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REVIEW

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Exploring attitudes toward euthanasia in Iranian healthcare providers: a systematic review of influencing factors

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Abstract

Background Euthanasia is a polarizing topic in healthcare, particularly in Iran, where Islamic principles emphasizing the sanctity of life shape ethical perspectives. Understanding the attitudes of Iranian healthcare providers toward euthanasia and the factors influencing these views is critical, given the cultural and religious context. The primary objective of this study was to systematically identify and synthesize the key factors influencing healthcare providers' attitudes toward euthanasia in Iran.

Methods Following PRISMA guidelines, a systematic search was conducted across PubMed, Scopus, Web of Science, Magiran, and SID databases up to March 10, 2025. Inclusion criteria encompassed observational studies reporting quantitative data on euthanasia attitudes among Iranian healthcare providers. Two reviewers independently screened studies, extracted data, and assessed risk of bias using the Joanna Briggs Institute tools. Due to heterogeneity in study designs and measurement tools, a narrative synthesis was performed.

Results Of 595 identified records, 36 studies involving 7,790 participants met inclusion criteria. Attitudes toward euthanasia were predominantly cautious or negative, with stronger opposition among older providers, females, and those with deep religious beliefs. Younger age, male gender, clinical experience, and exposure to terminal patients correlated with more positive attitudes. Religious and cultural factors, particularly Islamic teachings, were significant barriers to acceptance, while urban settings and higher education were linked to neutral or mixed views.

Conclusion Iranian healthcare providers' attitudes toward euthanasia reflect a complex interplay of religious, cultural, and professional influences. These findings underscore the need for enhanced palliative care and ethical training in Iran's healthcare system to address end-of-life dilemmas while respecting cultural boundaries.

Clinical trial number Not applicable.

Keywords Euthanasia, Healthcare providers, Attitudes, Iran, Systematic review, Religious beliefs, Cultural influences, End-of-life care, Medical ethics, Palliative care

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Background

Respect for patient autonomy and involving patients in treatment-related decision-making is one of the four fundamental principles of medical ethics [1]. If a patient possesses sufficient mental competence, they must be included in the treatment decision-making process. One of the most challenging ethical issues in this context is decision-making regarding the end of life in terminally ill patients, which is recognized as one of the top ten ethical challenges in medicine [2].

Legislation surrounding euthanasia varies widely across countries, reflecting a broad spectrum of values and ethical norms [3]. Euthanasia, as a highly controversial topic in modern healthcare, encompasses various dimensions, including legal, ethical, religious, human rights-related, economic, spiritual, social, and cultural aspects [4]. The World Health Organization defines euthanasia as a deliberate act by an individual to induce a painless death or the withholding of treatment to avoid prolonging life in patients with incurable diseases or irreversible coma [5].

In general, euthanasia refers to a situation where a physician or healthcare provider assists in ending a patient's life upon their request, typically through the administration of medication. A common definition includes the injection of barbiturates to induce coma, followed by the administration of a muscle relaxant to stop respiration. Two related but distinct concepts are also recognized: Physician-Assisted Suicide (PAS), in which the physician prescribes medication for the patient to self-administer in order to end their life, and Non-Treatment Decisions (NTD), which involve withholding or withdrawing futile medical interventions [3].

Euthanasia is typically classified into two types: active and passive [6]. In active euthanasia, the physician or, in some cases, a nurse directly administers an intervention to end the patient's life [7–9]. In contrast, passive euthanasia refers to withholding life-sustaining treatments or medications, leading to the patient's natural death [10]. Ethically, there may be no clear distinction between withholding and withdrawing treatment, but the emotional consequences for nurses and other healthcare team members can differ. The American Nurses Association's ethical guidelines provide a framework for ethical decision-making and emphasize the importance of establishing compassionate, supportive relationships with patients [11].

Patients may choose euthanasia for various reasons, including anticipation of pain and suffering, diminished quality of life, hopelessness, fear of dependence, advanced age, disease severity, the invasive nature of treatment, financial burden, and levels of family support [12, 13]. Moreover, individuals' attitudes toward euthanasia may change over time, especially with interventions such as psychiatric counseling. Religious beliefs also play a critical role in patients' decision-making processes [13].

Currently, euthanasia and PAS are legalized in several countries, including the Netherlands, Belgium, Colombia, and Canada. Western European countries show greater support for these practices, whereas Central and Eastern European countries report lower levels of acceptance. In the United States, euthanasia is more widely supported than PAS [14]. For example, the proportion of deaths attributed to euthanasia has been reported as 1.2% in Belgium, 0.27% in Switzerland, 0.06% in Denmark, and 0.04% in Italy [15].

In Iran, where Islam is the official religion, human life is regarded with high sanctity, and death is viewed as a divine event. According to Islamic teachings, hastening death is not permissible, and euthanasia is religiously condemned [16, 17]. However, the rising number of patients with chronic illnesses and limited healthcare resources have created challenges in prioritizing and allocating medical service [18].

The perspectives of physicians and other healthcare providers toward euthanasia play a pivotal role in its implementation and are influenced by religious and cultural beliefs. Studies have shown that individuals with strong religious beliefs are more likely to oppose euthanasia [19]. Additionally, most medical students express negative attitudes toward euthanasia [20]. Given that nursing and medical students are integral to clinical education teams and may encounter euthanasia-related requests, understanding their attitudes is of great importance [21]. Evidence suggests that hospice nurses are more likely to oppose active euthanasia [22]. Many studies have reported negative attitudes toward euthanasia among nurses and physicians [23, 24], although some have noted positive attitudes among certain professionals [25, 26].

Given the large number of studies and the conflicting results regarding healthcare providers' attitudes toward euthanasia, this study aimed to conduct a systematic review to synthesize the existing evidence. The primary objective of this study was to systematically identify and synthesize the key factors influencing healthcare providers' attitudes toward euthanasia in Iran.

Methods

Study design

This systematic review was conducted to synthesize evidence on attitudes toward euthanasia among healthcare providers in Iran, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [27]. The review explored variations in attitudes by demographic (gender, age, marital status), professional (work experience, specialty), contextual (geographical location), and psychosocial factors

(ethical/religious beliefs, psychological traits such as openness or depression). A narrative synthesis was chosen over meta-analysis due to anticipated heterogeneity in study designs, measurement tools, and reported outcomes, which was confirmed by the diverse methodologies and scales identified in the included studies [28].

Eligibility criteria

Studies were included based on the following revised criteria, refined to ensure alignment with the review's objectives and the findings:

Population: Healthcare providers in Iran, including nurses, physicians, medical students, nursing students, interns, residents, and paramedical professionals working in clinical settings (e.g., ICU, palliative care) or academic environments. Studies exclusively focusing on non-clinical staff or non-healthcare populations were excluded to maintain relevance to the professional context.

Exposure: Attitudes toward euthanasia, encompassing voluntary, involuntary, active, and passive forms, assessed through validated or researcher-developed quantitative tools (e.g., Euthanasia Attitude Scale [EAS], Likert-scale surveys, or other questionnaires). Studies relying solely on qualitative data were excluded to ensure consistency in outcome measurement.

Outcomes: Quantitative measures of attitudes toward euthanasia, including mean scores, percentages of positive/neutral/negative attitudes, or statistical associations (e.g., p-values, correlation coefficients, odds ratios) with factors such as gender, age, work experience, specialty, geographical location, religiosity, ethical considerations, or psychological variables (e.g., depression, emotional intelligence). Studies lacking statistical analysis of these associations were excluded to enable robust synthesis.

