15 articles). Additionally, managing external pressures (7/15 articles) and time effectively (7/15 articles) emerged as support needs. Other support needs included procedural support (3/15 articles), communication skills improvement (2/15 articles), and technical assistance (1/15 articles). These findings underline the complex needs that GPs face in AD practice.

Enhancing the application of legal criteria in AD practice

One of the support needs that was most frequently cited in this review, was the need for improved knowledge and interpretation of the legal criteria for careful AD practice. The general practitioners in the reviewed articles seemed to have an inconsistent understanding of these criteria. However, the paramount aspect of this support need lies within the application of these criteria, which necessitates a degree of interpretation. During this interpretive process, a considerable number of GPs expressed some difficulties and insecurities accompanied by a feeling of a lack of support. This could be explained by the fact that the applicability of some of the criteria is described as enormously ambiguous and vague by the majority of GPs.

Why is it now so difficult to assess these different criteria, and why do GPs often feel so insecure about their assessment?

A crucial part of this assessment is the ability of the GP to determine the appropriate moment to start the conversation about AD and evaluate whether the different criteria are met or not. In order to do so, GPs must be able to anticipate the progression of the patient's (terminal) illness. GPs tend to have a broad range of knowledge about illnesses. Their main task is therefore to evaluate whether this patient can be treated at home or needs to be referred to a hospital. As a result, they have a broad general knowledge and tend to lack specialized knowledge about the progression of the end-stage of illnesses such as cancer, dementia, COPD, heart failure, etc.,… in which AD is most frequently requested. This also applies to the criterium that there must be no other reasonable treatment available. Due to the fact that treatments in end-stage diseases are mainly highly specialized, GPs' knowledge about those topics might be insufficient. This hampers the right time to assess these criteria and leads to difficulties during the assessment of the request as well as feelings of doubt regarding the assessment.

Furthermore, the application of the criterium that there must be no other reasonable treatment available, might not be as straightforward, as suggested by guidelines. Several options to alleviate suffering in incurable diseases exist. However, what might initially seem a reasonable alternative for the GP, could be turned down by the patient. For example, in the study by Groenewoud et al. mentioned above, in 38.7% of the cases, patients accessing AD stated that they find admission to a nursing home unacceptable; for many of them, this (prospect) equals “unbearable suffering”. Thus, even if alternative options were sometimes available, the criterion “no reasonable alternative” was judged to be met. The declined alternatives were deemed not to be reasonable for this patient. In many cases a patient's refusal to accept institutional care was accepted as “no reasonable alternatives” by the physician and the regionale toetsingscommissie euthanasie (RTE).(40) In order to address the discrepancy in the interpretation of the criterion between healthcare providers and patients, it is imperative to engage in open communication regarding the specific care needs and objectives of the patient. These requirements are intricately linked to the aspects that the patient deems significant in their life. While one patient may prioritize their mobility, another may value the ability to engage in meaningful conversations with their loved ones. To facilitate a comprehensive assessment, it is beneficial to involve the patient's close family members or immediate social circle in the dialogue. In this context, the GP emerges as the optimal individual to evaluate such considerations holistically and collaboratively determine the viability of alternative treatment options and, if necessary, adjust his initial assessment of this criterium.

Second, with regard to the criterium ‘well considered and voluntary request’, the attending physician must assess that the patient holds decision-making capacity. In their study, Schweitser et al. found that physicians have different views and approaches regarding the assessment of the decision-making capacity in the context of AD. According to the most commonly used ‘cognitive ability approach’, four abilities for decision-making capacity must be present in the patient: communication, understanding, appreciation and reasoning. However, some GPs seem to take additional elements into consideration when assessing decision-making capacity. Since most of the GPs reported that assessing decision-making capacity was not part of their training, their knowledge on the subject was acquired in many different ways which attributes to unstandardized and ambiguous clinical practice.(41)

Similar results were found for the criterium of unbearable suffering without prospect of improvement. A Dutch literature review study by Dees et al. researched the available theories considering the perception of unbearable suffering based on observations of terminally ill patients seeking AD. Four dimensions of suffering were identified: physical, psychological, existential or spiritual, and social suffering. This research highlighted that suffering in such a

context stems from factors that compromise quality of life and the loss of perceived meaning and purpose in life. Many of their included studies stressed the impact of perceived suffering as well as that unbearable suffering has a lasting and prominent role in an individual's mental well-being. As described above, the complexity as well as subjectivity of this criterium remains and inhibits a generally accepted definition of ‘unbearable suffering’ in the context of AD to this day.(42) This was also emphasized by another Dutch study by Groenewoud et al. in which a qualitative content analysis of all 111 Dutch case summaries of AD in dementia patients between 2012 and 2020 was performed. Findings showed that in dementia cases, the experience of suffering varies from patient to patient, often more than in other life-threatening conditions. Physicians typically take into account the patient's personality, biography and background in evaluating their distress. Suffering thus means different things for different patients which hampers a comprehensive and easily applicable understanding of this criterium, especially in the case of dementia.(40)

How can we overcome these insecurities of GPs regarding the assessment of these criteria?

