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Views and attitudes of healthcare professionals on do-not-attemp t-cardiopulmonary-resuscitation in low-and-lower-middle-income countries: a systematic review

Mayank Gupta[1*], Udita Joshi[2], Seema Rajesh Rao[2], Mirella Longo[3] and Naveen Salins[4]

Abstract

Background Healthcare Professionals (HCPs) are important stakeholders and gatekeepers in resuscitation decision-making. This systematic review explored the views and attitudes of HCPs on do-not-attempt-cardiopulmonary resuscitation (DNAR) in low-and-lower-middle-income countries (LLMICs).

Methods PubMed, EMBASE, PsycInfo, CINAHL, Cochrane library, Scopus, and Web of Science were searched from 01-Jan-1990 to 24-February-2023. Empirical peer-reviewed literature exploring views and attitudes of HCPs on DNAR for adult patients (aged ⩾18 years) in LLMIC were included. No restriction on empirical study designs was imposed. Two independent reviewers performed screening, data extraction and critical appraisal. Hawker's tool and Popay's narrative synthesis were used for critical appraisal and data synthesis respectively. Review findings were interpreted using Cognitive Dissonance theory (CDT).

Results Of the 5132 records identified, 44 studies encompassing 7490 HCPs were included. The median Hawker score was 28 with 27% studies having low risk of bias. Three themes emerged. 1: Meaning-Making of DNAR construct. Most HCPs agreed that DNAR avoided inappropriate resuscitations, needless suffering and allowed fair allocation of resources. However, there was a lack of consensus on DNAR timing. 2: Barriers and Facilitators. Sociocultural norms, lack of legal clarity, organisational policies, societal and family views, religious and ethical beliefs, and healthcare providers' presuppositions often hindered DNAR practice. HCPs had inconsistent religious and ethical beliefs about DNAR. 3: Tensions and complexities of contemporary practice. HCPs expressed fears, concerns, guilt and distress while recommending DNAR. HCPs differed on involving patients. The DNAR practice was arbitrary and suboptimal like informal DNAR orders, pretended and symbolic CPRs.

Conclusion Most HCPs in LLMICs viewed DNAR as essential However, they faced barriers to DNAR implementation at macro-(law, sociocultural norms), meso-(organization) and micro-(HCP- and family views) levels. These barriers contributed to HCPs' fears, concerns and distress concerning DNAR. The CDT provided the lens to link HCPs cognitions, affect and behaviour into a chain of events that explained suboptimal resuscitation practices.

*Correspondence:
Mayank Gupta
drm_gupta@yahoo.co.in
Full list of author information is available at the end of the article

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Keywords Attitudes, Cognitive dissonance theory, Do-not-attempt-resuscitation, Healthcare professionals, Low-and-lower-middle-income-countries, Views

Introduction

Cardiopulmonary resuscitation (CPR) refers to interventions performed to restore circulation and breathing during a cardiopulmonary arrest [1]. It can be life-saving, but has its limitations and adverse effects [2]. Despite the evidence that CPR may be futile and contribute to potentially avoidable suffering at end-of-life (EOL), it is often used injudiciously in patients with frailty and chronic life-limiting illnesses (CLLI) [3, 4].

Do-not-attempt-resuscitation (DNAR) should be a shared decision between the healthcare professionals (HCPs), patients and/or caregivers to not perform CPR on grounds of refusal by the patient, medical futility, risks overweighing benefits or patients' best interests [5–7]. The evidence suggests that DNAR practice is suboptimal and varies across settings [8]. HCPs views and attitudes have been shown to influence resuscitation decision-making, which at times are incongruent with the patients preferences [3, 9–11].

Low-and-lower-middle-income-countries (LLMICs) included in this review are in accordance with the World Bank categorization and their list is provided in Supplementary-file 1 [12]. In these geographical settings, there is a significant burden of non-communicable diseases, cancer, end-stage organ impairment and health-related suffering [13]. Formal processes in DNAR practice are uncommon, delayed or associated with implementation challenges [14, 15]. CPR precedes most hospital deaths despite poor resuscitation outcomes like survival and hospital discharge [14, 16].

Knowing views and attitudes of HCPs on DNAR can help understand context-specific barriers and facilitators to DNAR practice. A preliminary scoping search did not identify any existing or ongoing systematic review (SR) exploring views and attitudes of LLMIC's HCPs on DNAR. Published synthesised literature lacks contemporality and is skewed towards high-income countries (HICs), necessitating the conduct of this review [2, 8, 17–26].

Methods

The review question was: *What are the views and attitudes of HCPs on DNAR in LLMICs?* The PICo framework (HCPs – Population, views and attitudes on DNAR—phenomenon of Interest, and LLMICs—Context), was used to develop the review question. FINER (Feasible, Interesting, Novel, Ethical and Relevant) criteria, as recommended by the Cochrane handbook of systematic reviews, were referred to while formulating the review question [27]. The preliminary scoping work validated the feasibility of the review by confirming the availability of evidence addressing the review question and its novelty. The research priority setting meeting with academic and local supervisors confirmed that the review topic wasinteresting, ethical and relevant. This SR followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) standards [28]. The protocol was registered with the PROSPERO (CRD42023395887).

Eligibility criteria

The inclusion and exclusion of studies in this review were according to the eligibility criteria provided in Table 1.

Information sources

Four subject-specific [PubMed, CINAHL (EBSCOhost), Embase (OvidSP), and PsycINFO (OvidSP)], and three multi-disciplinary databases [Scopus (Elsevier), Web of Science (Clarivate), and Cochrane Library] were searched. Peer-reviewed empirical literature published in English was considered for inclusion. The search was limited to publications from 01.01.1990 to 24.02.2023 to reflect the current views and attitudes on DNAR. This timeframe was chosen as much of the global perspectives on DNAR emerged after the passage of the US Patient-Self-determination Act in the United States of America in 1990 [19, 31]. Bibliographic screening of included studies and relevant evidence synthesis and citation tracking of included studies using Google Scholar and Scopus were done to identify any additional article; which continued until no new relevant article was identified [32].

Search strategy

A three-phase search strategy was adopted [33]. A preliminary search of PubMed was performed using free text terms for the key concepts known to the researchers. The search strategy was developed iteratively, examining the article title, abstract, keywords, and thesaurus terms used to index relevant articles and exploring the search strategy used in similar reviews [8, 18, 22]. The Boolean operators OR and AND were used to combine the database-specific thesaurus and free-text words for similar

Table 1 Inclusion and exclusion criteria

PICo framework	Inclusion Criteria	Exclusion Criteria
Population	Healthcare professionals (HCPs) • *HCPs were defined as "professionals who maintain health in humans through the application of the principles and procedures of evidence-based medicine and caring"* [29] • *In this review, HCPs included physicians (both general and specialist practitioners), nursing professionals, allied health personnel, psychologists and social workers* • *This acknowledges the range of professionals caring for individuals with advanced CLLI and involved in resuscitation decision-making in* LLMIC [30]	Studies including only trainees and interns, patients, caregivers, neonatologists and/or Pediatricians Studies describing views and attitudes of HCPs on DNAR for children (< 18 years age) Animal studies • *Considering that trainees have no direct responsibility of patient care, it was decided to exclude studies including only trainees and interns* • *The decision to exclude neonates and children was iterative as preliminary search revealed a lot of specific issues like resuscitation decision making in preterm infants, lying outside the scope of this review*
phenomenon of Interest	HCPs' views, attitudes, knowledge, awareness, experiences, opinions, perceptions and/or perspectives on DNAR orders, laws, procedure, communication, decision-making, implementation when caring for adult patients (aged ⩾18 years) Considering DNAR is an important component of end-of-life-care (EOLC), advance directives (AD) and advance care planning (ACP), studies exploring views and attitudes of HCPs on EOLC/AD/ACP with DNAR being one of the area of focus were included; however only data on DNAR were extracted and included in review findings	Studies exploring views, attitudes, perception and/or perspectives of HCP on EOLC/AD/ACP without focus on DNAR or in which data on DNAR cannot be clearly separated
Context	Research set in LLMIC including low-income (GNI $1,085 Or less) and lower-middle income (GNI $1,086 to $4,255) countries as classified by the World Bank Country and Lending Groups (2023) [12]	Studies exploring views and attitudes of HCP (from LLMIC) living in upper middle-or high- income countries (e. g. Indian physicians living in the USA) Study population from a mix of countries without data for LLMIC being provided separately
Type of studies	Empirical peer-reviewed studies (qualitative, quantitative and mixed-methods) Published in English language Published from 1st January1990 till 24 Feb 2023 Studies scoring Hawker's methodological quality score of 20 or above	Non-empirical studies (editorials, letters to editors, conference abstracts, reviews, books and book reviews) Grey literature Retrospective chart reviews to determine prevalence, predictors and/or effectiveness of DNAR