Study Design: Observational studies (cross-sectional, cohort, or case-control) reporting primary data, including joint studies between Iran and other countries that involve Iranian healthcare providers. Case reports, editorials, reviews, or non-empirical studies were excluded to focus on original quantitative evidence.

Language: Studies published in English or Persian to capture the full scope of relevant literature in Iran's academic context.

Publication Status: Peer-reviewed journal articles or conference proceedings with accessible full texts, ensuring methodological transparency.

Time Frame: No restriction on publication date up to March 10, 2025, to include all relevant studies while accounting for recent shifts in attitudes, as suggested by generational differences in the findings.

Exclusion criteria were tightened to exclude studies not conducted in Iran, those lacking primary data on healthcare providers' euthanasia attitudes, or those focusing solely on patient, family, or public perspectives. Studies with mixed populations (e.g., providers and patients) were included only if provider-specific data were clearly reported.

Information sources

Studies were identified through a comprehensive search of electronic databases, including PubMed, Scopus, Web of Science, Magiran, SID, and Google Scholar. The search was conducted over three days, from March 8 to March 10, 2025, and included all relevant studies up to March 10, 2025.

Search strategy

A systematic search strategy was developed using a combination of Medical Subject Headings (MeSH) and free-text terms related to euthanasia, healthcare providers, and Iran. The search terms included: ("euthanasia" OR "assisted dying" OR "mercy killing") AND ("healthcare provider*" OR "nurse" OR "physician" OR "medical student" OR "nursing student" OR "intern" OR "resident") AND ("Iran" OR "Iranian"). The strategy was adapted for each database's syntax and limits. No language or date filters were applied initially, though results were later screened for eligibility. A detailed overview of the search terms and databases used in this review is presented in Table 1.

Table 1 Search strategy

Database	Search strategy	Number
PubMed	("euthanasia"[MeSH Terms] OR "euthanasia"[All Fields] OR "euthanasias"[All Fields] OR "mercy killing"[All Fields] OR "assisted suicide"[All Fields] OR "physician-assisted dying"[All Fields] OR "DNR"[All Fields]) AND ("iran"[MeSH Terms] OR "iran"[All Fields])	138
Google scholar	((euthanasia OR mercy killing OR assisted suicide) AND (Iran)) (euthanasia) and (Iran)	205 relevant
Magiran	(euthanasia OR mercy killing OR assisted suicide) AND (Iran))- Search in Persian	72
SID	(euthanasia OR mercy killing OR assisted suicide) AND (Iran))- Search in Persian	32
WOS	((((ALL=("mercy killing")) OR ALL=(euthanasia)) OR ALL=("assisted suicide")) OR ALL=("physician-assisted dying")) AND CU=(Iran)	105
Scopus	(TITLE-ABS-KEY(euthanasia) OR TITLE-ABS-KEY("mercy killing") OR TITLE-ABS-KEY("assisted suicide") OR TITLE-ABS-KEY("physician-assisted dying") OR TITLE-ABS-KEY(DNR)) AND TITLE-ABS-KEY(Iran)	43

Study selection

Two independent reviewers [LKH and NFM] screened titles and abstracts against the eligibility criteria using Covidence software [29], replacing EndNote v20 to streamline duplicate removal and collaboration. Covidence's workflow facilitated blinded screening, reducing bias. Full-text articles were retrieved for potentially eligible studies and assessed independently by the same reviewers. Discrepancies were resolved through discussion, with unresolved cases escalated to a third reviewer [AH] for consensus. A calibration exercise was conducted with a sample of 20 studies to ensure inter-rater reliability before full screening. The selection process is documented in a PRISMA flow diagram [Figure 1], detailing exclusions at each stage (e.g., duplicates, irrelevant populations, non-quantitative data).

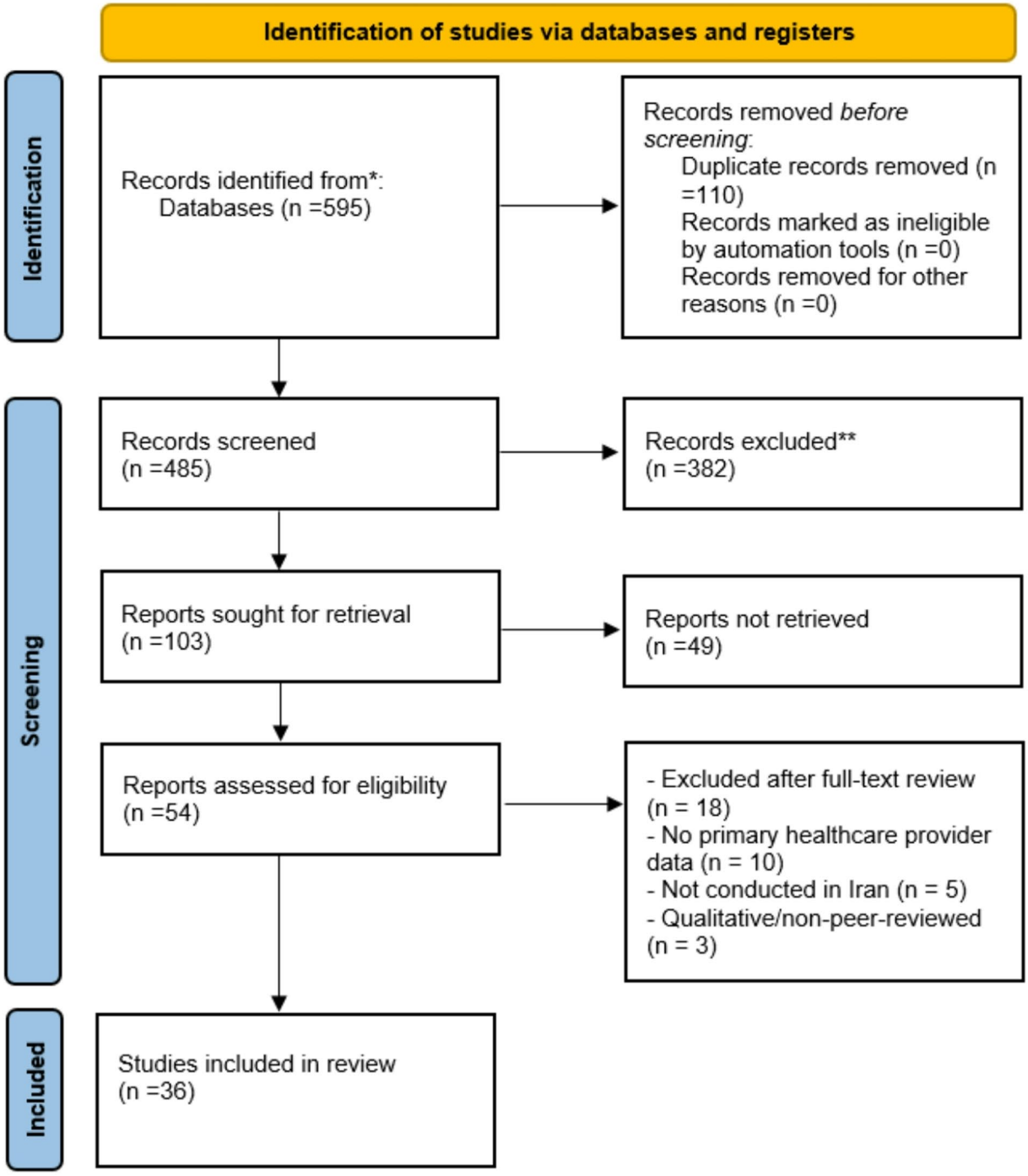

Fig. 1 PRISMA Flowchart

Data collection process

Data were extracted independently by two reviewers [LKH and NFM] using a customized, piloted data extraction form designed to capture the breadth of factors identified in the results. The form was developed in Microsoft Excel and included:

- **Study Characteristics**: Author(s), publication year, study location (city/region), sample size, study design (e.g., cross-sectional, cohort), sampling method (e.g., convenience, census).
- **Participant Details**: Target population (e.g., nurses, physicians, students), demographic variables (gender, age, marital status), professional variables (work experience, specialty, clinical exposure), inclusion/exclusion criteria.
- **Measurement Tools**: Type of questionnaire (e.g., EAS, researcher-developed), validation status, and subscales (e.g., ethical, practical considerations).
- **Outcome Measures**: Attitudes toward euthanasia (mean scores, percentages of positive/neutral/negative attitudes), statistical associations with variables of interest (e.g., gender, religiosity), and specific euthanasia types (voluntary, involuntary, active, passive).
- **Statistical Data**: Effect sizes (e.g., correlation coefficients, odds ratios), p-values, confidence intervals, and regression coefficients where reported.

To address potential inconsistencies noted in the discussion, reviewers cross-checked extracted data against original articles. Discrepancies were resolved through consensus or adjudication by [AH]. Authors were contacted for clarification if critical data (e.g., statistical outcomes) were missing or ambiguous, unlike the original approach, to enhance data completeness. A quality control step involved random checks of 10% of extracted records by a third reviewer.

Risk of bias in individual studies

Risk of bias was assessed using the Joanna Briggs Institute (JBI) [30] Critical Appraisal Tools for cross-sectional and cohort studies, selected for their applicability to observational designs. The JBI checklist evaluated domains such as sampling clarity, response rate, tool validity, and confounding control. Two reviewers [LKH and NFM] independently appraised each study, with scores recorded on a standardized template. Disagreements were resolved through discussion or by [AH]. To address the discussion's concern about sampling bias, particular attention was paid to sampling methods (e.g., convenience vs. random) and representativeness. Results of the bias assessment are reported in Table 2, with a narrative summary of common risks (e.g., non-response bias, unvalidated tools).

Synthesis of results

Given the heterogeneity in study populations, measurement scales (e.g., EAS vs. custom questionnaires), and statistical reporting, a narrative synthesis was conducted, consistent with the findings' diversity. Results were organized by the seven predefined factors (gender, age, work experience, specialty, geographical location, ethical/religious considerations, other factors), with positive, negative, and neutral attitudes analyzed separately where applicable.

Results

Literature search

The literature search was conducted on March 10, 2025, across six electronic databases: PubMed, Google Scholar, Magiran, SID, Web of Science, and Scopus. A systematic search strategy was developed using a combination of Medical Subject Headings (MeSH) and free-text terms, including ("euthanasia" OR "assisted dying" OR "mercy killing") AND ("Iran" OR "Iranian"), tailored to each database's syntax. No initial restrictions on language or publication date were applied to ensure comprehensive retrieval, with eligibility later refined to English or Persian studies meeting the inclusion criteria.

The search initially identified 595 potentially relevant articles. Two independent reviewers [LKH and NFM] screened titles and removed duplicates, reducing the number to 103 articles. Subsequent abstract review excluded 49 articles that did not align with the eligibility criteria (e.g., lacking quantitative data on euthanasia attitudes among healthcare providers, focusing solely on patients or the public, or being non-observational studies such as reviews or editorials), leaving 54 articles. Full-text assessments of these 54 articles were performed independently by the same reviewers, with discrepancies resolved through discussion or consultation with a third reviewer [AH]. Of these, 18 articles were excluded: 10 lacked primary data on healthcare providers' attitudes toward euthanasia, 5 were not conducted in Iran, and 3 were qualitative or non-peer-reviewed. Ultimately, 36 articles met the inclusion criteria—quantitative observational studies of healthcare providers in Iran reporting attitudes toward euthanasia—and were included in the systematic review. The selection process is detailed in the PRISMA flow diagram (Figure 1). Excluded full-text articles along with reasons for exclusion are listed in Supplementary Table 1.

Characteristics of included studies

Of the included studies, 50% ($n = 18$) were published in Persian and 50% ($n = 18$) in English. The included

Table 2 Risk of Bias assessment of included studies using the Joanna Briggs Institute critical appraisal tools

Author	1. Were the criteria for inclusion in the sample clearly defined?	2.Were the study subjects and the setting described in detail?	3.Was the exposure measured in a valid and reliable way?	4.Were objective, standard criteria used for measurement of the condition?	5.Were confounding factors identified?	6.Were strategies to deal with confounding factors stated?	7.Were the outcomes measured in a valid and reliable way?	8.Was appropriate statistical analysis used?	Overall appraisal
Naseh (2017) [48]	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes	Include
Naseh (2014) [31]	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Include
Moghadas (2012) [32]	Yes	Yes	Yes	Unclear	Yes	Unclear	Yes	Yes	Include
Taghaddosinejad et al. (2014) [43]	Yes	Yes	Yes	Unclear	Yes	Unclear	Yes	Yes	Include
Alaei (2023) [52]	Yes	Yes	Yes	Unclear	No	Not applicable	Yes	Yes	Include
Sarhadi (2016) [55]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Include
Hosseinzadeh (2017) [40]	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Include
Rastegari (2011) [18]	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Include
Bahrami (2019) [56]	Yes	Unclear	Yes	Unclear	No	No	Unclear	Yes	Seek further info
Zarghami (2010) [33]	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	Include
Zandian (2017) [46]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Wasserman (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Vakili (2013) [41]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Senmar (2016) [60]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Senmar (2020) [61]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Safarpour (2019) [57]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Malary (2018) [36]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Rafi (2019) [72]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Naseh (2015) [34]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Naseh (2016) [48]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Mohammadi (2014) [59]	Yes	Unclear	Yes	Yes	Unclear	No	Yes	Yes	Seek further info
Moghadam (2019) [49]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Khosravi (2023) [44]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Khatony (2022) [35]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Jahromi (2022) [37]	Yes	Yes	Yes	Unclear	Yes	No	Unclear	Yes	Seek further info
Hosseinzadeh (2017) [40]	Yes	Yes	Unclear	Yes	Yes	No	Yes	Unclear	Seek further info
Kachoie (2011) [47]	Yes	Yes	Yes	Unclear	Yes	No	Yes	Yes	Include
Golestan (2019) [54]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Include
Emami Zeydi (2022) [38]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Asadi (2014) [50]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Andevari (2020) [58]	Unclear	Yes	Yes	Yes	Yes	No	Yes	Yes	Include
Amiri (2022) [39]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Include

Table 2 (continued)