First of all, clear-cut guidelines on the assessment of legal criteria could be helpful. However, while guidelines can be useful in providing a framework for assessment, the inherent subjectivity in interpreting some of these criteria, as stated above, may never be completely resolved. A potential solution to address the ambiguity surrounding these criteria could be in applying a multidisciplinary approach involving various healthcare professionals such as GPs, geriatric specialists, reference consultants, and particularly psychiatrists for cases involving psychiatric pathologies and dementiaa very complex situation, that is best understood and empathized with by one’s GP, we argue that the involvement of a GP is crucial. However, the expertise and knowledge of specialists and AD consultants as well as non-medically trained caregivers (e.g. social workers, psychologists,...) can be very useful to overcome the insecurities that are present with GPs in assessing AD requests nowadays. By leveraging the diverse expertise of different professionals, collaborative decision-making processes can be enhanced, ultimately leading to more informed and ethical decisions regarding AD requests in the future. The development of peer group intervision as well as approachable consultation options are needed.(40) Promising results are shown for the implementation of such multidisciplinary approach through the Life End Information Forum (LEIF). This Belgian organisation provides specifically trained physicians who can act as mandatory consultants in AD requests. A study by Cohen et al. from 2014 showed that trained consultants, namely LEIF consultants, improve the quality of decision making in AD practice. Adding stipulations in the law about the necessary competencies and tasks of consulting physicians may additionally incite improvement.(43) Additional research is required to explore the implementation of a

multidisciplinary approach and the involvement of AD consultants, as well as the impact of these strategies on the existing demand for support of GPs in assessing requests for AD outlined in this particular review.

Moreover, in Australia, GPs are legally required to have attended a specialized training in AD in order to be engaged in any form of AD. Given that education on AD worldwide constitutes a relatively minor component of the broader curriculum for medical training, there is a compelling argument for mandating this training to address the uncertainties experienced by GPs in the context of AD procedures. Such a requirement could not only enhance understanding of the principles and regulations governing AD, but also equip healthcare professionals, in particular GPs, geriatric specialists, and psychiatrists—who are commonly consulted for AD services—with the necessary knowledge and skills. Offering interdisciplinary workshops and fostering collaborative learning opportunities during their advanced training to become specialists/GPs may instill physicians with valuable knowledge and insights for future AD practices. However, in that regard, further comparative research should focus on determining the most effective forms of physician training for AD assessments.

Adressing external pressure trough advanced directives and diverse communication formats

In the context of the pressure experienced by GPs in performing AD, the main source of pressure seems to come from the patient or from his/her relatives. Patient-driven pressure could arise from misconceptions surrounding AD, leading to unrealistic expectations that may not align with the criteria governing AD.

A 2016 survey of the general population in the Netherlands revealed perspectives on AD. Findings showed high awareness of AD criteria (88%). However, fewer respondents were aware of a physician's right to refuse AD (74%), the lack of obligation to comply with a written request (61%), and the necessity of a written request for advanced dementia patients (52%).(44)

Pressure from relatives may stem from the emotional burden experienced by caregivers, as they are frequently and intensely confronted with the patient's unbearable suffering. In a study of 83 bereaved caregivers of patients with life-limiting illnesses who requested AD, motivations for these requests were explored. Caregivers highlighted the patient's desire for control over the circumstances of death, along with fears of losing dignity, independence, quality of life, and self-care ability, as well as a preference for dying at home.(45)

Sixty percent of Dutch citizens supported AD eligibility for individuals with dementia, even if they no longer comprehend what is happening. As mentioned above, one in five respondents

mistakenly thought that AD for advanced dementia could proceed without a written advance directive. Furthermore, 83% of respondents deemed it was appropriate for a physician to carry out AD for a patient who could no longer communicate but had previously formulated a written living will before the onset of dementia.(44)

Moreover, unmet or unrealistic expectations and a lack of knowledge about the criteria can result in disappointed patients and family, potentially intensifying the pressure experienced by physicians.(46) Excessive family caregiving responsibilities can also exert pressure on the GP.