and different concepts, respectively. The scoping search identified five index papers that helped test the sensitivity of the search [9, 34–37]. The search strategies were developed in consultation with a specialist health librarian and reported in detail in Supplementary-file 2 [28].

Selection process

All identified records were transported to EndNote (V.20, Clarivate Analytics, Philadelphia Pennsylvania, USA) and duplicate entries were removed. Deduplicated references were exported to Rayyan (https://www.rayyan.ai/) for screening by two independent reviewers. The reviewers first screened the title and abstracts followed by the full text reports to identify records which satisfied the predefined eligibility criteria.

Critical appraisal

Hawker's tool was used to assess the methodological rigor of the relevant studies [38]. Each study was assessed on nine criteria, each graded on a scale from 1 (very poor) to 4 (good). The overall score ranged from 9 (very poor) to 36 (good). Hawker's tool was chosen because of its utility in appraising mixed typology of studies in previously published palliative care SRs, structured format, brevity and availability of scoring guidance [24, 39–41]. Piloting was first done on ten studies by two independent reviewers to ensure consistent application [27]. The studies scoring < 20 were excluded as adopted by a previous SR [36]. Studies scoring between 30–36 were considered to have a low risk of bias [24, 42].

Data extraction

A customized Microsoft excel data extraction form was developed in consultation with all the reviewers. It had eight sections: bibliographic details, concept and context, methodology, sampling, data collection and analysis, participant characteristics, results and critical appraisal (Supplementary-file 3). Two independent reviewers (MG and UJ) piloted the data extraction form on five studies with different study designs to ensure that it captured all the relevant information [27]. Screening, data extraction and critical appraisal were done by two independent reviewers (MG and UJ) and discrepancies settled with consensus and arbitrated by a third reviewer (SRR) if required [27, 43].

Data synthesis

Popay's narrative synthesis was used for data synthesis [44]. A preliminary synthesis was developed by tabulating textual summaries of the included studies. This synthesis helped to familiarize and contextualize the study findings [44]. Relationships within and across the included studies were explored and conceptually similar findings were grouped using mind map software (Supplementary-file 4). It was followed by inductive generation of sub-themes and themes. Heterogeneity in terms of population, context and methodology were explored. As Popay's narrative synthesis allows using a theoretical framework [44], we used cognitive dissonance theory (CDT) to interpret the review findings [45]. The CDT has been applied previously in healthcare and in the context of DNAR [46–48]. The robustness of the synthesis was ascertained by inclusion of studies that met a predetermined methodological rigor (Hawker's score > 20). Furthermore, the review findings were critically reflected upon for their limitations, implications and possible sources of bias in the studies informing the synthesis.

Results

Study selection

Database search identified 3535 records after removing 1597 duplicates. Seventy-five reports were included for full text screening. The interrater reliability (Cohen's kappa) among the reviewers at the end of title and abstract screening was 0.74 (95% CI 0.72–0.76) and 0.81 (95% CI 0.73–0.89) respectively. We excluded 43 reports (Fig. 1and Supplementary-file 5) [49]. Another 16 reports were included through reference list and citation searching. Four of the 48 reports were linked to their primary studies [50–56], (Supplementary-file 6). Finally, 44 studies (48 reports) were included in this SR [9, 34–37, 50–92].

Study characteristics

The 44 studies had 7490 HCPs (Fig. 2a) involved in DNAR process (Table 2). The studies recruited participants from 16 (19.5%) out of 82 LLMICs, with 20 (45%) being published from Iran (Fig. 2b). Most studies (> 90%) were published after 2010 (Fig. 2c). Twenty-two studies had DNAR as the primary focus. The rest explored DNAR while assessing HCP's views and attitudes on other related phenomenon (Fig. 2d). The studies were heterogenous with respect to the study design (Fig. 2e).

Critical appraisal

The median Hawker score was 28 (Range 20–36). Qualitative studies (Median = 31, Range 26–36) scored higher compared to the quantitative studies (Median = 27, Range 20–33). Approximately 64% of qualitative studies compared to 10% of quantitative studies were classified as having low risk of bias (Table 2).

Review themes

Three themes and nineteen sub-themes were generated (Fig. 3). Given the complexity and magnitude of findings, Table 3 demonstrate examples of how key study findings translated into elementary themes and Table 4 depicts

