



A systematic review of older adults' request for or attitude toward euthanasia or assisted-suicide

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Abstract

Objectives: Prevalence rates of death by euthanasia (EUT) and physician-assisted suicide (PAS) have considerably increased in older adults, and public debates on these practices are still taking place. In this context, it seemed important to conduct a systematic review of the predictors (demographic, physical, psychological, social, quality of life, religious or existential) associated with attitudes toward, wishes and requests for, as well as death by EUT/PAS among individuals aged 60 years and over.

Method: The search for quantitative studies in PsycINFO and MEDLINE databases was conducted three times until April 2018. Articles of probable relevance (n = 327) were assessed for eligibility. Studies that only presented descriptive data (n = 306) were excluded.

Results: The review identified 21 studies with predictive analyses, but in only 4 did older adults face actual end-of-life decision making. Most studies (17) investigated attitudes toward EUT/PAS (9 through various hypothetical scenarios). Younger age, lower religiosity, higher education and socio-economic status, were the most consistent predictors of endorsement of EUT/PAS. Findings were heterogeneous with regard to physical, psychological and social factors. Findings were difficult to compare across studies because of the large variety of outcomes measures and sample characteristics.

Conclusion: Future studies should adopt common and explicit definitions of these concepts, as well as mixed longitudinal research designs that would allow for better consideration of various personal and social factors, and their interplays, on the decision-making process with regard to EUT/PAS.

Keywords: assisted-suicide; euthanasia; attitude; older adults; decisions

Introduction

Medical end-of-life practices have considerably changed over recent decades. A variety of options for hastening death are increasingly being made available to terminally ill patients or for people with intolerable suffering (Rietjens, Deschepper, Pasman, & Deliens, 2012). Euthanasia (EUT) and Physician assisted-suicide (PAS) are two of these

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3 death-hastening practices. With voluntary EUT, the physician administers a lethal
4 substance to deliberately end the life of a currently competent patient, who explicitly
5 requested it (Radbruch et al., 2016; Steck et al., 2013). In PAS, competent patients end
6 their own life, usually by ingesting lethal substances provided by others, mostly by a
7 physician, at their request (Emanuel, Onwuteaka-Philipsen, Urwin, & Cohen, 2016;
8 Radbruch et al., 2016; Steck, Egger, Maessen, Reisch, & Zwahlen, 2013). In all
9 legislations, the request of the patient is expected to be voluntary and not the result of
10 external pressure or undue influence. Together, EUT and PAS are generally labelled as
11 “assisted dying”. Some variety exists with regard to eligibility criteria: In Belgium, EUT
12 is also legal for individuals who are suffering from mental health disorders, including
13 dementia, even if they are not terminally ill (Dierickx, Deliens, Cohen, & Chambaere,
14 2017), as well as for those who have lost competence but requested EUT as part of
15 advance directives should they be in a coma or a vegetative state (Rurup, Smets, Cohen,
16 Bilsen, Onwuteaka-Philipsen, & Deliens, 2012). In the Netherlands, discussions are being
17 held about extending EUT to those who are tired of living or who consider their life to be
18 “accomplished” (Florijn, 2018; van Wijngaarden, Leget, & Goossensen, 2015). This
19 might be especially relevant for older adults.

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21 In terms of prevalence, deaths by EUT/PAS are relatively rare. Rates of death by
22 PAS ranged from 0.1% in the Netherlands to 0.39% and 0.32% in Oregon and
23 Washington (Emanuel et al., 2016), and 1.3% in Switzerland (Steck et al., 2018). There
24 is a higher rate of death by PAS in people 65 and over compared to younger adults, with
25 80% of PAS occurring in people aged 65 to 94 years (Steck et al., 2018). In American
26 older adults, PAS was more common in the 65-74 age group than 75-84 or 85 and older
27 (Hedberg & New, 2017; Washington State Department of Health, 2018). As for deaths
28 by EUT, rates range from 3.6% in the Netherlands (Emanuel et al., 2016) to 4.6% in
29 Belgium (Dierickx, Deliens, Cohen, & Chambaere, 2015). In Belgium, there were
30 significant increases, between 2007 and 2013, in the proportion of granted requests in
31 those 80 years and over (38.1% to 75.4%) and a pronounced increase of cases (22.9% to
32 68.2%) in nursing homes (Dierickx et al., 2015). It has been suggested that age might
33 play a role whether physicians endorse or reject EUT’s requests (van der Geest &
34 Niekamp, 2003).

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36 EUT and/or PAS have to date been legalized or decriminalized in the following 16
37 regions of the world (seven of them after 2015): the Netherlands, Belgium, Luxembourg,
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3 Switzerland, Germany¹, Canada, Colombia, the state of Victoria in Australia, and, in the
4 United States of America, in Oregon, Washington, Montana, California, Vermont,
5 Colorado, the District of Columbia, and Hawaii. In several other countries, discussions
6 on this topic are currently taking place. Tenants of the “right to die with dignity” base
7 their claims on self-determination, on fear of futile care, and on the importance of quality
8 of life versus quantity. Legalization opponents argue that the increase in health care
9 spending (Ince Yenilmez, 2015) and the anticipated savings that could be made by
10 providing medical assistance in dying (Trachtenberg & Manns, 2017) may put implicit
11 pressure on older adults to consider EUT/PAS, and influence their attitude and request
12 for these practices. Opponents also note that support for death with dignity is about
13 providing appropriate and quality care at the end of life, not hastening people’s death
14 (Buiting et al., 2012; Canetto, 2019; Coutaz & Morisod, 2012; Roesinger et al., 2018).