Possible strategies to address external pressure from patients and relatives within the practice include initiating early discussions about advance care planning and AD with patients aged 65 and above, also assessing their knowledge of guidelines and expectations in a palliative setting. Additionally, it could be beneficial for GPs to receive communication lessons from specialized palliative care teams on this matter and how to cope with pressure from patients and relatives. Furthermore, engaging in dialogue not only with the patient but also with their relatives throughout the AD process could potentially alleviate pressure. In this context, the involvement of a palliative team, comprising not only nursing professionals but also psychologists, could provide valuable support for the patients, relatives and eventually for the GPs.

Furthermore, raising public awareness, such as conducting regular information sessions for patients, supported at a policy level or by healthcare insurers, could be beneficial to expand the knowledge of patients, families and relatives. These sessions could be complemented by distributing informative materials such as brochures or posters in the GPs office. Another approach is to provide informative patient resources on the practice website of GPs. To add to this, several nursing homes already initiate advance care planning, including the option of AD, with patients and their family members or close relatives upon admission. Implementing a legal requirement at the governmental level could ensure that care plans are developed for every patient entering a nursing home. Establishing specific guidelines on the use of advanced directives in patients with dementia could also be beneficial.

To gain a deeper understanding of experienced pressure, research on the support needs of patients and relatives, along with an investigation into their knowledge of AD and palliative care, would be valuable.

Addressing workload to reduce time pressure: Policy support and remuneration

Our systematic review identified three categories that relate to GPs need for improvement of time management: time-intensive care, administrative workload and financial reward. These categories are inherently linked to the overall workload of GPs. Groenewegen et al. divide workload for GPs into patient-related activities and other activities.(47) This trend of GPs having to conduct more patient and non-patient activities has been observed in several European countries. Conversely, 'other activities', particularly administrative tasks, are consistently on the rise across Europe.(48-49) This trend is determined by several factors, such as, the total number of active GPs, the increase in patients with complex health problems and the shift towards the part-time employment of GPs.(49)

To effectively address time management for AD practice it is crucial to examine the workload of GPs entirely. One aspect of this involves tackling the policy-level support for physicians in handling administrative tasks and financial regulation. Although financial gain is not usually the primary motivation for GPs, we argue that adequate remuneration for AD practice may be a crucial incentive for engagement.(50) With the increasing complexity of patients in primary care, there often exists a disparity between the time and cognitive effort required for certain care and the reimbursement received.

It is imperative that new policies are not made without the input of GPs. As healthcare reforms that aim to change the administrative workload of GPs without involving them are less likely to produce significant improvements.(50) The freedom to organize their work is fundamentally intertwined with GPs autonomy and holds universal significance across various nations. GPs have reported shifts in their relationships with patients, alterations in interfaces with secondary care, and a gradual sense of diminishing autonomy within their workplaces as factors contributing to reduced job satisfaction.(50, 51) Lastly, in the case of AD, it is important to underline that while administrative tasks associated with AD practice are sometimes viewed as burdensome, there is also support and demand among physicians for the extensive notification procedure and the publication of requirements for prudent practice.(24)

When applying the preceding principles to AD practices it may not always be beneficial to limit administration, but rather, it will be useful to balance administration with workload and income. Further research is necessary to determine this balance considering the different financing systems and the availability of GPs. Moreover, it is important to involve GPs in the policymaking process regarding time management and appropriate renumeration. Furthermore, as emphasized earlier, the significance of a multidisciplinary approach to AD

cannot be overstated and may mitigate the workload of GPs when it comes to AD practice. However, it remains crucial for the GP to maintain central responsibility for patient care, ensuring that tasks do not shift away from his oversight.

Recommendations for future research

In our investigation, a notable prevalence of Dutch studies was observed, with 10 out of the 15 selected studies originating from the Netherlands. This prevalence can be attributed to the Netherlands being among the pioneering nations to establish a legal framework for AD in case of unbearable physical or mental suffering. However, as an increasing number of countries are legalizing AD, it is imperative to conduct further research in these jurisdictions to identify the context specific or additional support needs that might differ from jurisdiction to jurisdiction. Furthermore, the absence of studies addressing AD in children within this review underscores the ethical complexities associated with this topic. Assisted dying in children presents a significantly more exceptional scenario compared to adults, as these patients are minors and involve parents, making the cases inherently more complex. Ethically, these situations place a greater demand on physicians suggesting that the support needs for AD in children may be even more pronounced than those for AD in adults. Consequently, discussions on these cases rarely involve GPs solely and are typically managed in a multidisciplinary approach. This likely led to an underrepresentation of this patient population in our research focused on GPs. This can be explained by the fact that in most countries where euthanasia was legalized, this did not yet involve euthanasia in children. Similarly, assisted dying in cases of psychological suffering and dementia often also requires specialist involvement. Consequently, further research on the specific support needs of GPs in these aforementioned specific patient populations is indicated.