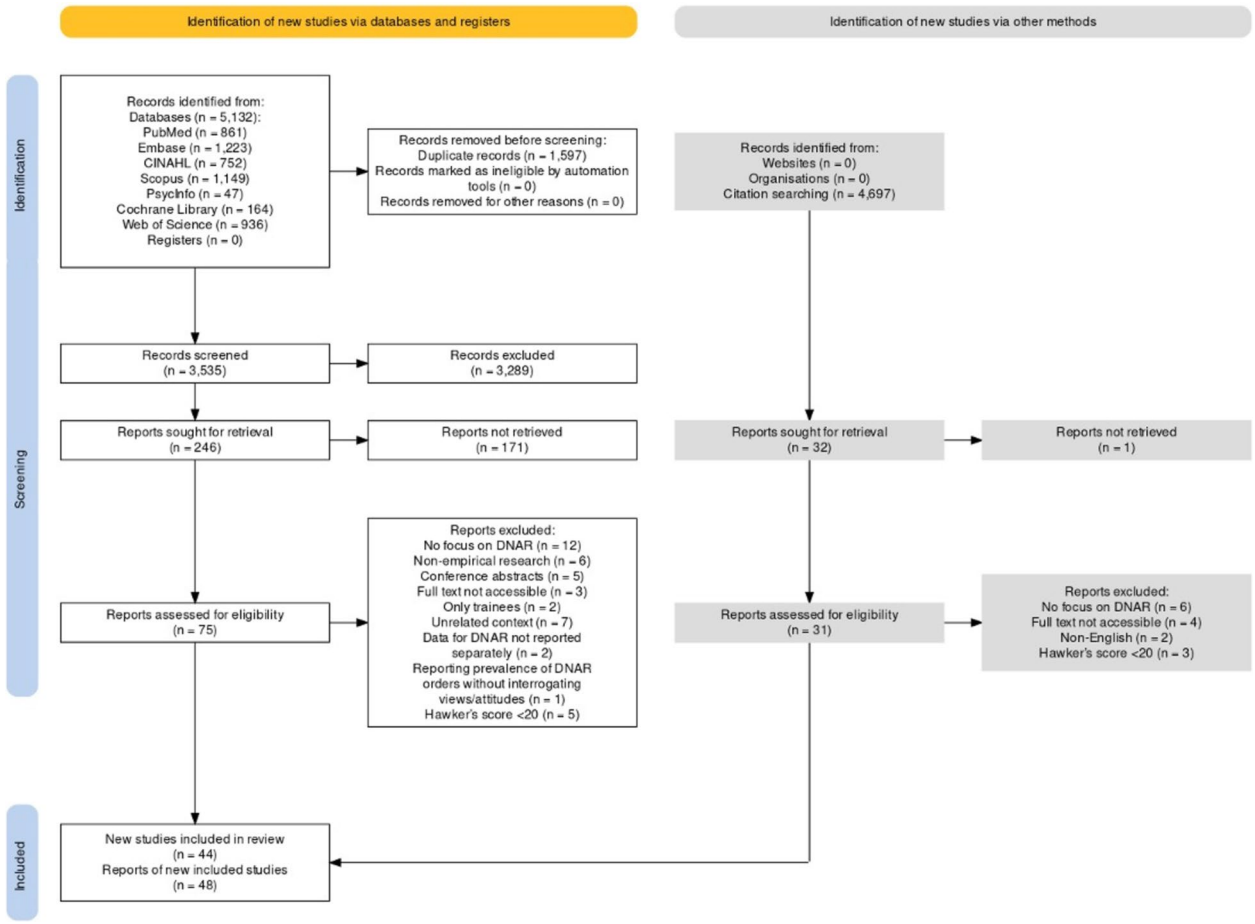

Fig. 1 PRISMA Flow Diagram

study-wise contribution to different sub-themes respectively. As is evident from Table 4, multiple studies, both qualitative and quantitative contributed to each sub-theme, precluding the possibility that exclusion of 1–2 studies to significantly alter the synthesis findings.

Theme 1: meaning-making of DNAR construct

Meaning-making refers to how individuals interpret and comprehend the world and the self and its relation to cognition and behaviour [93]. This theme describes HCPs' views on the understanding of the DNAR process, timing, implications, benefits and burden, and its perceived role in mitigating suffering and resource allocation.

Awareness and understanding

Most physicians knew the term DNAR [35, 37, 83, 84]. Awareness was significantly associated with intensive care unit (ICU) training [37]. However, HCP's understanding of DNAR varied across country settings [74, 83, 88]. A few perceived DNAR as euthanasia [9], passive euthanasia [75, 78, 84], killing a person [36], withholding life sustaining treatments (WLST) [37] and end-of-life (EOL) [69]. DNAR knowledge improved with education [69, 74]. While work experience was reported as the major contributor to awareness, only 11.2%–27.1% of HCPs reported formal education as their source of information [83, 88]. Although education enabled younger HCPs to be more aware [35, 69], it did not translate into practice in a hierarchical workplace culture [69].

Perceived implications

HCPs perceived DNAR as only withholding CPR [69, 88, 90] and not withholding other life-sustaining treatments (LSTs) [88, 90], do-not-treat [88] or no care [61, 88, 90]. Nurses believed that patients initiated on DNAR should receive either same or higher quality of care [61, 75, 79, 88, 90]. HCPs, thus, preferred to continue vital signs monitoring, symptom management, emotional support, bleeding control, personal hygiene, pressure ulcer prevention, oxygen, chest physiotherapy, feeding, IV fluids, ventilatory support, inotropes, antibiotics, blood products, diagnostic imaging and dialysis [61, 69, 75, 79, 86,

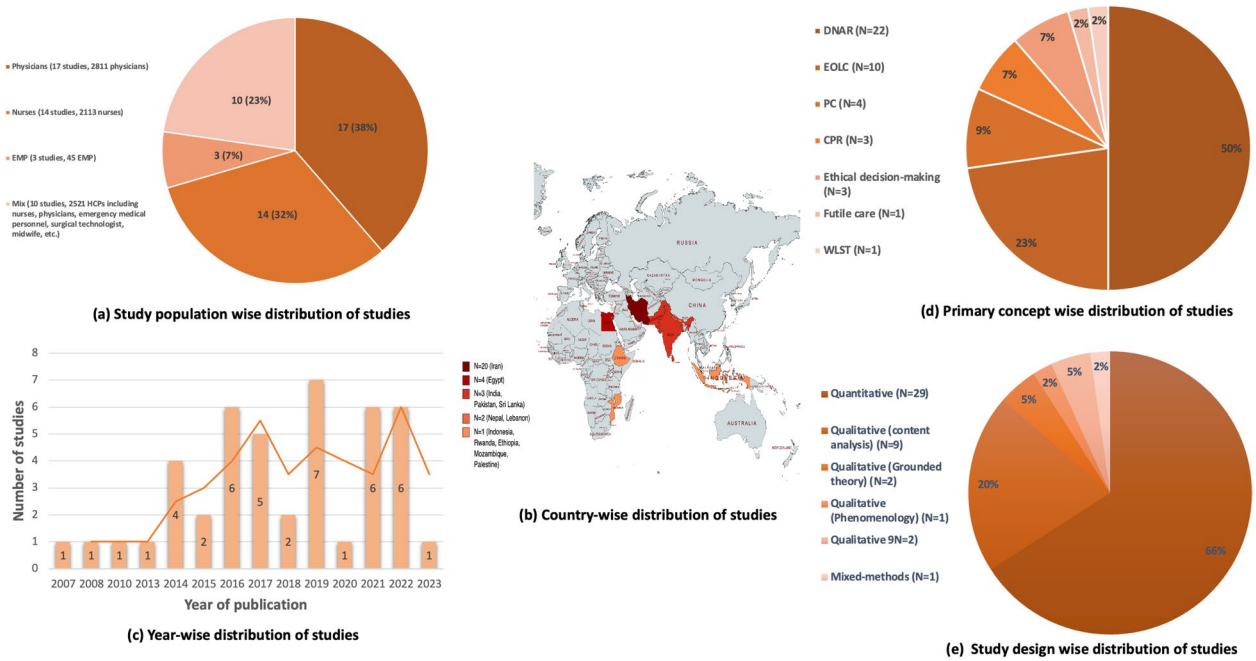

Fig. 2 Study classification based on the study population, country and year of publication, primary concept and study design

88, 90]. Palliative treatments, personal hygiene and pressure ulcer prevention were the most commonly offered treatments and diagnostic tests, and tracheal intubation were often withheld [75]. Nurses were often unclear about the degree of appropriate care and physicians were more likely to consider feeding, antibiotics, and dialysis as appropriate supportive measures [86, 88]. HCPs' understanding differed when distinguishing DNAR from the withdrawal of LSTs and was significantly influenced by ICU and EOL training [37, 88].

Timing

HCPs had mixed views on the timing of DNAR. While some believed in early decision-making [70, 87, 88], others conflated DNAR with EOL [34, 57, 66, 69, 71, 89]. This often led to delays in decision-making with patients losing their capacity to make considered decisions [68, 76]. This in turn was perceived as a barrier to DNAR discussions where HCPs had to face the dilemma of determining surrogate decision-makers [76]. Most HCPs believed that decisions in an unconscious patient require family's consent [37, 70]. Only a few felt that HCPs or families could make these decisions unilaterally [37]. Appropriate timing of DNAR initiation often correlated with previous EOLC training [37].

Benefits and burdens

HCPs considered CPR in patients unlikely to survive as futile [53, 55, 64, 75, 79] Futility was articulated both physiologically and qualitatively and not just survival [9, 64]. HCPs felt their role should transcend fostering hope or prolonging life [55, 75] and believed that CPR should be applied selectively [58, 63, 73]. They advocated for DNAR in patients with advanced diseases, terminal cancers, permanent brain impairment, critically ill or imminently dying [34, 53, 57, 60, 61, 63, 71, 74, 75, 80, 88, 92]. They wished DNAR for themselves and their families if terminally ill [75, 79] or if CPR was inappropriate [34, 57, 71]. HCPs believed that DNAR helped clarify treatment goals at EOL [34, 55, 57, 69, 71, 75, 79]. Malignancy, advanced age, multiple organ dysfunction and respiratory failure were the most common considerations informing HCP's decision [74, 90, 92]. While some HCPs considered CPR to be of limited value in elderly [53, 74, 75, 92], others (44%–56.1%) disagreed with this concept of ageism [55, 79, 90].