Author	1. Were the criteria for inclusion in the sample clearly defined?	2.Were the study subjects and the setting described in detail?	3.Was the exposure measured in a valid and reliable way?	4.Were objective, standard criteria used for measurement of the condition?	5.Were confounding factors identified?	6.Were strategies to deal with confounding factors stated?	7.Were the outcomes measured in a valid and reliable way?	8.Was appropriate statistical analysis used?	Overall appraisal
Alborzi (2018) [51]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Aghababaei (2011) [53]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Include
Aghababaei (2012) [73]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Include
Tavoisiyan (2009) [42]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Include

studies were published in various journals, with the Journal of Ethics and Medical History having the highest frequency ($n = 3$). Other journals with multiple publications included Iran Journal Bioethics ($n = 2$), International Journal of Palliative Nursing ($n = 2$), Journal of Education and Ethics in Nursing ($n = 2$), and Preventive Care in Nursing and Midwifery Journal (PCNM) ($n = 2$). The remaining journals each contained a single study. Studies were conducted in different regions of Iran, with the highest number originating from Tehran ($n = 7$), followed by Shahr-e-Kord ($n = 4$) and Qazvin ($n = 4$). Other locations had fewer occurrences. The target populations included both students and healthcare staff. Among students, medical students were the most frequently studied group ($n = 9$), followed by nursing students ($n = 5$). Among healthcare staff, nurses working in specialized units (e.g., ICU, CCU, dialysis) had the highest representation ($n = 7$). Various tools were used to measure attitudes toward euthanasia. The Euthanasia Attitude Scale (EAS) was the most frequently employed instrument ($n = 20$), followed by researcher-developed questionnaires ($n = 9$). Other tools or combinations were used less frequently. Different sampling methods were utilized across the studies. Convenience sampling was the most common ($n = 10$), followed by census sampling ($n = 9$). Other methods were less frequently reported. The total sample size across all included studies was 7,790 participants, with individual study sample sizes ranging from 80 to 500 participants. The key characteristics of the studies included in this systematic review are summarized in Table 3.

Results

Factors supporting euthanasia

This section synthesizes studies identifying factors associated with a positive attitude toward euthanasia, presented continuously within each subgroup.

Age (Younger Age): Naseh and colleagues (2014) showed that positive attitudes toward euthanasia increased as students got older ($P < 0.035$; $r = 0.236$) [31], though younger students remained more supportive compared to older professionals, and Moghadam and colleagues (2019) stated that older age decreased the likelihood of agreeing with voluntary active euthanasia (OR = 0.66, 95% CI: 0.49–0.88), suggesting younger individuals were more favorable [32].

Gender (Male) Zarghami and colleagues (2010) showed that male responders had significantly more positive attitudes toward euthanasia than females ($p = 0.00$) [33], Naseh and colleagues (2016) demonstrated that males had a higher mean Euthanasia Attitude Scale (EAS) score (2.96 ± 0.74) than females (2.70 ± 0.88, $p = 0.01$), particularly in ethical considerations ($p = 0.003$) [34], Khatony

Table 3 Characteristics of the studies included in the present systematic review

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Naseh (2017) [48]	Viewpoint of medical specialist and medical students about euthanasia	Journal of Education and Ethics in Nursing	Shahr-e-Kord	Final-year medical students, physicians	EAS	Census	143 (78 students)	Being a guest or transfer student from other universities	Holding a specialized degree in a medical field, employed at specific centers	Physicians (87.3%) and medical students (62.8%) had negative attitudes toward euthanasia. Older students had more negative attitudes (r = -0.236, P < 0.02). Religion significantly influenced students' attitudes (P < 0.001).
Naseh (2014) [31]	Survey of Final-Year Nursing Students' Attitudes Regarding Euthanasia in 2013	Journal of Education and Ethics in Nursing	Shahr-e-Kord	Nursing interns	EAS	Census	80	Unwillingness to participate in the study	Final-year nursing students	47.5% had negative, 48.8% positive attitudes (mean score 54.0 ± 92.2). Older students had more positive attitudes (r = 0.236, P < 0.035).
Moghadas (2012) [32]	Attitudes of Intensive Care Unit Nurses Toward Euthanasia	Iranian Journal of Ethics and Medical History	Gilan	Female nurses in ICUs	EAS	Census	90	Incomplete questionnaire submission	At least one year of experience in ICUs	83.5% of nurses had negative attitudes. Age (r = -0.783, P < 0.29) and employment status (P < 0.004) were linked to attitudes in regression analysis.
Taghadosinejad et al. (2014) [43]	Comparison of Attitudes of Physicians and Patients About Euthanasia in Tehran's University of Medical Sciences Hospitals	Iranian Journal of Forensic Medicine & Toxicology	Tehran	Physicians and patients	Researcher-made questionnaire	Stratified random sampling	200 (100 physicians, 100 patients)	Unwillingness to participate in the study	Not specified	78% of patients, 63% of physicians agreed with some euthanasia type. Patients supported voluntary/involuntary euthanasia more than physicians (P < 0.05).
Alaei (2023) [52]	The Relationship between Religious Attitude and Emotional Intelligence with Attitudes towards Euthanasia in Nurses Working in Intensive Care Units	Journal of Nursing Education (JNE)	Isfahan	Nurses in ICUs	EAS, Religious Attitude Questionnaire, Emotional Intelligence Scale	Convenience	123	Presence of known psychological disorders or use of psychiatric medications	Willingness to participate, holding a degree, 6 months nursing experience	Mean attitude score: 32.50 ± 9.34. Religious attitude (r = -0.574, P < 0.001) and emotional intelligence (r = -0.448, P < 0.001) inversely linked to euthanasia support.
Sarhadi (2016) [55]	Attitudes of Nurses Toward Euthanasia in the Hospitals of Zahedan, Iran, 2014	Journal of Sabzevar University of Medical Sciences	Zahedan	Nurses working in hospitals	EAS	Stratified random sampling	157	Being a head nurse or supervisor, multiple physical or mental issues, incomplete responses	At least 6 months of clinical experience	66% of nurses had negative attitudes (score < 75), 34% positive. No significant demographic correlations.

Table 3 (continued)