As mentioned before, the practice of advance care planning, including the option of AD, is most commonly documented in a semi-structured form within the patient's GPs record. Given that patients in the end-of-life stage often interact with multiple care providers and that end-of-life counseling sessions are resource-intensive, the repetition of these interviews commonly leads to information loss. To enhance interdisciplinary collaboration, the establishment of a platform for accessing and potentially updating such information by involved care providers could be advantageous. Further research on the use of such platform is recommended.

In conclusion, our study examines the experienced support needs within the AD process for GPs, as they are frequently involved in, and responsible for, such procedures. Nevertheless, our investigation did not specifically address the experiences of specialists, who also play a substantial role in fulfilling AD requests. It is likely that the support needs are comparable

between these two groups; however, conducting comparative studies between the two populations could offer further insights into this matter.

Strengths & limitations

As far as we know, this is the first research that systematically maps and sythesizes the existing evidence on the support needs experienced by GPs involved in AD practices.

An overall strength of our systematic review is that we provided robust insights into the support needs of GPs involved in AD practice, which is an understudied topic in AD literature. In addition, this systematic review covers broad inclusion criteria encompassing worldwide studies, considers all types of AD and focusses on lived experiences. This comprehensive approach ensures a broader representation of data, allowing for a more thorough analysis and understanding of the support needs experienced by GPs throughout the process of AD.

Second, a rigorous methodological approach was used in this review that involved a screening in two phases (title/abstract and fulltext) by three independent reviewers. The data extraction was performed in triplicate as well. This meticulous process reduces the likelihood of bias in the selection and interpretation of the included studies. This way, we aimed to enhance the objectivity and reliability of the findings of our study.

Lastly, a pre-published study protocol for this systematic review was used, allowing the conduct of peer review and input before the completion of the study. This practice ensures that the research methodology and objectives were carefully considered and refined, enhancing the credibility and rigour of the study.

Our systematic review is subject to several limitations.

An overarching limitation pertains to the vagueness present in the included studies. Firstly, in several studies, there is a lack of clarity regarding the differentiation between GPs and other medical specialists within the research populations of the included studies. Although efforts were made to encompass a clearly defined GP population in the inclusion criteria, unclarity in data reporting may have introduced non-GPs experiences in AD practices.

Furthermore, despite a pre-screening being conducted for lived experiences and attitudes, there is variability in how the lived experience is presented across the included studies. This inconsistent portrayal of the lived experiences and attitudes limits the comprehensive synthesis and interpretation of the findings.

Ten out of the fifteen studies included in the analysis were conducted in the Netherlands, despite the inclusion criteria encompassing studies from around the world. Given the early adoption of AD practices in the Netherlands, this may potentially account for the limited availability of data from more recently legalized countries. The predominance of the Dutch studies may limit the broader applicability of the findings.

Although in the narrative thematic analysis, seven support needs were identified and categorized as comprehensively as possible, yet they remain inherently interconnected.
Finally, during the identification of support needs, clarity in reporting was not uniform across the included studies. This underscores the requirement for interpretation to recognize something as a 'need', necessitating occasional interpretation for a comprehensive synthesis.

5. Conclusion

This study provided valuable insights into the diverse experiences and challenges faced by GPs when addressing requests for AD. GPs highlighted various support requirements throughout the extensive AD process, particularly concerning the practical management of complex issues regarding AD. Recommendations for enhancing AD practices include addressing these unresolved issues, improving education and training, incentivizing palliative and rehabilitative care approaches, and ensuring adequate consideration of the impact of an AD process on GPs well-being.