Contrastingly in some studies, HCPs disagreed with the concept of futility [55, 84]. They preferred CPR for their families even when terminally ill [55, 80] and would choose interventions with even minimal chance of improving survival at EOL [80, 84].

Mitigates suffering

HCPs viewed CPR as inconvenient for terminally-ill patients and DNAR as a means of comfort, protecting patients and their families from unnecessary suffering [34, 55, 57, 61, 63, 64, 69, 71, 75, 79, 83, 92]. HCPs anticipated that by avoiding unnecessary resuscitations,

Table 2 Characteristics of included studies

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Abu-Saad Huijer and Dimassi 2007 [50]	Lebanon	To determine KAP towards PC of: Physicians and nurses working in different specialties	956 nurses and 240 physicians	15 geographically spread hospitals	Quantitative, Questionnaire-based Cross-sectional survey. Chi-square and t-test	N (%), Mean ± SD, P value	29
Abu-Saad Huijer et al. 2009 [51]	Lebanon	To determine KAP towards PC of: nurses working in different specialties, Multicentric	956 nurses	15 geographically spread hospitals	Pearson's chi-square test, ANOVA in SPSS	N (%), P value	27
Abu-Saad Huijer et al. 2009 [52]	Lebanon	Physicians and nurses from different specialties	645 nurses and 223 physicians specialized in the medical, surgical, pediatrics, acute critical care, oncology, and obstetrics/gynecology	15 geographically spread hospitals	ANOVA, chi-square, and Fisher exact test, regression analysis in SPSS	N (%), P value	25
Adhikari and Rijal 2019 [57]	Nepal	To find attitude of doctors working in a tertiary hospital towards DNR decisions	53 medical officers and 53 interns	Single Hospital	Quantitative, Questionnaire-based Cross-sectional study. Chi-square in SPSS	N (%), Mean score, P value	20
Agrawal et al. 2019 [58]	India	To assess awareness and knowledge toward EOLC in critically ill patients	216 doctors working in ICU, of any specialty, of either gender, having at least 3 months of completely dedicated adult ICU postings in the past 3 years	Single tertiary care center	Quantitative, Questionnaire-based Cross-sectional Survey. Chi-square test, ANOVA, Kruskal–Wallis and Dunn's test	N (%), adjusted Odds ratio, 95% CI, P value	26
Aghabarary and Nayeri 2017 [59]	Iran	To explore Iranian nurses' and physicians' perceptions of the reasons behind providing FMTs	21 nurses and 9 physicians	Four teaching hospitals affiliated to Tehran University of Medical Sciences	Qualitative, in-depth semi-structured interviews. Graneheim and Lundman Conventional content analysis	Theme, category, subcategories and participant quotes	33
Aghakhani et al. 2022 [60]	Iran	To explore and identify components of moral sensitivity with respect to CPR	20 critical care nurses with rich CPR experience, atleast bachelor's nursing degree, and 2 years of work experience	Critical care units from different universities	Qualitative, In-depth semi-structured interviews and field notes Grounded theory	Themes and sub-themes with participant quotes	36
Assarroudi et al. 2017 [61]	Iran	To understand experiences about DNR order	24 CPR team members (17 nurses, 5 physicians, and 2 bachelor degree anesthesiologists)	Teaching hospitals in an urban area	Qualitative, semi-structured interviews. Conventional content analysis	Categories, sub-categories with participant quotes	30

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Awny et al. 2022 [62]	Egypt	To assess physicians knowledge, attitude and practice towards patients needing PC	220 physicians expected to introduce medical care to terminally ill patients	Single university Hospital	Quantitative, Questionnaire-based survey. SPSS used for analysis	N (%)	22
Azab et al. 2022 [63]	Egypt	To investigate attitudes towards EOLC and reported practices in adult ICUs	100 physicians	Adult ICUs in Ain Shams University Hospitals, Cairo	Quantitative, Questionnaire-based survey. SPSS used for analysis	N (%)	29
Bahramnezhad et al. 2016 [64]	Iran	To describes perspective on the formulation of the DNR guideline	8 Nurses	Intensive care and oncology units at Tehran University of Medical Sciences	Qualitative semi-structured in-depth interviews. Content analysis	Categories and codes with participant quotes	26
Borhani et al. 2014 [65]	Iran	To identify perspectives of intensive care nurses about EOLC in an Iranian and Islamic context	12 nurses	Three ICUs at an Iranian teaching hospital affiliated to Kerman University in South-East of Iran	Qualitative, semi-structured interviews. Inductive coding approach	Themes, sub-themes with illustrative quotes	28
Chang et al. 2021 [37]	Sri Lanka	To assess attitudes about DNACPR	450 doctors	Multiple government tertiary care hospitals	Quantitative, Questionnaire-based Cross-sectional Survey Logistic regression analysis in SPSS	Percentage, adjusted odds ratio	33
Cheraghi et al. 2016 [9]	Iran	To determine perspectives regarding DNR for dying patients	8 Iranian physicians	Not explicitly mentioned	Qualitative, semi-structured in-depth interviews Hsieh and Shannon directed content analysis	Categories and codes with participant quotes	28
Dabar et al. 2021 [66]	Lebanon	To explore approaches towards PC, EOLC and patient management	167 medical doctors	Two tertiary care academic hospitals with distinct medical culture	Quantitative, Questionnaire-based survey. Chi-square, Mann–Whitney U, independent samples t-test in SPSS	N (%), P value	27
Dehghan-Nayeri et al. 2021 [67]	Iran	To identify factors affecting CPR within the pre-hospital EMS	16 pre-hospital emergency personnel with different professional backgrounds, at least 1 year work experience and caring for 4 CPR cases during the last 2 months	-	Qualitative semi-structured interviews. Elo and Kyngäs content analysis	Category and sub-categories with participant quotes	34

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Dehi et al. 2021 [68]	Iran	To explore barriers to EOL care delivery to home-dwelling terminally-ill older patients	10 healthcare providers (nurses and physicians) who had experience of EOL care delivery to home-dwelling terminally-ill older patients	Homes, home care institutes, and Imam Reza, Madani, and Ghazi Tabatabaei hospitals, Tabriz,	Qualitative in-depth semi-structured interviews. Graneheim and Lundman Conventional content analysis	Categories, sub-categories, codes and participant quotes	33
Dodd et al. 2018 [69]	Sri Lanka	Not mentioned	15 doctors	Two hospitals	Qualitative, semi-structured interviews. Data driven (Boyazatis) thematic analysis	Themes with illustrative quotes	28
Fallahi et al. 2016 [34]	Iran	To evaluate attitudes of toward the issuance of DNR order	152 general practitioners, residents, and specialists	Hospitals of Kermanshah University of Medical Sciences	Quantitative, Questionnaire-based Descriptive analytical. Independent *t*-test, ANOVA in SPSS	N (%), Mean ± SD, P value	28
Fallahi et al. 2018 [70]	Iran	To compare nurses and physicians' attitudes about DNAR order	152 nurses and 152 physicians	Three educational hospitals affiliated with Kermanshah University of Medical Sciences	Quantitative, Questionnaire-based Descriptive analytical study. Kolmogrov-Smirnov and independent t-test in SPSS	Mean score, P value	29
Fayyazi Bordbar et al. 2019 [71]	Iran	To assess attitude toward the DNR order	47 healthcare providers (nurses and doctors) with at least 6 month work experience	One oncology hospital	Quantitative, Questionnaire-based Cross-sectional Survey	N (%), Mean ± SD, P value	26
Gibbs et al. 2016 [72]	India, Lebanon, Pakistan, Sri Lanka, Uganda	To examine international variation in clinicians' perception of DNACPR decisions and implementation and explores which factors influencing variation	8 Physicians (out of 78 total)	Who had previously published material relating to DNACPR decisions (or similar end-of-life issues) within their country	Mixed methods, Questionnaire based survey. Analysis not described	N (%), Themes with participant quotes	23
Goel et al. 2014 [73]	India, Chile, UK, Netherlands (Data extracted only for India)	To ascertain opinions and attitudes of on EOLC issues	24 nurses (out of 109 from all over the countries)	Single tertiary care hospital in India	Quantitative, Questionnaire-based Cross-sectional survey. Chi-square, Mann–Whitney and Student-t tests	N (%)	22