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16 Attitudes towards EUT/PAS vary, even among older adults. In Cyprus, 75.6% of
17 respondents aged 60 years and over opposed EUT for people with incurable illness or
18 with dementia (Televantos et al., 2013), However, older adults in Quebec, Australia, and
19 Germany stated they would agree to EUT if they were very sick and expected to die in
20 the near future (Carter et al., 2007, Lapierre et al., 2018; Roesinger et al., 2018). Also,
21 attitudes about hypothetical scenarios might differ from actual requests: Emanuel,
22 Fairclough, and Emanuel (2000) found that although 64% of terminally ill patients aged
23 65 or over supported EUT/PAS, only 13.8% had seriously thought about requesting it for
24 themselves.

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26 Some studies suggested that people frequently change their mind regarding a
27 hastened death in the last weeks of life (Emanuel et al., 2000; Rosenfeld et al., 2014).
28 Ferrand and colleagues (2012) found that among palliative care patients who expressed a
29 wish for a hastened death, the request persisted in 35% of the patients, fluctuated in 25%,
30 and disappeared in 29%. Using a series of hypothetical scenarios, Blank and colleagues
31 (2001a) found that 21% of non-terminally ill hospitalized elderly patients expressed
32 acceptance of EUT/PAS but, when asked six months later, 57% of them had changed
33 their mind and rejected it.

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¹ In Germany, assisted-suicide is permissible when relatives or significant others help,
presumably for unselfish reasons, a person who requested it. Help-to-die associations and
euthanasia are illegal.

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3 Some studies found discrepancies between physicians and patients concerning the
4 reasons for EUT/PAS's request: In general, physicians emphasize motives related to
5 physical conditions, for example tiredness, pain, nausea, difficulty breathing, vomiting,
6 lack of appetite, whereas people requesting EUT/PAS report psychological and/or social
7 reasons, like pointless suffering, loss of dignity, loss of autonomy, feeling tired of living,
8 feeling depressed, fear of losing their intellectual abilities, feeling unworthy and useless,
9 concerns about being a burden or fear of giving an unbearable image for their family
10 (Ferrand et al., 2012; Fischer et al., 2009; Hedberg & New, 2017; Jansen-van der Weide,
11 Onwuteaka-Philipsen, & van der Wal, 2005). Ten Cate, van Tol, and van de Vathorst
12 (2017) wonder if the decision to grant EUT/PAS might be biased by the physician's
13 personal views regarding the "unbearable suffering" criterion listed in the application.
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24 Aim of the study

25 To our knowledge, no systematic review has yet focused on EUT/PAS in older
26 adults. This seems highly relevant given the increasing rates of EUT/PAS and the high
27 proportion of older adults among those requesting or dying by EUT/PAS. Moreover,
28 considering the debates occurring between advocates and opponents of assisted death, it
29 seems crucial to analyze and disseminate evidenced-base data on these issues. The aim
30 of this study was to conduct a systematic review of the predictors (demographic, physical,
31 psychological, social, quality of life, religious or existential) associated with attitudes
32 toward, wishes and requests for, as well as death by EUT/PAS among individuals aged
33 60 years and over.
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43 Method

44 *Search strategy and keywords*

45 We conducted a systematic search of two electronic databases, PsycINFO and
46 MEDLINE. In addition, we enquired about ongoing trials by contacting the members of
47 the International Research Group on Suicide in Older Adults. We used a three-tier search
48 strategy where truncation and wildcards were introduced to increase the sensitivity of the
49 search. As many studies use EUT and PAS interchangeably (Marcoux, 2011), the
50 following keywords were combined: euthanasi* OR "assisted suicide" OR "assisted
51 death" OR "assisted dying" OR end-of-life decision* OR "physician-assisted death" OR
52 "physician-assisted suicide" OR hasten* death OR "aid in dying" OR "mercy killing" OR
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3 "treatment withholding" OR "treatment refusal" OR "end of life-sustaining treatment" OR
4 "end of life-support treatment" OR "end of life prolongation" OR "stopping vital
5 medication" OR death W1 request* OR request* W1 death OR resuscitation W1
6 decision* OR "dying with dignity" OR "death with dignity" OR right to die OR self-
7 deliverance OR "final exit" OR "self-directed death" OR "rational suicide". During the
8 second step, the field "SU" (subjects) in PsycINFO was set to exclude the following
9 terms: Physician* OR Nurs* OR "health personnel" OR "medical personnel" OR
10 psychologist* OR psychiatrist* OR animal*. In MEDLINE, we omitted studies with
11 "ethic*" or "jurisprudence" as major keywords (NOT MJ). Finally, in PsycINFO, we
12 applied an age group filter (65 and over), while in MEDLINE, we used the keywords:
13 aging population OR older adult* OR elderly OR senior* OR elder* OR elderly patient*
14 OR retired. Each database was searched for eligible studies from their start date until
15 April 27th 2018. No restriction was placed on language (since authors of this review
16 represented a diversity of languages) and date of publication. Finally, only peer reviewed
17 journals were considered.