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7. Annex

Table 4: Data extraction form

Article reference number	Author(s)	Year of publication	Article Title	Jurisdiction	Language	Research question	Study design	Study inclusion criteria	Study exclusion criteria	Date of data collection	Sample size	Participant (n)	Setting	Age (years old)	Gender (n)	Ethnicity	Disease characteristics (n)	Form of assisted dying	Stage of assisted dying	Study results	Support/Health (care)needs or attitudes, beliefs, perceptions, experiences of (n) of next of kin/relatives in different stages of assisted dying (phrased as: our definition of needs)	Quality assessment using the revised methods appraisal tool (MMAT) version 2018							
																					Category of Study design	Screening question: Are there clear research questions?	Screening question: Do the collected data allow to address the research questions?	Question 1	Question 2	Question 3	Question 4	Question 5	Comments
1	M. Verhofstadt, E. Audenaert, T. Steeman, L. Dalleva, A. Jolgkens, K. Goethals, J. Vlaminckx	2022	Concrete Experiences and Support Needs Regarding the Euthanasia Procedure in Adults With Psychiatric Conditions: A Qualitative Interview Study Using Reflexive Thematic Analysis and Validation Techniques in Belgium	Belgium	English	The purpose of this research is (1) to explore how the euthanasia procedure is experienced in clinical practice by patients, their assessment or other additional support of adult patients suffering predominantly from psychiatric conditions with a psychiatric disorder and (2) to explore their support needs in this respect.	Qualitative study	Dutch-speaking; at least one concrete experience with euthanasia requests and procedures (completed or withdrawn) for psychiatric conditions in the period 2016–2022	/	2016 to 2020	50	Psychiatrist (30), GP (6), Medical specialist (2), other care professional (2), volunteer (2), mobile team (2), psychiatric hospital (1), hospital psychiatric residential setting (01), expert by experience (2), buddy (1), spiritual care (1), consultant (1)	In hospice, at home, in nursing/care facilities	>50 >65	Men (18) and women (12)	/	Psychiatric conditions (not specified)	Euthanasia	Requested euthanasia; performed euthanasia; denied euthanasia	Regarding theme 1 (the impact of euthanasia legislation and practice on the clinical trajectory), most of the participants, among whom well-trained physicians and nurses, plead for specific assessment approaches for the following specific patient groups: (1) patients with intellectual disabilities, (2) patients with a psychiatric condition and comorbid physical problems, (3) internees, (4) foreign patients, (5) young adults, and (6) "difficult patients," eg., the manipulative patient, the patient who continuously asks for euthanasia, (7) any request made in the regular academic curriculum of all health care professionals (eg., physicians, psychologists, nurses, social workers). (8) Training should include more nursing hours on euthanasia requests based on psychiatric conditions, as well as more hours on palliative care and the alternatives, as well as the broad assessment of related issues. Three main themes were identified: theme 1: Impact on attitudes and psychological processes; theme 2: Why care started: how they avoid talking about PAD requests; theme 3: Support needs: how to maintain their ability to cope emotionally with assisting a patient in ending their life. They stated that they fear their own psychological health might be at risk. Especially cases where they have a long and well-developed patient-physician relationship, the request for euthanasia (RE) can have a significant impact on personal connection to the patient. Theme 2: Reflexive beliefs and mechanisms: Some of the interviewed GPs who did not want to execute euthanasia commented that their opinions are related to their personal values. However, all of them emphasized that euthanasia may arise in which a request for PAD is quite understandable. While these GPs acknowledge and respect the wishes of the patient, they also state that—regardless of the nature of the request—they would refuse to assist their patients in ending their lives. Theme 3: Conflict with professional roles: Several GPs underscored that PAS is not a part of their professional role. They believe their professional role is to provide palliative care, to relieve pain and suffering, and to provide support to patients and their families. They also fear that their involvement with PAS may undermine the confidence in their role as doctors or could make a successful suicide look like a "normal medical procedure".	Need for emotional support	Qualitative	Yes	Yes	Yes	Yes	No	Yes	Yes	
2	J. C. Ehle, C. Jung, B. Elwert, K. Bally	2018	"We need to talk!" Barriers to GPs' communication about the option of PAS as well as the assessment and implementation: results from a qualitative study	Switzerland	English	To investigate the communication about the option of PAS as well as the assessment and implementation of PAS from the perspective of Swiss GPs. The focus in this article are the possible barriers to the patient communication about PAS in GPs who had chosen to refuse to assist a patient's suicide.	Qualitative study	A purposive sampling of 50 GPs was chosen from the pool of GPs who had participated in a survey and who in the survey indicated to participate in an interview. Quotas (group vs. single), location (practices in different German cantons and in urban, rural or suburban regions), and doctors' gender and age (0%, in our study received one to three requests for PAS in their career.	/	December 2012 to February 2013	23	GP	/	/	/	/	PAS	Requested PAS; performed PAS; denied PAS		Need for emotional support	Qualitative	Yes	Yes	Yes	No	Yes	Results described the perspectives of GPs who refused the request; however, GPs who accepted the request were also interviewed, but their experience was not shared in the results.