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Goodarzi et al. 2022 [74]	Iran	To evaluate DNR and ToR knowledge, attitude, and decision making among	128 resuscitation team nurses with bachelor's degree or higher in nursing and membership in CPR team for at least one year	Two hospitals in Kermanshah and Hamedan, Iran	Quantitative, Questionnaire-based Cross-sectional study. Chi-square, Fisher's exact, and Mann–Whitney *U* tests, Spearman's correlation and regression analysis in SPSS	Percentage, Mean ± SD, 95% CI, P value	29
Hassanin et al. 2016 [35]	Egypt	To assess knowledge, attitudes, or conceptual beliefs of DNR	318 Medical professionals	Two large teaching hospital and faculty of pharmacy and dentistry	Quantitative, Questionnaire-based Cross-sectional. STATA software used for analysis	N (%), 95% CI, Odds ratio, P value	27
Hemmatpour et al. 2021 [75]	Iran	To investigate attitude and experience of DNR	630 Nurses with bachelor's degree in nursing with at least two years of clinical experience	Hospitals affiliated with one University in western province of Iran	Quantitative, Questionnaire-based Cross-sectional study. SPSS	N (%), Mean ± SD	25
Jafari et al. 2019 [76]	Iran	To explore EMS staff's experiences of the factors behind their moral distress	14 prehospital EMS staff with associate degree or higher in medical emergency, anesthesia, operating room, or nursing, a work experience of 3 years or more	Several cities in Iran	Qualitative, in-depth unstructured and semi-structured interviews, Graneheim and Lundman Conventional content analysis	Categories, sub-categories with participant quotes	31
Kassa et al. 2014 [77]	Ethiopia	To assess the knowledge, skills, attitudes and associated factors with PC in nurses	341 nurses	Governmental and non-governmental hospitals in Addis Ababa, Ethiopia	Quantitative, Questionnaire-based Cross-sectional study. Chi-square and logistic regression in SPSS	N (%), P value	31
Mirhosseini et al. 2022 [78]	Iran	To investigate attitudes toward the DNR in COVID-19 patients	332 health care providers with at least 1 year of work experience	Single COVID-19 referral hospital in Shahroud, Iran	Quantitative, Questionnaire-based Cross-sectional Survey. Multivariate linear regression analysis	Mean ± SD, P value	27
Mogadasian et al. 2014 [79]	Iran	To investigate attitudes regarding DNR orders and determine the role of religious sects in such attitudes	306 nurses	Five hospitals affiliated to TUOMS in East Azerbaijan Province and 420 nurses in KUMS' affiliated hospitals in Kurdistan province	Quantitative, Questionnaire-based Descriptive-comparative. Independent sample t-test in SPSS	N (%), Mean ± SD, P value	24

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Naghshbandi et al. 2019 [80]	Iran	To investigate attitude of nurses in intensive care units towards DNR order	255 nurses	ICUs of hospitals of Tabriz University of Medical Sciences	Quantitative, Questionnaire-based survey. Independent t-test, chi-square in SPSS	N (%), Mean ± SD, P value	25
Brysiewicz and Nankundwa 2017 [36]	Rwanda	To explore lived experience of nurses caring for a patient with a DNR order	6 nurses registered with the Rwanda Nursing Council, at least 6 months' experience in the ICU	ICU of a single 200-bed tertiary hospital in Kigali, Rwanda	Qualitative, in-depth semi structured interviews, Giorgi's phenomenological approach	Categories with participant quotes	31
Ozer et al. 2019 [81]	Indonesia	To compare physicians' attitudes towards and identify physician characteristics associated with withholding CPR for IHCA in patients they do not know in three countries	295 physicians practicing internal medicine, anaesthesiology, cardiology, emergency medicine and critical care; likely to be code team members and key decision-makers during unexpected IHCA	Multi-country (Indonesia, Israel, Mexico, Data extracted only for Indonesia)	Quantitative, Questionnaire-based Cross-sectional. Chi-square, Kruskal–Wallis, Mann–Whitney U- tests, Logistic regression analysis	N (%), odds ratio, 95% CI, P value	30
Phua et al. 2015 [82]	Bangladesh, India, Indonesia, Iran, Pakistan, Philippine, Vietnam	To describe attitudes and practice of physicians managing critically ill patients in Asian countries at the EOL with emphasis on the WLST, and to evaluate factors associated with these attitudes	524 ICU physicians from LLMIC	ICUs of 16 Asian countries and regions (524 from LLMIC)	Quantitative, Questionnaire = based survey. SPSS used for analysis	Percentage, adjusted Odds ratio, 95% CI, P value	29
Pinto et al. 2013 [83]	Sri Lanka	To assess knowledge and attitude about EOL decisions	232 medical practitioners at least MBBS and one year work experience	Three teaching hospitals of Kandy district	Quantitative, Questionnaire-based Cross-sectional study SPSS used for analysis	N (%)	29
Pinto et al. 2020 [84]	Mozambique	To evaluate general knowledge, attitudes, and practices of Mozambican physicians on palliative care	207 physicians	Four Major hospitals in Mozambique	Quantitative, Questionnaire-based Cross-sectional survey. Chi-square, Kolmogorov–Smirnov, Student-t and Mann–Whitney tests in SPSS	N (%), Median (95% CI)	27

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Safari Malak-Kolaei et al. 2022 [85]	Iran	To investigate relationship between Death attitude and DNR attitude	156 ICU nurses with minimum bachelor's degree and six months of work experience	ICU of educational- therapeutic centers affiliated to Golestan University of Medical Sciences (Golestan, Iran)	Quantitative, Questionnaire-based Cross-sectional survey. two-sample T test, ANOVA and regression analysis in SPSS	N (%), Mean ± SD, P value, 95% CI	23
Saifan et al. 2016 [55]	Palestine	1.Are the Palestinian physicians and nurses for or against legalizing the DNR order in Palestine? 2.Does their religion, culture or both affect their decision regarding the DNR order?	48 ICU physicians and 75 nurses with a diploma degree or higher	4 hospitals in Palestine	Quantitative, Questionnaire-based Cross-sectional study. Bi-variant spearman rho test in SPSS	N (%), p value	22
Abdallah et al. 2016 [56]	Palestine	1.To investigate attitudes of ICU physicians and nurses on the DNR order in Palestine for the terminally ill patients, and 2.whether culture and religion have any affect regarding their decision on DNR order	48 Physicians and 75 nurses, who have experience in the ICU, with a diploma, bachelors' degree or higher	Three different governmental hospitals and one charitable hospital		Percentages	20
Salahuddin et al. 2008 [86]	Pakistan	What Pakistani physicians know about EOL and practice in the ICU once EOL is determined?	37 nurses and 100 physicians involved in caring for critically ill patients placed on life support in the ICU	Three hospitals of Karachi, Pakistan	Quantitative, Questionnaire-based Cross-sectional study. Chi-square, Fisher exact test and ANOVA tests in SPSS	N (%), p value	25
Salins et al. 2017 [87]	India	To assess feasibility and acceptability of the agreed integrated care plan in the Indian setting	21 senior Palliative care physicians	16 Palliative Care institutes	Quantitative, Questionnaire-based Cross-sectional Survey. Analysis not described	N, summary of participant comments	23
Shrestha and Shrestha 2021 [88]	Nepal	To identify knowledge of and attitude towards DNR order	70 nurses with certificate or bachelor level nursing qualification	ICUs, step down unit, neuro ICU, emergency unit and medical units of a tertiary level central hospital	Quantitative, Questionnaire-based Descriptive correlation study. Spearman rho test in SPSS	N (%)	29
Syed et al. 2017 [89]	Pakistan	To determine barriers and perceptions to code status discussion	77 physicians from who had discussed at least five code statuses	Department of medicine of a university hospital in Karachi	Quantitative, Questionnaire-based Cross-sectional study. SPSS	N (%),Mean ± SD, P value	28