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Hosseinzadeh (2017) [40]	Attitudes of Nursing Students Towards Euthanasia	Iran Journal Bioethics	Qazvin	Undergraduate nursing students	Researcher-made questionnaire	Convenience	382	Not specified	Not specified	45.2% supported lethal doses for terminal patients. Clinical experience linked to higher support. 50.5% said religion affected attitudes.
Rastegari (2011) [18]	Investigation of Nurses' Attitudes Toward Euthanasia in Hospitals of Tehran University of Medical Sciences	Journal of Ethics and Medical History	Tehran	Nurses in end-stage patient care units	Researcher-made questionnaire	Stratified random sampling	140	Not specified	Not specified	64% opposed voluntary active, 50% non-voluntary active, 58% voluntary passive euthanasia. Work experience reduced opposition.
Bahrami (2019) [56]	A Comparative Study on the Attitude of Nurses and Patients Towards Euthanasia	Alborz University of Medical Sciences Journal	Alborz	Nurses and patients	EAS	Not specified	462 (231 nurses, 231 patients)	Not specified	For nurses: age, gender, experience, exposure to euthanasia	Nurses (mean 54.89) and patients (mean 56.49) mostly opposed euthanasia (<60).
Zarghami (2010) [33]	Attitudes of Iranian Interns and Residents Towards Euthanasia	World Applied Sciences Journal	Sari, Babol, Tehran	Interns and residents	Researcher-made questionnaire	Cluster sampling	321 (239 interns, remainder residents)	Incomplete questionnaire submission	Not specified	49% supported, 51% opposed euthanasia. Males more positive ($P=0.00$). Religion ($P=0.02$) and end-stage patient experience ($P=0.04$) influenced attitudes.
Zandian (2017) [46]	How Gender, Majors, Religion, and Mental Health Affect the Justified Death Attitude?	Iran Journal of Psychiatry and Behavioral Sciences	Tehran	Students from 10 medical and non-medical universities	Justified Death Attitude Scale (JDAS), General Health Questionnaire-12 (GHQ-12)	Quota sampling	481	Not specified	Being a student, aged 18–32, and willingness to participate	39.4% favored active euthanasia for conscious patients, 30.45% for unconscious. Religion reduced euthanasia support ($P<0.01$). Males harsher on murder penalties.
Wasserman (2016)	Culture, Personality, and Attitudes Toward Euthanasia: A Comparative Study of University Students in Iran and the United States	OMEGA-Journal of Death and Dying	Iran and America	Graduated and current students	EAS, HEXACO-60 Personality Inventory, Spirituality Self-Rating Scale (SSRS)	Convenience sampling	165 Iranian students, 156 American students	Not specified	In Iran, only graduated students were included	U.S. more approving ($M=3.26$) than Iran ($M=2.86$, $P<0.001$). Personality (e.g., Openness, $\beta=0.292$, $P<0.01$) and spirituality ($\beta=-0.350$, $P<0.001$) predicted attitudes.
Vakili (2013) [41]	Survey of the Attitudes of Nurses and Physicians in the Intensive Care Units about Euthanasia in the University Hospitals of Yazd– 2012	Community Health Journal	Yazd	Nurses and physicians in ICUs	Admission of Active and Passive Euthanasia, Trolley Dilemma, Measure of Attitudes to Euthanasia	Random sampling	110	Unwillingness to continue participation	Nurses or physicians in intensive care units	60.9% had negative attitudes (mean 45.05 ± 15.48). Men and experienced ICU staff more accepting.

Table 3 (continued)

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Senmar (2016) [60]	Clinical Registered Nurses' Attitude Toward Euthanasia: A Cross-Sectional Study from Iran	International Journal of Novel Research in Healthcare and Nursing	Qazvin	Nurses at Boali and Velayat hospitals	EAS	Convenience sampling	302	Failure to return questionnaire	All qualified registered nurses working in different wards at two teaching hospitals	Nurses' mean EAS score: 66.6 ± 11.2 (neutral). Years of experience significantly affected attitudes.
Senmar (2020) [61]	Attitude Towards Euthanasia and Its Relationship with Spiritual Wellbeing Among Nursing Students in Qazvin, Iran	Int J Epidemiol Health Sci	Qazvin	Nursing students at Qazvin University of Medical Sciences	EAS, Palutzian & Ellison Spiritual Wellbeing Scale	Convenience sampling	121	Incomplete questionnaire submission	Completion of at least two semesters of hospital internship	Mean attitude score: 60.24 ± 9.82 (neutral). No significant link with spiritual wellbeing ($P = 0.721$).
Safarpour (2019) [57]	Attitude of Nurses Towards Euthanasia: A Cross-Sectional Study in Iran	International Journal of Palliative Nursing	Zahedan	Nurses in ICU, CCU, and dialysis units	EAS	Census sampling	94	Not specified	Nurses working in intensive and critical care units	Nurses' mean score: 2.71 ± 0.45 (negative). No significant demographic correlations.
Malary (2018) [36]	Attitude of the Nursing and Midwifery Students of Mazandaran University of Medical Sciences Towards Euthanasia	Preventive Care in Nursing and Midwifery Journal (PCNM)	Sari	Nursing and midwifery students	EAS	Census sampling	200 (119 nursing, 81 midwifery)	Unwillingness to cooperate, incomplete questionnaire submission	Current students willing to participate	Mean score: 58.43 ± 12.80 (neutral). Males more positive ($P = 0.047$). Older age linked to more negative attitudes ($P = 0.02$).
Rafi (2019) [72]	Attitudes Study of Students and Staff of Nursing about Euthanasia in Behbahan City, 2018	Journal of Pharmaceutical Research International (JPRI)	Behbahan	Nurses and nursing students	EAS	Systematic random sampling	190 (107 nurses, 83 nursing students)	Not specified	Nurses: Staff from Behbahan hospital; Students: Nursing students from semesters 4–8	Students (63.71 ± 14.42) and nurses (63.18 ± 12.48) had similar attitudes. Gender affected practical considerations ($P = 0.048$).
Naseh (2015) [34]	Nurses' Attitudes Towards Euthanasia: A Cross-Sectional Study in Iran	International Journal of Palliative Nursing	Shahr-e-Kord	Qualified registered nurses	EAS	Convenience	190	Incomplete questionnaires (four excluded)	All qualified registered nurses working in 15 different wards	57.4% negative, 39.5% positive attitudes. No significant demographic correlations.
Naseh (2016) [48]	The Attitudes of Nursing Students to Euthanasia	Indian Journal of Medical Ethics	Shahr-e-Kord	Nursing students doing their internship	EAS	Census sampling	120	Incomplete questionnaire submission	All nursing students doing their internship at two nursing colleges	52.5% negative, 45% positive. Males ($P = 0.01$) and less religious ($P = 0.009$) more positive. Age correlated with attitudes ($r = 0.219$, $P < 0.01$).

Table 3 (continued)

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Mohammadi (2014) [59]	Moral Distress and Attitude to Euthanasia: A Correlation Study in Nurses	Medical Ethics Quarterly	Kerman	Nurses working in teaching hospitals	EAS, Corly Moral Distress Scale	Quota sampling	330	Not specified	Holding at least a bachelor's degree in nursing and having clinical experience	No link between moral distress and euthanasia attitudes ($P > 0.05$). Mean attitude score: 0.9 ± 1.5.
Moghadam (2019) [49]	Iranian Medical Students' Attitude Towards Euthanasia	Indian Journal of Forensic Medicine & Toxicology	Birjand	Medical students	Researcher-made euthanasia attitude questionnaire	Stratified random sampling	152	Not specified	All medical students studying at Birjand University of Medical Sciences	30.9% supported voluntary active, 44.7% passive euthanasia. Older age reduced support (OR = 0.66). Clinical students more supportive (OR = 4.75).
Khosravi (2023) [44]	The Impact of Openness to Experience Personality Trait on Attitudes of Medical Students Toward Euthanasia: The Moderating Role of Spiritual Intelligence	The Impact of Openness to Experience Personality Trait on Attitudes of Medical Students Toward Euthanasia: The Moderating Role of Spiritual Intelligence	Zahedan	Medical students	EAS, Spiritual Intelligence Self-Report Inventory (SISRI), Brief HEXACO Inventory (BHI)	Convenience	219	Suffering from acute physical or mental illness, incorrect questionnaire completion	Students in the internship phase or higher	Openness ($r = 0.21$, $P = 0.001$) positively, spiritual intelligence ($r = -0.41$, $P < 0.001$) negatively correlated with euthanasia attitudes.
Khatony (2022) [35]	Comparison of Attitude of Nurses and Nursing Students Toward Euthanasia	Nursing Ethics	Kermanshah	Nurses in special units (dialysis, CCU, ICU) and final-year nursing students	EAS	Census	500 (380 nurses, 120 students)	Incomplete questionnaire submission	For nurses: Consent, full awareness, bachelor's degree or higher in nursing, over 2 years of experience	Nurses (3.14 ± 0.26) less positive than students (3.22 ± 0.24, $P = 0.005$). Male nurses more positive ($P = 0.02$).
Jahromi (2022) [37]	The Effect of Depression in Medical Students and Residents on Their Viewpoint About Euthanasia	Iranian Journal of Medical Ethics and History of Medicine	Shiraz	Interns and medical residents	EAS, Beck Depression Questionnaire	Cluster and simple random sampling	200	Not specified	Not specified	67.5% supported euthanasia. Men ($P = 0.023$) and single people ($P = 0.045$) more positive. Religion ($P < 0.001$) and depression ($P < 0.001$) influenced attitudes.