31 ***Inclusion and exclusion criteria***

32 Studies were eligible for inclusion if they: (1) focused on or included participants
33 aged 60 or over, or had a sample which was mostly aged 60 or over, (2) examined older
34 adults' predictors of attitudes toward, request for, or dying by hastened death, and (3)
35 were empirical quantitative studies. We excluded studies if they: (1) investigated opinions
36 of health personnel or family members or (2) addressed involuntary euthanasia or
37 involuntary withdrawal of life support.

44 ***Search process***

45 Search results from both databases were saved in EndNote (version X7.7). The first
46 search, done on February 19th 2016, yielded 632 publications after removing duplicates:
47 299 articles fulfilled the inclusion criteria and were deemed to be of probable relevance
48 after the inspection of their abstract by DACD and SL. The publications were
49 subsequently reviewed by the co-authors using an excel review form addressing relevant
50 aspects of the studies (definition and type of end-of-life decisions and practices,
51 characteristics of sample, study design and measures, type of predictors, results). DACD
52 and SL reviewed the fulfilled excel form in order to assure coherence and reliability.

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3 Studies that only presented descriptive data without predictive analyses were excluded as
4 well as those who did not focus on EUT or PAS (n = 284). Repetitions of the search were
5 conducted on January 11th 2017 and April 27th 2018, which allowed the identification of
6 respectively 14 and 16 additional articles. Two additional papers were found through
7 other sources (co-authors identification). The review was based on the Preferred
8 Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Liberati et al.,
9 2009).

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17 **Insert Figure 1 here**
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20 **Results**

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22 In all, we identified 21 studies that fulfilled our inclusion criteria (Table 1). Fourteen
23 studies included only people aged 60 years and older, whereas 7 studies also comprised
24 younger adults but presented results specific to for older adults. Nine studies focused on
25 ill or functionally impaired people, while almost half of the studies (10/21) included
26 individuals with mixed levels of health (with or without illnesses). Most studies (17)
27 investigated attitudes toward EUT/PAS (9 through various hypothetical scenarios
28 describing a diversity of health conditions and proximity of death). In most studies
29 (17/21), participants were not likely concerned about such hypothetical situations of
30 assisted dying, because they enjoyed good health at time of investigation. One study
31 looked at predictors of actual request, and 3 examined actual deaths.

40 ***Sociodemographic predictors***

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42 Several population-based cross-sectional surveys as well as studies with persons who
43 suffered from health problems found that older age predicted an unfavorable attitude
44 toward EUT or PAS (e.g. Cicirelli et al., 1998; Emanuel et al., 2000; Floyd, Platz, &
45 French, 2004; Gilman, Merrill, & Reid, 1997; Hare, Skinner, & Riley, 2000; Huber, Cox,
46 & Edelen, 1992; Lee, Duck, & Sibley, 2017; Tolle et al., 2004; Televantos et al., 2013).
47 Some indications of increase in positive attitudes among 64-74 age group were found
48 (Buiting et al., 2012).

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50 With regard to sex, older men had higher levels of acceptance of EUT/PAS than older
51 women (Cicirelli, 1997, 1998; Espino et al., 2010; Floyd et al., 2004; Koenig, Wildman-
52 Hanlon, & Schmader, 1996; Seidlitz, Duberstein, Cox, & Conwell, 1995). As for death
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3 by PAS, Steck and colleagues (2016, 2018) found that women were more likely than men
4 to die by PAS in Switzerland. In Oregon, women were equally likely as men to die by
5 PAS (Hedberg et al., 2003).
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8 A higher level of education was consistently associated with a favorable attitude
9 toward EUT or PAS in older adults (Buiting et al., 2012; Cicirelli, 1997, 1998; Koenig et
10 al., 1996; Stolz, Mayerl, Waxenegger, Rásky, & Freidl, 2017) and with higher likelihood
11 of death by PAS (Hedberg et al., 2003; Steck et al., 2016, 2018).
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15 As for civil status, being divorced predicted favorable attitudes toward EUT (Buiting
16 et al., 2012) and a higher rate of death by PAS (Hedberg et al., 2003; Steck et al., 2016,
17 2018). The same holds for being widowed (Steck et al., 2018). In Switzerland people with
18 no children were also more likely to die from PAS than people with children (Steck et al.,
19 2018).
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23 With respect to ethnicity or cultural diversity, studies in the United States found that
24 European-descent seem to have more favorable opinions about PAS when compared to
25 African-descent individuals (Cicirelli, 1997, 1998; Koenig et al., 1996; Seidlitz et al.,
26 1995); conflicting findings regarding Latinos were reported, especially among men
27 (Espino et al., 2010; Mouton, Espino, Esparza, & Miles, 2000). In Oregon, rates of death
28 by PAS were higher among Asian-descent although, in absolute number, European-
29 descent represented the larger group (Hedberg et al., 2003). In Switzerland, French-
30 speaking regions had higher rates of PAS than German and Italian-speaking regions
31 (Steck et al., 2018). In Germany, people born outside the country were less favorable to
32 PAS (Roesinger et al., 2018).
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41 Higher income or socioeconomic status were associated with more favorable
42 attitudes towards PAS in older adults (Cicirelli, 1997, 1998; Koenig et al., 1996; Mouton
43 et al., 2000; Seidlitz et al., 1995), who were also more likely to die by PAS than people
44 with lower income or socioeconomic status (Steck et al., 2016, 2018). In hospitalized
45 older patients, financial constraints significantly predicted that depressed respondents
46 would refuse treatment options that they had previously desired in various hypothetical
47 scenarios (Blank et al., 2001b).
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Physical predictors