Table 2 (continued)

Author Year	Country	Study aims	Participants	Setting	Study design, Data collection and Analysis	Data	Hawker's Score
Taha et al. 2010 [90]	Egypt	To describe critical care nurses' knowledge and attitudes regarding the DNR status	140 nurses	Critical care units of Alexandria Main University Hospital	Quantitative, Descriptive study. ANOVA, Kruskal Wallis test, Linear correlation in SPSS	N (%)	23
Torabi et al. 2019 [53]	Iran	To describe experiences and identify strategies used in Ethical decision making	15 pre-hospital EMS with at least 3 years of professional experience	Urban and road bases in some major cities in Iran	Qualitative, In-depth semi-structured interviews, Lundman and Graneheim conventional content analysis	Categories and sub-categories with participant quotes	34
Torabi et al. 2020 [54]	Iran	To identify barriers of ethical decision-making	15 pre-hospital EMS				32
Zafar 2015 [91]	Pakistan	To explore perspectives of EM residents and physicians regarding the common ethical challenges faced during patient care	13 ED Physicians working full-time in the ED and senior (3rd and 4th year) residents	EM residency programme of a private teaching hospital in Karachi, Pakistan	Qualitative, semi-structured in-depth interviews. Grounded theory	Themes and sub-themes with illustrative quotes	28
Zali et al. 2023 [92]	Iran	To explore experiences of ethical and legal issues in post-resuscitation care	17 nurses with at least a bachelor's degree and 2 years of clinical experience with rich experiences of providing care during and after resuscitation	Three educational hospitals affiliated with one University	Qualitative, semi-structured interviews, Graneheim and Lundman Conventional content analysis	Categories, sub-categories and participant quotes	32

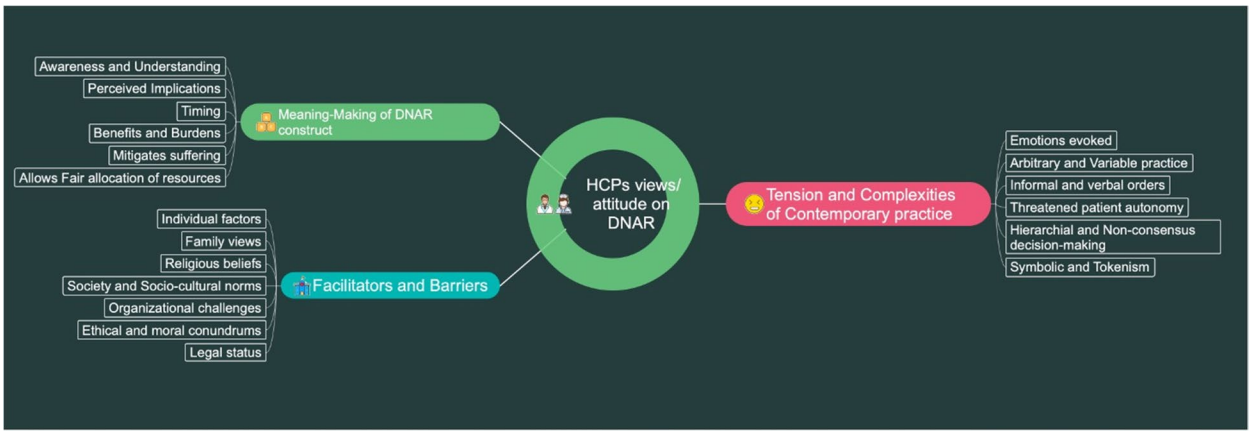

Fig. 3 Thematic Map

DNAR would also reduce their workload and fatigue [67, 69]. However, in one study, nurses clarified that the DNAR decision should be based upon patients' prognosis and functional status and not just upon the patient's discomfort [90]. While one study showed [80] Iranian nurses held negative attitudes toward DNAR as a means of avoiding suffering and preserving dignity, eight studies of HCPs revealed a positive attitude [34, 57, 61, 64, 71, 75, 79, 92].

Allows fair allocation of resources

HCPs believed that futile CPR had adverse financial impact on the family and country [9], while DNAR had cost-and resource-saving benefits [9, 67, 69] They found the economic burden of keeping terminally ill patients alive unjustifiable [55, 75, 79]. Iranian families cited limited resources as the most common reason for accepting DNAR [64, 83]. One study showed that family's socio-economic status influence HCPs' decision-making [66], while others did not [90, 92]. HCPs in some studies viewed DNAR as a medical decision guided by patient preferences, unaffected by healthcare costs, socioeconomic status, critical care bed availability or duration of hospital stay [63, 88, 90].

Theme 2: barriers and facilitators

The terms barriers and facilitators were used to describe the interplay of various generative mechanisms and the interdependence of factors within social systems that facilitated or hindered DNAR implementation in LLMICs [94].

Individual factors

Most HCPs felt that DNAR was essential and a right of terminally ill patients [34, 35, 50, 57, 58, 62, 63, 67, 69, 71, 75, 77, 78, 83, 85, 87, 88]. Physician's acceptance varied from 48% (Iran) to 100% (Pakistan, Philippines) [63, 82]. In contrast, in a few studies, HCPs had a negative view on DNAR [35, 37, 72, 80, 83]. Nurses were less likely than physicians to consider DNAR as a right of terminally ill patients [50] or consider family's consent as necessary [70]. HCPs from LLMICs were less likely to accept DNAR than those from HICs [73, 81, 82]. HCPs in some studies considered DNAR to be either non-applicable, not needed, of limited relevance or underused in their countries [69, 72, 91].

HCPs had better acceptance of DNAR compared to patients and families [71]. In a few studies, better DNAR acceptance was associated with higher education [34, 37, 71, 74], male gender [37, 78], work experience [78, 85], and DNAR knowledge [74]. Most studies however did not mirror these associations [34, 35, 37, 74, 80, 81, 85, 88, 90]. Longer professional experience [57, 69], working in oncology [50] and higher working hours [78] correlated with positive attitude towards DNAR. History of COVID-19 infection or death of a relative with COVID-19 among HCPs was associated with a favourable attitude towards DNAR in COVID-19 patients [78]. The trainees were apprehensive to initiate DNAR orders and abdicated decision-making responsibility to senior doctors [61, 89]. Lack of education in communication and EOLC [69] and prognostication [89] influenced DNAR discussions, with only 21.8% doctors expressing confidence in discussing code status independently [58]. HCPs' age, ICU type, marital and parental status, courses in CPR, ethics or critical care, experience of caring for patients with or implementing DNAR orders were not associated with their attitude towards DNAR [34, 74, 80, 81, 85, 90].