3	J. J. Georgen, A. M. Tho, B. G. Onwuteaka-Philipsen, G. van der Wal	2007	Dealing with requests for euthanasia: a qualitative study investigating the experiences of general practitioners	The Netherlands	English	The aim of this study is to describe GPs' experiences of dealing with requests for ASS from terminally ill patients and to gain insight in factors that are related to their restrictive attitude towards euthanasia.	Qualitative study	The GPs participating in a nationwide study of end-of-life decision-making practices in the Netherlands in 2001 were approached for the present study participants in a further qualitative interview about their experience with regard to end-of-life care and more explicitly with requests for ASS. Therefore the main criteria used to select GPs from the 1,000 GPs who participated in the 2001 euthanasia, other criteria were also used—for example, age, gender, location of general practice. Because one of the interview topics was damaged, only 50 interviews could be used for the purpose of the present study.	/	September 2002 to march 2003	50	GP	/	>65 65	Men (29) and women (8) (the remaining 13 were of 2 of the physicians were interviewed	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for emotional support	Qualitative	Yes	Yes	Yes	Yes	No	Purposeful sampling caused the participants to be not entirely representative for Dutch GP's in general.
4	H. van Marwijk, J. Horenblas, P. van Royen, AM. The	2007	Impact of euthanasia on primary care physicians in the Netherlands	The Netherlands	English	To obtain more insight into the emotional impact on GPs of performing euthanasia or assisted suicide, and to tailor the support for GPs to their needs in the most accordingly. What and how do physicians feel and think about these practices, and what are their attitudes and awareness?	Qualitative study	At least one personal experience in the performance of euthanasia or an assisted suicide	/	August to November 2005	22	GP	/	36-65	Men (16) and women (6)	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for emotional support	Qualitative	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Mentioning of inductive coding, however no description of the used data analysis.
5	Rurup, M. L.; Onwuteaka-Philipsen, B. D.	2011	Palliative Treatment Alternatives and Euthanasia Consultations: A Dual Qualitative Interview Study	The Netherlands	English	To investigate 1) whether and how consultations come up during or preceding euthanasia requests and 2) the role and responsibility of palliative treatment alternatives are assessed by the consultant.	Qualitative study	Palliative care physicians (>1 year) in the Netherlands (2008) physicians and the euthanasia consultants who had participated in euthanasia consultancy (the consultants were asked to identify GPs who had previously requested a euthanasia consultation.	/	March to september 2009	26	Euthanasia consultants (n=12), Palliative physicians (n=12), nursing home physician (1), palliative physician had requested a Euthanasia Consultation (GP 12).	In hospice, at home, in nursing homes	41-61 (consultants); 42-81 (clients/cases)	Men and women	/	/	Euthanasia	Requested euthanasia; performed euthanasia; denied euthanasia		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for improvement of time management; need for support in withstanding external pressure	Qualitative	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	de Boer, M. R.; Onwuteaka-Philipsen, B. D.; Willems, D. L.; Urrutia, G.; Deliens, L.; Onwuteaka-Philipsen, B. D.; Hertogh, C. M. P. M.	2009	Pressure in dealing with requests for euthanasia or assisted suicide: Experiences of general practitioners	The Netherlands	English	This study aimed to explore the content of this pressure as experienced by GPs	Qualitative study	1) short questionnaire about characteristics of the GP and his/her practice and experiences with end-of-life issues; 2) participation in an interview about this topic was used to maximize variation (years of experience, solitary or group practice, urban vs rural areas). Data collection for the interviews took place in the period 2005–2006. Interviews were a comparison and the purposive selection of participants (purposive sampling), that is, those who would be able to provide specific information	Principle objectives of the study (e.g., religious reasons) and no experience with	/	March to november 2005	55	GP	In hospice, at home, in nursing homes	36-65	Men and women	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for improvement of time management; need for support in withstanding external pressure	Qualitative	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