Studies have shown that in Oregon (United States), PAS was significantly more frequent among persons who had amyotrophic lateral sclerosis or cancer than other illnesses (Hedberg et al., 2003). Cancer, diseases of the nervous system as well as the respiratory systems were common diagnoses of older adults who died by PAS in Switzerland (Steck et al., 2018).

Among hospitalized older adults in Spain, 2.5% of terminally ill patients in palliative care expressed a desire for EUT (Güell, Ramos, Zertuche, & Pascual 2015). Contrary to expectations, those who expressed a wish for EUT had a higher well-being score on the physical symptoms' assessment scale than those who only made desire-to-die comments. Similarly, physical health and functioning of hospitalized non-terminally ill older patients did not correlate with acceptance of PAS in hypothetical scenarios (Blank et al., 2001b). Blank and colleagues also found that higher suffering and poor self-rated health at baseline were associated with unstable acceptance of EUT/PAS.

Four other studies with older adults living in the community did not find a relationship between EUT/PAS acceptability and self-rated physical health, functional dependency, or the number and severity of chronic diseases (Buiting et al., 2012; Cicirelli, 1997; Cicirelli et al., 2000; Koenig et al., 1996). However, participants with a diagnosis of dementia were 3.3 times more likely to oppose PAS than those without cognitive problems (Koenig et al., 1996).

Psychological predictors

Depressed older patients were more likely to have a favorable general attitude toward EUT or PAS for themselves (Buiting et al., 2012), or in hypothetical clinical scenarios (Blank et al., 2001b; Hooper, Vaughan, Tennant, & Perz, 1997; Sullivan et al., 1998). Namely, depressed respondents were twice as likely as non-depressed to accept PAS under future condition of terminal illness or coma (Blank et al., 2001b). However, their wishes decreased when depression was treated (Blank et al., 2001a, 2001b; Hooper et al., 1997). Nevertheless, 58% (out of the initially 83%) continued to endorse EUT after their recovery in a hypothetical life-threatening illness scenarios with an uncertain prognosis (Hooper et al., 1997). In functionally impaired older adults living in the community, a favorable attitude toward hastening death was positively associated with anxiety and

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3 negatively associated with life satisfaction. Worse mental health was associated with
4 increased support for EUT/PAS, labeled hasten death (Sullivan et al., 1998).
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7 Older hospitalized patients who reported suicide ideation or behavior on the
8 Hamilton Depression Rating Scale expressed significantly greater interest in EUT/PAS
9 in the terminal illness scenario than did those without suicide thoughts or behavior (40.7%
10 vs 15.3%, Blank et al., 2001b).
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14 In contrast, Koenig and colleagues (1996) did not find a correlation between
15 depressive symptoms or disorders, anxiety disorder, psychosis, alcoholism, and attitudes
16 about PAS and its legalization among older outpatients. There was also no correlation
17 with depression or locus of control in a study that asked older adults living in the
18 community if they would consider ending their life (through EUT or PAS), under
19 circumstances of terminal illness, or conditions that resulted in a life with lower quality
20 (e.g. immobility, extreme dependency, pain, loss of mental faculties (Cicirelli et al.,
21 1997). However, in a later study, locus of control was a significant predictor of attitudes
22 toward PAS (Cicirelli et al., 2000). Older adults with external control beliefs about health
23 events (“Illnesses and chronic conditions are a matter of chance”) were more favorable
24 toward PAS than participants with internal control beliefs. Buiting and colleagues (2012)
25 found that a high score on mastery (the extent to which a person perceives oneself to be
26 in control of events) was significantly more frequently found among older adults who had
27 a positive attitude toward EUT for themselves, as compared to those who did not (32%
28 vs 27%).
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41 Significant positive correlations were found between acceptance of EUT/PAS for
42 oneself and death anxiety, or fear of the unknown, as well as negative correlations
43 between acceptance of EUT/PAS and fear of the destruction of the body after death
44 (Cicirelli et al., 1997, 2000; Lapierre et al., 2018). Fear of the unknown was the only
45 factor that contributed significantly to the decision to end one’s life by EUT/PAS
46 (Cicirelli et al., 1997). Finally, Stolz and colleagues (2017) indicated that low
47 interpersonal trust predicted a more favorable attitude towards EUT/PAS for a scenario
48 of a severely care-dependent older adult who wished to die.
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Quality of life

When presented with difficult end-of-life scenarios, older adults, who placed higher value on quality of life and less importance to the preservation of life at any cost, were more likely to consider EUT or PAS (Cicirelli et al., 1997, 2000). Quality of life remained a predictor in the model that included demographic, health, and psychosocial variables.