Table 3 (continued)

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Hosseinzadeh (2017) [40]	Attitudes of Nursing Students Towards Euthanasia	Iran Journal Bioethics	Qazvin	Nursing students	Short Form Questionnaire of Euthanasia (EAQ)	Convenience	382	Not specified	Not specified	45.2% supported lethal doses. 50.5% said religion affected attitudes. Clinical experience increased support.
Kachoie (2011) [47]	Medical Students' Attitude Towards Euthanasiain Qom in 2009	Journal of Qom University of Medical Sciences	Qom	Medical interns and residents	Researcher-made questionnaire	Not specified	140	Not specified	Not specified	50% positive, 50% negative attitudes. Highest support for passive/non-voluntary euthanasia (28.6%).
Golestan (2019) [54]	Attitudes of Students of Jahrom University of Medical Sciences Toward Euthanasia	Journal of Research in Medical and Dental Science	Jahrom	Paramedical and medical students	EAS	Stratified sampling	188	Incomplete questionnaire submission, psychological disorders, or use of psychotropic medications	Consent to participate, being a student at Jahrom University of Medical Sciences	36.7% negative, 60.6% neutral (mean 42.30 ± 13.68). Women more positive ($P=0.011$). Religion positively linked ($P=0.008$).
Emami Zeydi (2022) [38]	The Attitude of Iranian Critical Care Nurses Toward Euthanasia: A Multicenter Cross-sectional Study	Critical Care Nursing Quarterly	Mazandaran	Nurses in ICUs	EAS	Census sampling	206	Not specified	All nurses working in ICUs at hospitals affiliated with Mazandaran University of Medical Sciences	Mean EAS score: 2.96. Age negatively correlated (low). Males had higher scores in ethical/practical domains.
Asadi (2014) [50]	Attitudes of ICU and Oncology Nurses Towards Euthanasia	Preventive Care in Nursing and Midwifery Journal (PCNM)	Kerman	Nurses in oncology wards and ICUs	EAS	Not specified	205	Not specified	Nurses working in oncology wards and ICUs	79.5% opposed euthanasia (mean 58.51 ± 14.19). Older age ($P<0.025$) and > 5 years' experience ($P<0.003$) linked to more negative attitudes.
Andevari (2020) [58]	The Attitude of Medical Students of Babol University of Medical Sciences Towards Euthanasia	Religion and Health	Babol	Medical specialty students	EAS	Census	113	Students in gynecology, radiology, and pathology specialties due to their non-clinical nature	Medical specialty residents willing to participate	31% positive, 69% negative (mean 67.45 ± 4.84). No significant demographic correlations.

Table 3 (continued)

Author	Title	Journal	Place of Study	Target Population	Tool Type	Sampling Method	Sample Size	Exclusion Criteria	Inclusion Criteria	Key Findings
Amiri (2022) [39]	Is Attitude Towards Euthanasia the Same Among Medical, Nursing, and Law Students?	Journal of Human, Health and Halal Metrics	Gilan	Senior students of medicine, nursing, and law	Researcher-made questionnaire	Random sampling	243 (73 medical, 85 nursing, 85 law students)	Not specified	Being in the final year of education	53.5% negative (mean 44.1 ± 16.2). Marital status affected naturalistic beliefs ($P = 0.05$).
Alborzi (2018) [51]	Investigating Moral Distress and Attitude to Euthanasia in Intensive Care Unit Nurses	International Journal of Pediatrics (Int J Pediatr)	Ahvaz	Nurses in adult and neonatal ICUs	Researcher-made questionnaire	Census	100	Not specified	Willingness to participate, holding a degree, at least one year of experience in intensive care	Mean attitude: 43.78 ± 7.99 (negative). Age reduced support ($P = 0.004$). Moral distress frequency linked in AICU nurses ($P = 0.046$).
Aghababaei (2011) [53]	The Role of Individual Characteristics and Judgment Pattern in Attitude Towards Euthanasia	Iranian Journal of Critical Care Nursing	Tehran	Students from various disciplines	EAS	Convenience	233	Not specified	Not specified	63.9% opposed active, 58.8% passive euthanasia. Religion negatively linked to attitudes ($P < 0.05$).
Aghababaei (2012) [73]	Assessment of Attitudes Toward Euthanasia	Journal of Ethics and Medical History	Tehran	Students from various disciplines	EAS	Convenience	437	Not specified	Not specified	27.9% supported euthanasia. Strongest link with ethical considerations.
Tavoisiyan (2009) [42]	Investigation of Attitudes of Interns at Tehran University of Medical Sciences Toward Euthanasia	Journal of Ethics and Medical History	Tehran	Interns working in four teaching hospitals of Tehran University of Medical Sciences	Researcher-made questionnaire	Random sampling	100	Not specified	Not specified	54% opposed euthanasia. Terminal patient exposure positively linked to attitudes.

Footnote: EAS = Euthanasia Attitude Scale; JDAS = Justified Death Attitude Scale; GHQ-12 = General Health Questionnaire-12; SSRS = Spirituality Self-Rating Scale; SISRI = Spiritual Intelligence Self-Report Inventory; BHI = Brief HEXACO Inventory; EAQ = Short Form Questionnaire of Euthanasia; ICU = Intensive Care Unit; CCU = Coronary Care Unit; AICU = Adult Intensive Care Unit

and colleagues (2022) found that male nurses had a more positive attitude (mean = 3.17 ± 0.02) than female nurses (mean = 3.11 ± 0.01, $p = 0.02$) [35], Malary and colleagues (2018) reported that male students were more positive toward euthanasia (19.6% positive) than female students (7.6% positive, $p = 0.047$) [36], Jahromi and colleagues (2022) stated that the mean score of attitudes toward euthanasia was higher in men than women ($P = 0.023$) [37], and Emami Zeydi and colleagues (2022) showed that male nurses exhibited significantly higher EAS scores, particularly in ethical and practical considerations, compared to female nurses [38].

Marital status (Single) Jahromi and colleagues (2022) found that the mean score of attitudes toward euthanasia was higher in single people ($P = 0.045$) [37], and Amiri and colleagues (2022) showed that single participants had a higher mean score favoring euthanasia in naturalistic beliefs ($p = 0.05$) [39].