7	J. Schuurmans, R. Rurup, M. L. Onwuteaka-Philipsen, G. Cronbach, T. van Ritzvol, L. Wingens, A. Georgiou, B. Onwuteaka-Philipsen, D.	2014	Euthanasia requests in dementia cases: what are experiences and needs of Dutch physicians? A qualitative study	The Netherlands	English	What are the experiences and needs of Dutch general practitioners and elderly care physicians when faced with euthanasia requests from patients with dementia?	Qualitative study	A purposive sampled physicians with a variety of experience in giving euthanasia to this patient group, male and female doctors, GPs and elderly care physicians, and physicians who had not performed one case) a list of doctors who signed a critical statement (opposed to euthanasia in non-competent patients with advanced dementia), published in Dutch national newspapers about euthanasia requests in patients with advanced dementia, and who had provided their email addresses; the list of elective (deals with euthanasia requests and offers euthanasia or assisted suicide to people who are physicians are not willing to perform euthanasia).	/	December 2011 to march 2012	13	Elderly care physicians (n=10), GP (n=3)	In hospice, at home, in nursing homes	45-60	Men (7) and women (6)	/	/	Euthanasia	Requested euthanasia; performed euthanasia; denied euthanasia		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for improvement of time management; need for support in withstanding external pressure; need for procedural support of ethics committee	Qualitative	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
8	A. Tan Cate, O. E. van Tol, S. van de Goor	2017	Considerations on requests for euthanasia or assisted suicide: a qualitative study with Dutch general practitioners	The Netherlands	English	What considerations play a role in practitioner physicians decide on an ASS request?	Qualitative study	First, we enrolled Support and Consultation for Euthanasia in the Netherlands (SCEN) physicians and asked them to put us in contact with physicians who had performed euthanasia or assisted suicide. Second, we recruited physicians who had completed the questionnaire that was part of the aforementioned study. Third, we identified they were willing to elucidate their experiences in an in-depth interview. Here, we strictly selected physicians who had received an ASS request from someone suffering from dementia or a psychiatric illness, or both. Finally, we also asked SCEN physicians that are often requested as consults.	/	2010	15	GP	/	36-65	Men (15) and women (12)	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice	Qualitative	Yes	Yes	Yes	Yes	Yes			
9	M. C. Snijdewind, D. G. van Tol, B. D. Onwuteaka-Philipsen, G. v. Wilfhem	2016	Complexities in Euthanasia or Physician-Assisted Suicide on Persons who Doubt Physicians and Patients' Relatives	The Netherlands	English	To identify and categorize the complexities of ASS requests that are more complex than others.	Qualitative study	Physicians who had received an ASS request from someone suffering from dementia or a psychiatric illness, or both. Finally, we also asked SCEN physicians that are often requested as consults.	/	November 2013 to april 2012	50	GP (26), medical specialist (12), patient relative (12)	/	31-70	Men and women	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for improvement of communication skills; need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for improvement of time management; need for support in withstanding external pressure	Qualitative	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
10	E. Swildi, K.-J. Pasman, H. B. W. van Delden, J. J. M. Grypdonck, G. J. van der Heide, I. J. Korfage, J. J. Metz, M. Otten, D. L. Onwuteaka-Philipsen, B. D.	2019	Physicians' experiences with euthanasia: a cross-sectional survey amongst a random sample of Dutch physicians to explore their concerns, feelings and pressure	The Netherlands	English	This study aimed to explore the concerns, feelings and pressure experienced by physicians who receive requests for ASS.	Quantitative description study	Physicians who had been working in adult patient care in the Netherlands for the last year. Only respondents who had answered questions about a recent or granted request were included in the analysis.	/	Nov to september 2016	695	GP (285), elderly care physician (76), medical specialist (82), psychiatrist (75), not specified (17)	/	39-55	Men and women	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for emotional support; need for support in withstanding external pressure	Quantitative descriptive	Yes	Yes	Yes	Yes	Yes			
11	A. P. White, J. Williams, M. Sellars, P. Isaac	2021	Prospective oversight and approval of assisted dying cases in Victoria, Australia: a qualitative study of doctors' perspectives	Australia (Victoria)	English	This article reports on the first empirical study of a prospective oversight and approval model internationally, drawing on interviews with doctors who have provided ASS in Victoria. It sheds light on the operation of that system and has implications for design of ASS systems internationally.	Qualitative study	Recruitment occurred through the mandatory training that doctors had to undertake to become a Voluntary Assisted Dying Practitioner (VADP). To be eligible to participate in research, participants had to have undertaken the training as at 18 June 2020, 1 year after the Victorian system began, were invited to participate.	/	April to july 2020	53	GP (32), medical specialist (20)	/	50-75	Men (18) and women (14)	/	/	ASS	Requested ASS; performed ASS; denied ASS		Need for improvement of time management	Qualitative	Can't tell	Can't tell	/	/	/	/	/	No explicit research question; further appraisal not feasible or assessable