Retaining the autonomy to choose how and when to die was the only reason significantly associated with a request for EUT in terminally ill older patients in palliative care compared to patients with the wish to die (Güell et al., 2015). Moreover, 78% of patients who expressed a desire for EUT said that “life was not worth living”, compared to 32% in the group with a desire-to-die.

Religious or spiritual beliefs

A majority of studies indicated that religious older adults have less favorable opinions towards EUT or PAS than non-religious older adults (Blank et al., 2001b; Cicirelli et al., 1997, 2000; Espino et al., 2010; Hare et al., 2000; Lapierre et al., 2018; Mouton et al., 2000; Roesinger et al., 2018; Seidlitz et al., 1995; Stolz et al., 2017; Sullivan et al., 1998). Being unaffiliated or Protestants predicted acceptance of EUT or PAS as an end-of-life care option (Buiting et al., 2012; Cicirelli et al., 1998, 2000; Steck et al., 2016, 2018). Baptists (Koenig et al., 1996) and Calvinist (Sullivan et al., 1998) were found to be less likely to favor PAS compared to mainline Protestants.

Religious commitment or coping (importance of religion, God, and prayers in the respondent's life) seemed to reduce the likelihood that older adults would either agree with the legalization of PAS (Seidlitz et al., 1995), or choose PAS or EUT as an option for themselves if they had a terminal illness in the future (Blank et al. 2001b; Cicirelli, 1997, 2000; Espino et al., 2010; Lapierre et al., 2018). A lower percentage (44%) of palliative care patients who stated a wish for EUT considered themselves spiritual, as compared to 84% of those who expressed a desire-to-die (Güell et al., 2015).

Social Predictors

A few studies looked at loneliness (Buiting et al., 2012; Cicirelli et al., 1997), satisfaction with family relationships (Seidlitz et al., 1995), and perception of being a burden to others (Roesinger et al., 2018), as potential social predictors of the attitudes

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3 toward EU/PAS. When controlling for other variables (e.g. religiosity), the predictive
4 effect of these three social variables, however disappeared in the regression analyses.
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6 When controlling for death anxiety, religious commitment, and sociodemographic
7 variables, ageism (defined as endorsing negative stereotypes about aging and a belief that
8 older people are a burden to society) predicted agreement with PAS in older adults when
9 they imagined themselves in the hypothetical situation of a terminal illness (Lapierre et
10 al., 2018). Older adults who scored high on ageism had significantly more favorable
11 attitudes toward PAS than older adults who scored low on ageism. Similarly, older adults
12 who had high concerns about ageing were more favorable with EUT/PAS for a severely
13 care-dependent older person who wished to die (Stolz et al., 2017).
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21 Only one study looked at potential association of care experiences of older adults and
22 their expectations of familial help on their attitude toward EUT/PAS (Stolz et al., 2017).
23 Having received professional or private care (quality of experience was not evaluated)
24 did not predict attitudes toward EUT/PAS. Finally, lower instrumental support was
25 significantly related to higher instability with regard to acceptance of EUT/PAS in non-
26 terminally ill older patient (Blank et al., 2001a, 2001b).
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33 **Discussion**

34 This review reports on findings of studies investigating predictors of attitudes
35 towards, wishes or requests for, and death by EUT/PAS among older adults aged 60 and
36 older. Only 14 studies focused specifically on older persons, although they represent the
37 majority of people dying by EUT/PAS in several countries (Dierickx et al., 2015;
38 Doerflinger, 2018; Emanuel et al., 2016; Steck et al., 2018). Moreover, only in four
39 studies were participants faced with actual end-of-life decision making, given their health
40 condition at the time of the study. A common limitation of these studies is that they were
41 carried out in high income, industrialized societies. Research in a diversity of
42 communities and countries is needed.
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50 There was some heterogeneity in the findings of these studies, likely related to
51 variability in measures and samples. At the same time, some themes emerged. Age, level
52 of education, socioeconomic status, and religion were the most consistent predictors of
53 endorsement of EUT/PAS, although for religion, measures varied greatly and were based
54 on various concepts such religious beliefs, religious affiliation, religious coping or
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3 religious commitment (Worthington et al., 2003). Also, most studies focused on
4 affiliation or importance of religion in daily life rather than beliefs and practice.
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7 Moreover, social and cultural diversity were examined using only one specific
8 dimension at a time. In the future, it would be important to research intersectionalities of,
9 for example, sex, ethnicity, and religion, as predictors of EUT/PAS attitudes and death.
10 It would also be interesting to examine the gendered meanings of EUT/PAS attitudes and
11 end-of-life decisions, within and across ethnic and religious groups, and within and across
12 countries (Canetto, 2018; Canetto & Hollenshead, 1999-2000). It is notable that, in the
13 United States, European-descent are at the forefront of PAS legalization movements, as
14 advocates and users, with older European-descent women representing about half of PAS
15 deaths though they are a minority of suicide deaths (Canetto, 2019).
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19 With regard to physical predictors, findings are inconsistent, although physical
20 illness and pain are the dominant criteria used in regulations and public debates, and as
21 the main justification given to support EUT/PAS. Moreover, only few studies (Blank et
22 al., 2001b, Guëll et al., 2015) specifically investigated the role of pain on EUT/PAS
23 attitudes and deaths.
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27 Psychological variables were investigated merely with regard to mental health issues
28 or outcomes (mostly depression). The main finding in this domain is that depressed
29 participants have more favorable, but more instable attitudes about EUT/PAS. Results on
30 locus of control were somewhat ambiguous. Various fears (e.g., of the unknown, the
31 dying process.) seemed to be positively correlated with EUT/PAS endorsement. To our
32 knowledge, no studies looked at the influence of experiences with the death and dying of
33 a significant other on attitudes toward EUT/PAS. Also, there seems to be no studies on
34 personality variables, values, or types of attachment among older adults, although
35 significant relations were found in adults over 18 between support for EUT (Lee, 2017)
36 or requests for PAS (Smith, Harvath, Goy, & Ganzini, 2015) and psychological variables
37 like extraversion, conscientiousness, neuroticism, and dismissive attachment. Clearly
38 further research is needed on the psychological determinants of EUT/PAS. Despite the
39 fact that quality of life is often mentioned in public debate as one of the main reasons
40 underlying wishes or requests for EUT/PAS, findings in this regard are inconsistent.
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44 About half of studies investigated a social variable, but social measures were very
45 diverse and less standardized than measures of other dimensions. In most cases, only one
46 or a few questions were asked about family relationships, loneliness, and the perception
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3 or being a burden to family or society. Merely Stolz and colleagues (2017) investigated
4 relational variables such as care related experiences and care expectations and their
5 relations with EUT/PAS. Variables related to meso or macro social issues (such as
6 ageism, availability or access to health care resources across countries, quality of care,
7 social networks, quality of social contacts, socioeconomic burden, possible contagion
8 effect related to political or media promotion of EUT/PAS) should be investigated, since,
9 in qualitative literature, these factors appear to play a role in the motivation for or
10 endorsement (or not) of EUT/PAS (Bullock, 2011, Lloyd-Williams, Kennedy, Sixsmith,
11 & Sixsmith, 2007; Mayland & Maso, 2004; Van Wijngaarden et al., 2015).