Family views

Review findings indicate that HCPs considered family views and socioeconomic status as both barriers and

Table 3 Review themes, sub-themes and explanatory narratives

1. Meaning-Making of DNAR construct	***Awareness and Understanding***	66.8% heard about the term DNAR [83] 27% had not heard about DNR [35] 50% knew what an order of "do-not-resuscitate" is [84] 73.7% lacks absolute understanding [83] Only 37.5% had DNR knowledge [74] Perceived as passive euthanasia—65.3% knew what "passive euthanasia is [84] Positive attitude to passive euthanasia was reported [75, 78] "*End-of-life and DNR were frequently conflated*" [69] DNR orders as permitting death to occur [36] All life-sustaining therapy should be withdrawn [37] ICU training associated with greater awareness [37] Most got information about DNR order from clinical experience [88]
	Perceived Implications	DNR to apply only to withholding CPR [69] Were aware that DNAR did not imply withdrawal of life-sustaining treatment [37] 97.1% knew that DNR does not mean "do-not-treat" [88] Would use vasopressors, haemodialysis and non-invasive mechanical ventilation in a DNR patient [86] DNR order doesn't involve limitation in therapeutic measures [90] ICU and EOL care training associated with "DNACPR does not entail withdrawal of life support" [37] Does not mean do not take care [61] DNR does not mean "no-care" [88, 90] Must continue active treatment of pain [69] Most common treatment offered to patients with DNR were palliative treatments, personal hygiene and prevention cares for pressure ulcer [75] DNR orders get that same quality of care [75, 79] Agreed about providing emotional support for patients with DNR status [90] Providing 'comfort measures' for a DNR patient' [86]
	Timing	Delaying DNR discussions until serious clinical deterioration [66] Code status to be discussed when patients get sick [89] Delaying DNR discussions until serious clinical deterioration [66] The cognitive status of the patient as a barrier to discussion with patients [69] "*Who is patient's guardian? How can we determine him?*" [76] Patients' preference about DNAR must be taken in advance before they lose competence [70] 81.5% agreed that DNR status should be determined before emergency situation arise [88] Review of cardiopulmonary resuscitation should happen prior to patients entering the end-of-life phase [87] EOL care training (aOR = 2.48) was independently associated with knowing when to consider DNACPR decisions [37]
	Benefit versus burdens	CPR of patients unlikely to survive is futile care [64] Effort and care with unattainable goals [9] CPR should not be done if seemed futile [34, 57, 63, 71] Want DNR order for loved ones If CPR is futile [34, 57] Futile to prolong the life of frail, elderly patients [55, 75, 79] CPR should not be initiated if it is vain [80] It was useless work [53] Most effective factor is chance of patients survival [53] 64.8% disagreed or strongly disagreed that resuscitation should always be done in a terminally ill patient [58] 62.5% felt that CPR should be done selectively in patients [73] 60% strongly disagreed/disagreed that doctor should try to resuscitate every patient in ICU [63] "*sometimes we are given end-stage patients and we know that nothing can be done to save them*" [60] "*…Well, for some patients, the DNR order is given, because no one believes in their recovery" (n 11, emergency medicine specialist)* [61] 19.3% thought that terminally ill cancer patients should receive cardiopulmonary resuscitation [84] Majority (58.6%) of respondents disagreed to the negative statement that every critically ill patient should have DNR order [88]

Table 3 (continued)

	Mitigates Suffering	Reduction of patient suffering as the reason [83] DNR protects the patient from unnecessary suffering [34, 55, 57, 63, 71, 75, 79, 80] *"DNR is good at the terminal stage to prevent suffering of the patient as well as the friends and family"* [69] Death as a cause of Comfort [61] *"They say don't hurt him, let him die easily and in peace." (P.10)* [92] CPR hurts both physically and mentally [64] *"It decreases our tiredness, saves equipment and facilities"* [67] 62.9% disagreed with discomfort to be one of the factors influencing DNR status [90]
	Allows fair allocation of resources	Limited resources as the justification [83] It saves money and resources [69] *"…., he accepted the DNR order because he really did not have any money"* [64] Saves equipment and facilities [67] Millions of national capital lost on useless CPR [9] Lack of appropriate allocation of resources [9] Monetary factor of keeping a terminally ill patient alive is difficult to justify [55, 75, 79] Concerned about economic constraints [66] 70% disagreed with socioeconomic status to be one of the factors influencing DNR status [90] 83% never apply DNR orders when a patient's family cannot afford treatment costs [63] (90.0%) agreed that "the basis for DNR order is medical judgment along with patient's wish." [88]
2. Facilitators and Barriers	***Individual factors***	DNAR helps clarify treatment plan [34, 55, 57, 75, 79, 80] Health care staff have a positive attitude toward the order [78] DNR plays an important role in healthcare [69] *"…think there should be a do-not-resuscitate order…"* [67] Terminally ill patients have the right to choose DNR [55, 62, 77] Cardiopulmonary resuscitation status should be reviewed and is relevant at end of life [87] 63.2% agreed about 'DNR' choice being the patient or his family right [62] 59.4% accept the concept of DNR [35] 62.7% nurses compared to 90.5% physicians in surgical speciality believed that terminally ill patients have the right to a do not resuscitate order [50] Disagreed to implementation of DNAR in Sri Lanka [83] Healthcare team must always provide hope to patients even when death is imminent [75, 79] Prolonging life should always be the goal of the healthcare team [55, 79] 39.0% rejected the concept of DNR [35] Consultants have more sophisticated understanding [69] Medical officers compared to interns had less problems and conflicts [57] Significant relationship between work experience and attitudes towards DNR [78] Less work experience associated with better attitude towards DNR [85] Higher educational qualification had more positive attitudes towards DNR [34, 71] DNR decision had significant relationship with educational level [74] Postgraduate training associated with less reluctance [37] Educational level not associated with attitude [90] Male gender associated with less reluctance [37] Females had a more negative attitude toward DNR [78] Gender has no impact on nurses' attitude [37, 74, 80, 81, 85, 90] DNR decision has significant relationship with DNR knowledge [74] Experience of implementing DNR orders has no impact on attitude [80, 90] No significant association between DNR knowledge and attitude [88, 90] History of COVID-19 and death of relative due to COVID-19 increased DNR attitude score [78] Death attitude profile scores associated with DNR attitude [85] Lack of education around end of life and resuscitation [69]

Table 3 (continued)

	Family views	Family preferences tended towards a wish for maximum life [69] *'In Sri Lanka, the family don't want patients to know [about DNR].' – Consultant surgeon.* [69] Family denial, education level and conflict between family members on DNR were most frequent family-related barriers in code status discussion [89] Giving up on by agreeing to DNR [72] Iranian people are emotional and struggle to keep patients alive [9] Families are reluctant to ask for DNR because of strong attachment [64] Respect the wishes of the family who refuse to involve the patient [66] "If a competent patient's family prefers not to tell the patient about the DNAR order, the request must be respected" [70] Code status discussion is dependent more on patients' sociocultural background rather than physicians' academic background [89] Family-related barriers played the most important role in discussing code status [89] Application or non-application of a DNR order only depends on the patient's family [64] Families are not well informed; therefore, they try to save their patient until the last moment [9] Code of "money as a facilitating or hindering factor" [64]
	Religious beliefs	Religious beliefs greatly influence view of DNR [55, 75, 79] Religion affects opinion regarding DNR order [55] "*useless CPRs are not only non-rewarding, but a sin*" [9] DNR order is not in contrast to the will of God [64] DNR not in contrast with religious beliefs [34, 57, 63, 71, 80] DNR is a sin [83] Religiosity strongly associated with decision to forego CPR [81] Oppose DNR order as believe prolonged disease is a way for forgiveness of the sins [64] Disagree with DNR orders as the power of God is above all [64] Against our religious believes [37] 30% not sure about religion's view towards DNR [63] No religious permission for avoiding resuscitation [59] Seeing miracles feel doubtful about DNR [9] DNR is Sin [83] The most challenging reason for participating in DNR process for nurses was cultural religious beliefs (53.9%) [75] Religiosity strongly associated with decision to forego CPR [81]
	Society and Sociocultural norms	Society feels that a doctor should always do the maximum [69] Culture makes it hard for me to encounter DNR orders [71] According to Rwandan culture only God can decide about life and death [36] My culture has ideas that are incompatible with the issuance and execution of DNR order [34] Culture influences their decision on the DNR [55] Culture makes it difficult to deal with DNR orders [75, 79, 80] Symbol of hope and not death [89] DNR not culturally accepted in Iran [60] DNR orders are culturally prohibited in Uganda [72] Indonesian respondents placed less emphasis on quality of life compared to Mexicans [81] High importance was accorded to pre- and post-admission quality of life [66] DNR order does not conflict with my cultural beliefs [57]