Clinical/Professional Experience: Hosseinzadeh and colleagues (2017) stated that participants with clinical experience had a greater tendency to support euthanasia (no specific p-value provided) [40], Rastegari and colleagues (2011) demonstrated that opposition to euthanasia decreased as work experience increased, significantly impacting attitudes toward all types of euthanasia [18], Moghadam and colleagues (2019) showed that students in the clinical phase were nearly 5 times more likely to favor voluntary active euthanasia compared to basic sciences students (OR = 4.75, 95% CI: 1.15–19.69) [32], Vakili and colleagues (2013) found that more experienced personnel had easier acceptance of euthanasia compared to others (significant, though specific p-values not detailed) [41], and Tavoisiyan and colleagues (2009) reported that an increase in observation of terminal-stage patients had a positive relationship with attitudes toward euthanasia [42].

Exposure to End-Stage patients Zarghami and colleagues (2010) showed that participants who had seen end-stage patients (88%) had more positive attitudes toward euthanasia ($p = 0.04$), especially if patients were friends or relatives ($p = 0.02$) [33], and Taghadosi nejad and colleagues (2013) found that patients (78%) agreed with at least one type of euthanasia more than physicians (63%, $p < 0.05$), suggesting exposure to terminal conditions fosters support [43].

Psychological factors Jahromi and colleagues (2022) demonstrated that positive attitudes toward euthanasia were associated with depression and its severity ($P < 0.001$), particularly among physicians [37], Khosravi and colleagues (2023) showed that openness to experience positively correlated with attitude toward euthanasia ($r = 0.21$, $p = 0.001$), accounting for 4% of variance ($R^2 = 0.04$, $p = 0.002$) [44], and Wasserman and colleagues (2016) found that openness predicted positive attitudes in both U.S. ($\beta = 0.316$, $p < 0.001$) and Iranian samples ($\beta = 0.281$, $p < 0.001$) [45].

Cultural/Regional context Wasserman and colleagues (2016) showed that the U.S. sample was significantly more approving of euthanasia (M = 3.26) than the Iranian sample (M = 2.86, t = 5.23, $p < 0.001$), indicating cultural influence on support [45].

Education level/field of study Zandian and colleagues (2017) found that experimental sciences students scored higher on euthanasia attitudes for conscious patients compared to humanities and physics students ($F(1,404) = 9.58$, $P < 0.01$) [46].

Specific attitudes or scenarios Hosseinzadeh and colleagues (2017) reported that 45.2% found it acceptable to use lethal doses at the explicit request of patients with terminal illness or extreme pain [40], Kachoie and colleagues (2011) stated that the highest positive attitude was toward passive and non-voluntary euthanasia (28.6%) [47], and Moghadam and colleagues (2019) showed support for passive euthanasia (44.7%), involuntary active euthanasia (38.8%), and voluntary active euthanasia (30.9%) [32].

Factors against euthanasia

This section synthesizes studies identifying factors associated with a negative attitude toward euthanasia, presented continuously within each subgroup.

Age (Older Age) Naseh and colleagues (2017) showed that older students had a more negative attitude toward euthanasia ($P < 0.02$; r = -0.236) [48], Moghadas and colleagues (2012) found that age was significantly associated with nurses' negative attitudes in regression analysis ($p < 0.29$, r = -0.783) [49], Malary and colleagues (2018) demonstrated a significant inverse relationship between age and EAS score ($p = 0.02$), with older age linked to more negative attitudes [36], Asadi and colleagues (2014) showed that a one-year increase in age made nurses' attitudes more negative ($p < 0.025$) [50], Alborzi and colleagues (2018) found that attitude toward euthanasia decreased with age (B = -0.662, $p = 0.004$) [51], and Emami Zeydi and colleagues (2022) reported a significant but low negative correlation between age and total EAS score, ethical considerations, and practical considerations [38].

Religious Beliefs/Spirituality: Naseh and colleagues (2017) showed significant differences in students' attitudes based on religious beliefs ($P < 0.001$) [48], Alaei and colleagues (2023) demonstrated that religious attitude had a moderate, inverse, significant relationship with

euthanasia attitude (r = -0.574, $P<0.001$) [52], Hosseinzadeh and colleagues (2017) stated that 50.5% reported religious beliefs affected their attitudes toward euthanasia, implying opposition [40], Zarghami and colleagues (2010) found that participants with more religious attitudes opposed euthanasia more ($p=0.02$) [33], Zandian and colleagues (2017) showed that religious participants scored lower on euthanasia subscales (e.g., unconscious patients: $F(1,46)=14.75$, $P<0.01$) [46], Jahromi and colleagues (2022) reported that as religious beliefs increased, opposition to euthanasia increased ($P<0.001$) [37] Jahromi, Wasserman and colleagues (2016) found that spirituality (SSRS) negatively predicted euthanasia attitudes in both U.S. (β = -0.297, $p<0.001$) and Iranian samples (β = -0.391, $p<0.001$) [45], Naseh and colleagues (2016) showed that stronger religious beliefs correlated with more negative attitudes ($p=0.009$) [34], Aghababaei and colleagues (2011) reported that religious variables had a negative relationship with attitudes toward euthanasia [53], Khosravi and colleagues (2023) demonstrated that spiritual intelligence negatively correlated with euthanasia attitude (r = -0.41, $p<0.001$) [44], explaining 25% of variance (R^2 = 0.25, $p<0.001$), and Golestan and colleagues (2019) found a significant relationship between attitudes toward euthanasia and religion ($p=0.008$), but lower-than-expected scores suggested opposition [54].

Gender (Female) Zarghami and colleagues (2010) showed that females had significantly less positive attitudes than males ($p=0.00$) [33], Naseh and colleagues (2016) found that females had lower EAS scores than males ($p=0.01$) [34], Malary and colleagues (2018) reported that female students were less positive (7.6% positive) than males (19.6% positive, $p=0.047$) [36], and Emami Zeydi and colleagues (2022) showed that female nurses had lower EAS scores than males in ethical and practical considerations [38].

Professional role/experience Moghadas and colleagues (2012) found that 83.5% of nurses held a negative attitude toward euthanasia, with employment status significant ($p<0.004$, r = -18.04) [49], Sarhadi and colleagues (2016) showed that 66% of nurses scored below 75, indicating a negative attitude toward performing euthanasia [55], Bahrami and colleagues (2019) demonstrated that nurses (mean = 54.89) and patients (mean = 56.49) scored below 60, indicating opposition [56], Asadi and colleagues (2014) showed that nurses with more than 5 years of experience had a 15.05 more negative attitude ($p<0.003$), with 79.5% opposing euthanasia [50], Naseh and colleagues (2017) found that 87.3% of physicians and 62.8% of students had a negative attitude toward euthanasia [48], and Rastegari and colleagues (2011) reported that 64% opposed voluntary active euthanasia, 50% non-voluntary active, and 58% voluntary passive euthanasia [18].

Emotional/Psychological factors Alaei and colleagues (2023) showed that emotional intelligence had a weak, inverse, significant relationship with euthanasia attitude (r = -0.448, $P<0.001$) [52], and Wasserman and colleagues (2016) found that Honesty-Humility (β = -0.188, $p<0.01$) and Agreeableness (β = -0.153, $p<0.01$) negatively predicted euthanasia attitudes [45].

Cultural/Religious Context: Safarpour and colleagues (2019) showed that nurses' total EAS score (2.71 ± 0.45) indicated a negative attitude, with no significant demographic correlations (e.g., age: $p=0.24$) [57], Alborzi and colleagues (2018) found that all nurses had a negative attitude, influenced by religious and cultural factors in Iran [51], and Aghababaei and colleagues (2011) reported that 63.9% opposed active euthanasia and 58.8% opposed passive euthanasia, with stronger opposition to active forms ($p<0.05$) [53].