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19 The process of completing this review was challenging. First, the selection of articles
20 was difficult because the definitions of EUT/PAS were often implicit, unclear or
21 inconsistent, and differed by country, context and/or over time (before or after
22 legalization). In several articles, EUT or PAS (especially in countries where they are not
23 legalized) were addressed by a term such as “hastened death” (Robinson et al., 2017). In
24 some articles, EUT or PAS were confused with withdrawing or withholding of treatment
25 as pointed out by Marcoux (2011). Even when concepts appeared clear enough in the
26 introduction of the article, the questions or items in the scales were somewhat ambiguous.
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Second, findings were difficult to compare across studies because of the large variety of
outcomes measures, sample characteristics and the lived situations of the participants at
time of study (good or poor health, hospitalized or dwelling-community).

In light of our experience, we recommend that future studies adopt clear, common,
and explicit definitions of the investigated concepts, based on international consensus,
involving both high- and low-income countries. This might prove critical for improving
evidence-based knowledge and the validity of the collected data, and allow for
appropriate comparison and interpretations of findings. Nowadays, much caution is
needed in the interpretation of public opinion polls because of diverse or vague
definitions, and the fact that the general public is not well educated about the differences
between EUT, PAS, and other end-of-life interventions (Lamers & Williams 2016;
Marcoux, 2011). For example, many persons in Canada consider PAS (71.9%),
withholding (38%) or withdrawing (66%) life-sustaining treatment to be EUT (Marcoux,
2011).

Prospective longitudinal studies should also be promoted in order to gain knowledge
about the evolution of attitudes and the factors that influence actual decision-making.

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3 Mixed research designs (quantitative and qualitative) would also allow for better
4 consideration of the interplays of various individual and social factors, likely to influence
5 the decision-making process with regard to EUT/PAS. As Terkamo-Moisio et al. (2017)
6 pointed out, explanatory models for attitude toward EUT based on sociodemographic
7 variables and religion should be extended and investigate, for example, issues such as
8 autonomy or fears of the process of dying. Social dynamics with regard to ageing, with
9 attention to context and by intersectionalities, should also be given further consideration
10 (Canetto, 2019). Indeed, strong endorsement of EUT/PAS might reflect not only the wish
11 to determine the time and manner of one's death: it may also express a lack of confidence
12 in the medical system, fear and concerns about future management of suffering, or refusal
13 of poor quality of life conditions and being a burden to others. It could be also the
14 consequence of subtle influences of culturally-mediated ageist attitudes or socioeconomic
15 considerations such as access to healthcare services or for women, limited access to
16 retirement funds, health care insurance and/or informal care receiving (Canetto, 2019;
17 Ganzini, Goy, & Dobscha, 2009; Roesinger et al., 2018).