12	J. Schuurmans, C. Cool, M. G. Ribbert, Y. Smets,	2020	Dutch GPs' experience of burden by euthanasia requests from people with dementia: a quantitative survey	The Netherlands	English	What are the experienced burden and support needs of Dutch GPs when confronted with a euthanasia request by a person with dementia?	Descriptive quantitative study	GPs with or without experience with euthanasia requests, or euthanasia (performance in general, or with a request by people with dementia specifically, were invited to take part. Inexperienced GPs were included to explore their reasons for not performing euthanasia. Experience was defined as the total of patients receiving ASS/assistance during 12 ASS-12 codes, i.e. patients that received hospice services, using Current Procedural Technology (CPT) codes for time and reimbursement for counseling (e.g. 99358 Prolonged evaluation Psychotherapy), GPs who had provided outpatient care for such patients, using National Provider Identifier (NPI) numbers associated with CPT codes for time and return reimbursement. The GPs were selected from according to what we believed was their likelihood of participating in ASS/D using three criteria, physician practice specialty (medical oncologist, palliative care physicians were ranked highest), the number of unique patients that each physician saw (physicians who saw more than 1 unique patient per month were ranked higher), and whether a physician was identified by our individual or group practice NPI (individually identified physicians were ranked higher). There were 5 waves of this survey, which allowed us to	Being retired or no longer working as a GP	January 2019	423	GP	/	Mean age: 61.1	Men (2337) and women (2161)	/	Dementia or another disease than dementia	Euthanasia	Requested euthanasia; performed euthanasia; denied euthanasia		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for support in withstanding external pressure; need for procedural support of ethics committee; need for technical support; need for improvement of communication skills	Quantitative descriptive	Yes	Yes	Can't tell	Yes	Yes	Risk for selection bias: the included group of GPs associated with the research practice may not be representative for the general population of Dutch GPs.
13	Campbell, E. G.; Kirk, J. W.; Weissfeld, L. A.; Stanley, B. G.; Xenos-Jenkins, G.; Sam, S. G.; Doctor, E. D.; DuCette, J.	2022	Physicians' Attitudes and Experiences with Medical Aid in Dying: The Oregon Experience	United States of America	English	To examine the nature, extent, and consequences of physicians' participation in MAID.	Quantitative description study	Physicians who had written prescriptions for lethal medications under the Oregon Death with Dignity Act (ODDA) between January 1, 2009, and December 31, 2019, who had provided outpatient care for such patients, using National Provider Identifier (NPI) numbers associated with CPT codes for time and return reimbursement. The GPs were selected from according to what we believed was their likelihood of participating in MAID using three criteria, physician practice specialty (medical oncologist, palliative care physicians were ranked highest), the number of unique patients that each physician saw (physicians who saw more than 1 unique patient per month were ranked higher), and whether a physician was identified by our individual or group practice NPI (individually identified physicians were ranked higher). There were 5 waves of this survey, which allowed us to	/	2019 to 2020	1989	Cardiology (12), general internal medicine (20), geriatrics (6), hematology/oncology (11), neurology (13), other (138)	In hospice, at home, in nursing homes, in private residences	White: 1826, Asian, Pacific Islander: 46, Black: 19, American Indian: 14, Other: 84	Malignant neoplasms, chronic neurodegenerative diseases, and chronic lower respiratory and heart diseases	MAID	Requested MAID; Performed MAID; Denied MAID		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for support in withstanding external pressure	Quantitative descriptive	Yes	Yes	No	Yes	Yes	Risk for selection bias: research population (physicians) is unknown, no generalization to general population possible. Risk for non-response bias: no follow-up for non-respondents
14	A. Peeck, A. V. Onwuteaka-Philipsen, B. van der Scheer, D. L. Willems,	2015	Experiences and views of Dutch general practitioners regarding physicians-assisted death for patients suffering from psychiatric disorders	The Netherlands	English	What are GPs' experiences and views with regard to MAID in psychiatry?	Mixed Methods	GPs who had been working in palliative care for the past years	/	September 2016 to february 2016	108 respondents: 50 interviews	GP	/	/	Men (11) and women (39)	/	/	Requested PAS; performed MAID; denied MAID		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for procedural support of ethics committee	Mixed methods?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low coherence between qualitative data sources, collection, analysis and interpretation; limited to the low number of GPs with treat experience
15	L. Chow, V. Wolter, A. Onwuteaka-Philipsen, M. Kelley, K. Isaac,	2018	Providing medical assistance in dying: Practice experiences in offer MAID in Canada	Canada	English	To explore the experiences of the first physicians to offer MAID in Canada.	Qualitative study	Physicians who provided at least one MAID based on the Canadian legislation	/	June to december 2016	6	GP (7), general internal (1)	In hospice, at home, in nursing homes, in private residences	57-64	Men (5) and women (2)	/	/	MAID	Requested MAID; performed MAID; denied MAID		Need for improved knowledge and interpretation of the legal criteria for careful ASS practice; need for emotional support; need for support in withstanding external pressure	Qualitative	Yes	Yes	Yes	Can't tell	No	Yes	Yes	Inclusion criteria seemed clearly defined; no description of the used data analysis; no mention on how the data collected (saturation of data)

* all gender (preferred, not recorded), MD, physician-assisted dying, PAS, physician-assisted suicide, ASS, euthanasia and physician-assisted suicide, MAID, medical aid in dying

** Note that no data collection (if the article, considering inclusion criteria, exclusively reviews the qualitative research) only a partly, approval of the qualitative research in the study was conducted here.