Lack of knowledge or exposure Zarghami and colleagues (2010) stated that 14% had no knowledge of euthanasia, potentially contributing to opposition (no direct statistical link provided) [33], and Andevari and colleagues (2020) showed that 69% of medical students had a negative attitude (no significant demographic correlations, $p>0.05$) [58].

Moral distress Mohammadi and colleagues (2014) found that euthanasia was a potential cause of moral distress, with low nurse attitudes (0.9 ± 1.5) suggesting opposition ($P>0.05$) [59], and Alborzi and colleagues (2018) showed that moderate moral distress frequency (47.01 ± 12.90) was associated with negative attitudes in AICU nurses ($p=0.046$) [51].

Neutral or Mixed Attitudes (Contextual Opposition): Senmar and colleagues (2016) showed that nurses had a neutral attitude (EAS: 66.6 ± 11.2), but no strong support emerged (experience significant, p-value not specified) [60], Senmar and colleagues (2020) found a neutral attitude (60.24 ± 9.82) among Muslim participants, with no significant spiritual wellbeing correlation ($p=0.721$) [61], Malary and colleagues (2018) reported that 69.5% were neutral, 19.5% negative, and only 11% positive, suggesting weak support [36], and Golestan and colleagues (2019) showed that 60.6% were neutral, 36.7% negative, and only 2.6% positive (mean = 42.30 ± 13.68, $p<0.01$ below expected) [54].

Discussion

The attitudes of Iranian healthcare providers toward euthanasia reflect a complex interplay of cultural, religious, and professional influences, shaped by Iran's

Islamic context and collectivist societal values. The findings suggest a predominantly cautious or oppositional stance, with younger providers, males, and those with clinical exposure showing greater openness, while religious beliefs, older age, and female gender are associated with stronger opposition.

Younger healthcare providers' openness to euthanasia may reflect generational shifts in Iran, where exposure to globalized bioethical debates through education or media could challenge traditional views. This aligns with studies from other conservative societies, where younger professionals are more likely to question established norms on controversial issues like assisted dying [62]. However, the dominant opposition among older providers suggests that long-term socialization within Iran's religious framework reinforces conservative stances, consistent with research indicating that age strengthens adherence to cultural values in Islamic contexts [63].

Gender differences, with males showing more positive attitudes, may stem from cultural dynamics in Iran, where men face fewer societal pressures to conform to nurturing or life-preserving roles. This mirrors findings from other Middle Eastern studies, where male healthcare providers express greater support for patient autonomy in end-of-life decisions [64]. Conversely, females' opposition could reflect socialization emphasizing compassion and life preservation, a pattern observed in nursing ethics globally [65].

Clinical experience and exposure to terminal patients appear to foster empathy-driven support for euthanasia, suggesting that direct encounters with suffering challenge abstract moral objections. This resonates with international research showing that healthcare providers in palliative care settings often develop nuanced views on euthanasia due to prolonged patient interactions [66]. In Iran, where palliative care infrastructure is limited, such exposure may amplify providers' awareness of unmet needs, nudging attitudes toward compassion-based acceptance.

Religious beliefs, particularly Islamic principles emphasizing the sanctity of life, emerged as the strongest barrier to euthanasia acceptance. This aligns with Islamic bioethics, which generally prohibit actions hastening death, viewing life as a divine trust [67]. Studies across Muslim-majority countries consistently report similar opposition, with religiosity inversely correlated with euthanasia support [19]. In Iran, where religion permeates both personal and professional spheres, providers' opposition reflects not only personal faith but also societal expectations, distinguishing Iran from secular settings where autonomy-driven arguments prevail [68].

The neutral attitudes observed among some providers, particularly nurses and urban professionals, suggest ambivalence arising from competing values: empathy for patients versus cultural fidelity. This mirrors findings from Turkey, another Muslim-majority country, where healthcare providers exhibit mixed views due to balancing modern medical ethics with traditional beliefs [69]. Neutrality may also indicate a lack of clear policy or educational guidance on euthanasia, leaving providers to navigate ethical dilemmas individually.

These findings have implications for healthcare education and policy in Iran. Integrating end-of-life ethics into medical and nursing curricula could equip providers to address complex cases while respecting cultural boundaries. Training should emphasize palliative care alternatives, given Iran's legal prohibition on euthanasia, to address providers' empathy for suffering patients [70]. Policy efforts could focus on enhancing palliative care access, potentially reducing the perceived need for euthanasia, as seen in countries with robust end-of-life care systems [71].

Limitations

This systematic review has several limitations that should be considered when interpreting the findings. First, the heterogeneity in study designs, measurement tools (e.g., Euthanasia Attitude Scale vs. researcher-developed questionnaires), and statistical reporting across the included studies precluded the possibility of conducting a meta-analysis, limiting the ability to quantify the strength of associations between factors and attitudes toward euthanasia. Second, the reliance on observational studies, predominantly cross-sectional, introduces potential biases such as sampling bias, particularly in studies using convenience sampling, which may not fully represent the diversity of Iranian healthcare providers. Third, the review focused exclusively on quantitative data, excluding qualitative studies that could have provided deeper insights into the nuanced reasons behind providers' attitudes. Fourth, some studies had small sample sizes or were conducted in specific regions (e.g., Tehran, Shahr-e-Kord), potentially limiting generalizability to all Iranian healthcare settings. Finally, the search was limited to English and Persian publications, which may have excluded relevant studies in other languages, although this is unlikely given Iran's academic context.

Conclusion

This systematic review reveals that Iranian healthcare providers generally exhibit cautious or negative attitudes toward euthanasia, shaped by a complex interplay of religious, cultural, and professional factors. Strong opposition is particularly evident among older providers, females, and those with deep religious beliefs, rooted in Islamic teachings that emphasize the sanctity of life. Conversely, younger age, male gender, clinical experience, and exposure to terminal patients are associated with more

positive attitudes, suggesting empathy-driven openness to euthanasia in specific contexts. Urban settings and higher education levels correlate with neutral or mixed views, indicating potential ambivalence amid competing ethical and cultural values. These findings highlight the need for targeted healthcare education in Iran to address end-of-life ethical dilemmas, emphasizing palliative care alternatives and cultural sensitivity. Enhancing palliative care infrastructure could mitigate the perceived need for euthanasia while aligning with Iran's legal and religious framework. Future research should explore longitudinal trends and incorporate qualitative perspectives to deepen understanding of these attitudes in Iran's evolving healthcare landscape.

Abbreviations

PAS	Physician-Assisted Suicide
NTD	Non-Treatment Decisions
WHO	World Health Organization
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
EAS	Euthanasia Attitude Scale
JBI	Joanna Briggs Institute
MeSH	Medical Subject Headings
ICU	Intensive Care Unit
CCU	Coronary Care Unit
SID	Scientific Information Database
OR	Odds Ratio
CI	Confidence Interval
SSRS	Spiritual Strengths and Resilience Scale
AICU	Adult Intensive Care Unit

Supplementary Information

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Supplementary Material 1

Author contributions

[LKH] and [NM] contributed to the study design, literature search, data extraction, and quality assessment. [All authors] contributed to the data synthesis, manuscript writing, and final approval of the submitted version.

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Data availability

No datasets were generated or analysed during the current study.

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Competing interests

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