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29 This systematic review shows that attitudes about and factors leading to EUT/PAS
30 are multiple and complex. The investigated quantitative studies focused mostly on
31 sociodemographic characteristics and physical illness. Nevertheless, qualitative and
32 mixed method studies show that other issues play a role. As suggested by Lee (2017),
33 Ferrand et al. (2012), and Dees et al. (2011), at least in high income countries where
34 palliative care has improved, requests of EUT/PAS might also have to do with psycho-
35 emotional, social, economic, and existential factors, such as feelings of meaninglessness,
36 weariness of life, fear of loss of self, concerns of being a burden on family or society, or
37 restriction of health care resources for older people. Future research should tackle these
38 issues in order to produce more comprehensive, articulated, and nuanced knowledge and
39 allow a better understanding of the complexity of attitudes toward EUT/PAS and hastened
40 death decisions among the heterogeneous older adult population who is being confronted
41 with new end-of-life issues. Concerning professional practice, health and social care
42 providers should be aware of the multitude and complexity of the issues at play in assisted
43 dying and provide information and appropriate support and resources to older people in
44 their decision-making process.
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Figure 1. PRISMA flow chart for studies selection.

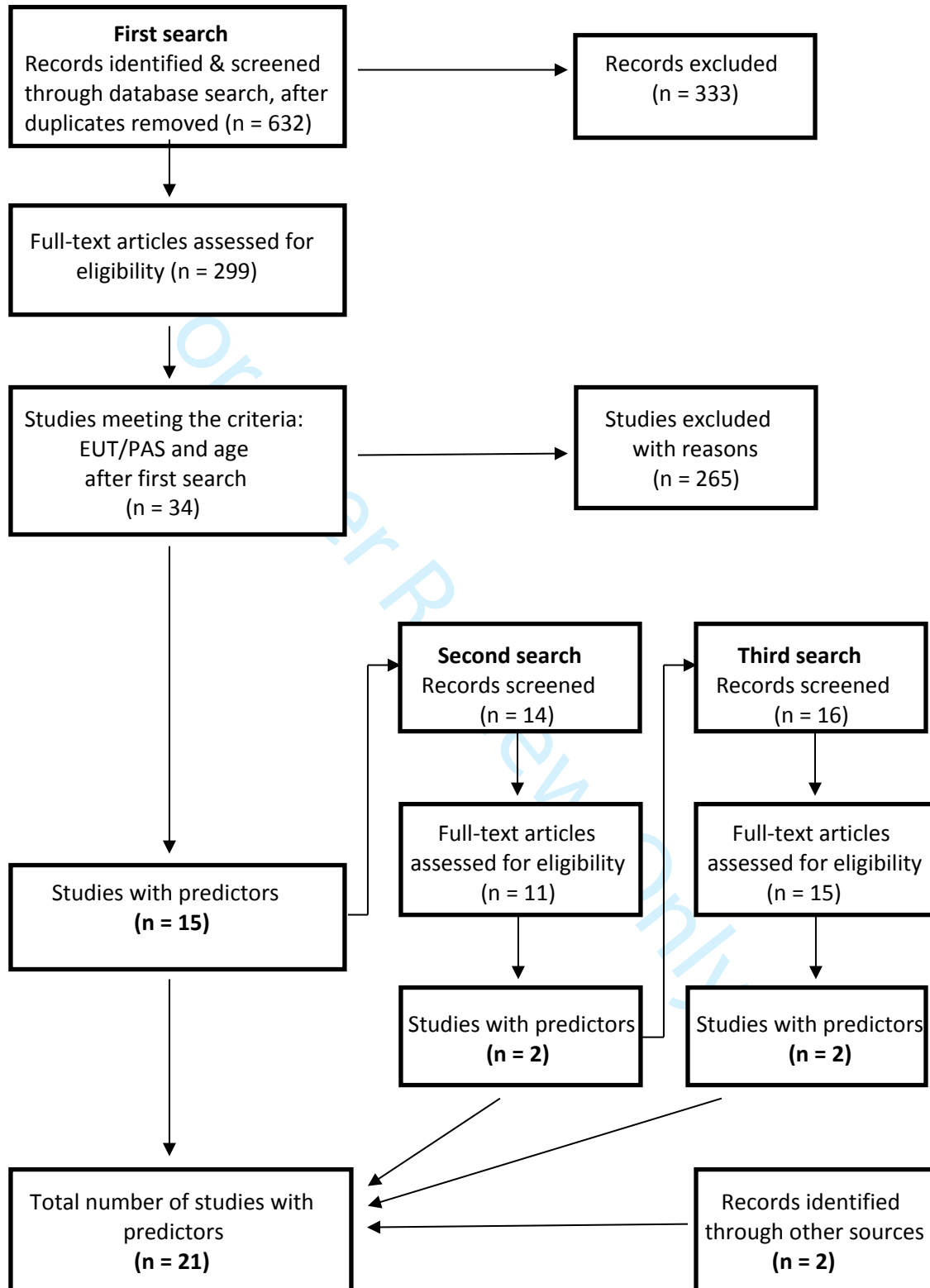


Table 1. *Studies included in the review: Their characteristics and types of predictors*

Source	Type of practice	Country (state)	Study design	Outcome measure	Age	Participants	Type of predictors investigated
Blank et al. 2001a*	EUT/PAS	U.S. Connecticut	Case-control Comparing depressed vs non-depressed	Acceptance/refusal of EUT/PAS for self in hypothetical scenarios	60 and over Mage= 74.1 N = 124	Non-terminally ill hospitalized patients	Demographic Physical Psychological Religious Social
Blank et al. 2001b*	EUT/PAS	U.S. Connecticut	Case-control Comparing depressed vs non-depressed	Acceptance/refusal of EUT/PAS for self in hypothetical scenarios for self	60 and over Mage=74.1 (60–94 y). N = 158	Non-terminally ill hospitalized patients	Demographic Physical Psychological Religious Social
Buiting et al. 2012	EUT/PAS	Netherlands	Cohort study	Conceivable request for EUT/PAS for self in the future	64 and over N = 3615	Mixed health Community living	Demographic Physical Psychological Religious Social
Cicirelli 1997*	EUT/PAS	U.S. Indiana	Cross-sectional	Use EUT/PAS for self 1 (would not do) to 5 (would do) in 17 hypothetical end-of-life scenarios	60 and over (60-100 y) N = 388	Mixed health Community living	Demographic Physical Psychological QOL Religious Social
Cicirelli 1998*	EUT/PAS	U.S. Indiana	Cross-sectional	Use EUT/PAS for self 1 (would not do) to 5 (would do) in 17 hypothetical	60 and over (60-100 y) N =447	Mixed health Community living	Demographic

				end-of-life scenarios			
Cicirelli 2000	PAS	U.S. Indiana	Cross-sectional	Use PAS for self 1 (would not do) to 5 (would do) in 5 hypothetical end-of-life scenarios for self	60 and over (60-90 y.) N= 200	Mixed health Community living	Demographic Physical Psychological QOL Religious
Espino et al. 2010	PAS	U.S. Texas	Cross-sectional	Level of agreement with legalization	60-89 y. N =208	Mixed health Community living	Demographic Physical Psychological QOL Religious
Floyd et al. 2004	PAS	U.S. Nevada	Cross-sectional	General attitude "Acceptable option for someone in terminal condition"	55 and over Mage = 70.3 N =289	Mixed health Retirement community	Demographic
Güell et al. 2015	EUT	Spain	Cross-sectional	Desire-for-EUT comments by patients (EUT not legal in Spain)	60 and over Median = 75 N = 69	Terminally ill cancer patients in palliative care	Demographic Physical Psychological QOL Social Religious
Hare et al. 2000	PAS	U.S. Wisconsin	Cross-sectional	Level of agreement with legalization of PAS	18-96 y. Mage = 39 SD = 18 y N = 1311	Mixed health Community living	Demographic Religious
Hedberg et al. 2003	PAS	U.S. Oregon	Cohort study	All deaths by PAS	73% > 65 y 89% > 55 y N = 129	Mixed illnesses	Demographic Physical

1 2 3 4 5 6 7 8 9	Hooper et al. 1997	EUT	Australia	Case-series	Attitude about EUT for self in present state and 2 hypothetical scenarios	Mage = 76.9 SD = 7.5 y N = 25	Patients with major depression Psychogeriatric service	Psychological
10 11 12 13 14 15	Koenig et al. 1996	PAS	U.S. North Carolina	Cross-sectional	General attitude about PAS & agreement (yes/no) with legalization of PAS	65 and over Mage = 75.8 N = 168	Patients from geriatric clinic with medical & psychiatric problems.	Demographic Physical Psychological QOL Religious
16 17 18	Lapierre et al. 2018	PAS	Canada Québec	Cross-sectional	Hypothetical scenario of PAS for self	60 and over Mage = 72.5 N = 216	Mixed health Community living	Demographic Psychological Religious
19 20 21 22 23 24 25 26	Mouton et al. 2000	PAS	U.S. Texas	Cross-sectional	General attitude about PAS (level of agreement 4-point scale with 7 items) + 1 hypothetical scenario	60 and over N = 194	Mixed health Community living	Demographic Physical Psychological Religious
27 28 29 30 31	Roesinger et al. 2018	EUT/PAS	Germany	Cross-sectional	General attitude about EUT/PAS (yes/no)	65 and over Mage = 73.8 N = 1068	Mixed health Community living	Demographic Physical Religious Social
32 33 34 35 36	Seidlitz et al. 1995	PAS	U.S. New York	Cross-sectional	General attitude about PAS (level of agreement 4-point scale with 5 items)	60 and over Mage = 70.6 N = 802	Mixed health Community living	Demographic Physical Religious Social
37 38 39 40 41 42 43 44 45 46	Steck et al. 2016	PAS	Switzerland	Cohort study	All deaths by PAS	Mixed ages	Mixed illnesses	Demographic Physical Religious

					Subgroup: 65 and over (n = 842)		Social
Steck et al. 2018	PAS	Switzerland	Cohort study	All deaths by PAS	Mixed ages Subgroup : 65 and over (n = 3170)	Mixed illnesses	Demographic Physical Religious Social
Stolz et al. 2017	EUT/PAS	Austria	Cross-sectional	Approval/Refusal of EUT/PAS for a severely care- dependent elderly who wishes to die	50 years + Mage =65.3 N = 968	Mixed health Community living	Demographic Physical Psychological Religious Social
Sullivan et al. 1998	EUT/PAS	Netherlands Groningen	Cohort study	-General attitude about PAS -1 hypothetical scenario (dementia) about EUT for self. -Self- determination 3 Questions = 1 single-factor	Mage = 73 (57 to 99 y.) N = 632	Functionally impaired	Demographic Physical Psychological Religious

* Studies with asterisk, written by same author, have the same sample but consider different independent variables.