Table 3 (continued)

	Organizational challenges	No formal protocol or even informally accepted system for resuscitation decisions [69] Weak organizational support, the lack of clear protocol [53] No certain protocol [9] Hospital doesn't have a written DNR policy [90] Absence of a written directive for do not resuscitate (DNR) [65] Lack of DNR order is a barrier [67] 71.5% reported not having a written or implied DNR policy [35] Current Iranian health care was a routine and stereotyped care [64] Time constraints as a barrier [89] Lack of proper place/room for such discussion [89] Reported lack of national guidance for making DNR decisions [72] Lack of training in communication skills as barrier to code status discussion [89] 57.1% perceived Time constraints as a barrier [89] *"…and the doctors are busy" – Consultant surgeon* [69] 71.4% of the critical care nurses disagreed about hospital policy to be among the factors influencing DNR status [90] *"I feel pressure from the hospital utilization review to push for DNR orders"* [75, 79]
	Ethical and Moral Conundrums	DNR order is morally correct [57, 80] DNR is morally acceptable and right [34, 71] Violent CPR on end-stage patients an example of violating moral principle of nonmaleficence [60] Issuance and execution is morally and ethically acceptable [63] Every human being has the right to decide freely [9] Most important moral principle is non-maleficence [64] DNAR is unethical and should not be practiced [83] "*do not know whether it is morally right or not"* [61] Moral conflict with DNR [36]
	Legal status	Lack of legal support as the most important principle of non-compliance with DNR [9] *"Why should we get ourselves in trouble?"* [9] *"we should not intervene because we do not have legal support"* [64] DNR code status were not legally binding in Pakistan [91] *"we don't have legal or religious right to disconnect the machine"* [65] Lack of clear legal guidelines [68] There is no legal permission for executing DNAR [59] No legal do-not-resuscitate order policy in Iran [67] Informal and illegal identity of DNR order [61] DNR code status were not legally binding in Pakistan [91] None of the Christians were in favour of legalizing the DNR order in Palestine [55] Wished to have a better understanding of the legal ramifications of DNR/advance directives/patient's rights [55, 75, 79] Want the DNR order to be legalized in Palestine [55]
3. Tensions and complexities of Contemporary practice	***Emotions evoked***	Fear of being prosecuted/ legal consequences [9, 55, 59, 61, 64, 65, 67, 68, 75, 76, 79, 89, 90, 92] Resuscitation of patients who may not survive lead to staff burnout [9] "*the useless and vain things that we do, sometimes it won't be effective but harmful, and then we will have a guilty conscience"* [64] Uncomfortable with the decision to limit resuscitation [66] Felt depressed, frustrated, powerless, Confused, Anxiety, Anger, Guilt regarding DNR status [90] It is depressing to find patient in DNR order [88] DNR experience was challenging [75] Psychological stress associated with DNR decisions [57] Fear that the DNR decision could be 'wrong' [69] Feared family reaction [89] Fear of public distrust in healthcare system [64] Doctors fear to write DNR [36] "*we're the scapegoat, so actually we'd better not interfere*" [64] 48.6% always ensure that the patient looks presentable [90] *"… It can influence the nursing care"* [36] "*..the useless and vain things that we do, sometimes it won't be effective but harmful, and then we will have a guilty conscience..*" [64]

Table 3 (continued)

	Arbitrary and variable practice	Every physician acts arbitrarily [9] Non-implementation was more likely in low- to middle-income economies [82] *"Resuscitation status very rarely discussed with patients"* [87] Place of work have a method for making decisions [72] It is considered in a case-by-case basis [69] 28.5%, reported having a DNR policy, implying DNR was practiced [35] Some are scared, some happy to give DNR order, some do not give [61] Only 13% reported they almost always/often order DNR [63] Experience of withholding CPR [57] Impossibility of following a DNR order in Iran [60] *"All the companions told us not to resuscitate their patient, but we didn't have a legal thing called the do-not-resuscitate order. So, we had to ineffectively resuscitate the patient for 45 min."* [67] Participants believed that the current Iranian health care was a routine and stereotyped care [64] *"Resuscitation status very rarely discussed with patients"* [87] 56.2% had experience of taking to patient or their relative about making decision of DNR [57]
	Informal and verbal orders	"*There is no such an order in the patient's file and it is not documented"* [61] Physicians verbally order DNR [74] 51% and 17% almost always/often apply written and verbal DNR orders respectively [63] DNR orders not written in patient's record and ordered verbally as the challenge [75] Communicate DNR decisions verbally [72] DNR order is given only orally and isn't written in the medical record [90] Wrong resuscitation measures applied because not written in the patient records [36]: *"Sometime we apply resuscitation measures wrongly because it is not written in the patient records."* (Leon, Nankundwa and Brysiewicz 2017, p.21) DNR order in oral form is illegal [88] Majority of the doctors did not administer CPR when there was a documented DNR order [57] 51% apply written DNR orders while only 17% apply verbal DNR orders [63]
	Threatened Autonomy	Combination of patient, clinician and family should make a DNR decision [69] Patient or the patient's family should be in control of all medical decisions [55, 75, 79] Consent of patients is essential for DNAR order [34, 57] *"Cannot decide about asset of another person"* [9] Mixed reviews if patients should be informed of DNR decision [69] Patients' autonomy is violated and this leads to medical paternalism [60] Little informing of patients is performed [69] Personal belief that the patient does not want to be engaged [66] Want to discuss code status with family instead of the patient [89] *'Doctors have power; respect for doctors is good, but it is too much as patients fear asking questions'* [69]
	Hierarchical and non-consensual decision-making	Nurses cannot recommend DNAR order [70] In majority of cases (96.1%) DNR was commanded by the doctor [75] "*nurses are not included in the discussion, it's very painful"* [36] DNR order placed without consulting nurses [75] Only 42.9% agreed that The nurse can recommend DNR order [88] Both nurses and physicians agreed that it is the physician's responsibility to give DNAR order [70] Physicians are the ones who should make all the decisions [55] 66.8% attributed the decision to physicians [75] It difficult to talk about death [55, 75, 79] It difficult to talk about DNR [55] Physician is the responsible person for the designation of DNR status (100%) [90]

Table 3 (continued)

Symbolic and Tokenism	CPR for tokenistic aims for satisfying the patient's family [61] *"…in the internal emergency department, CPR is nor performed, because the majority of patients need the DNR order. The patient with cancer does not need CPR and 99% of CPR cases are tokenistic to satisfy the patient's companions with regard to the provision of care" (n 17, pediatric ICU staff nurse, Assarroudi et al. 2017, p.5)* [61] Perform it for our job safety [53] *Even if a patient has written consent for do not resuscitate (DNR), we do not have written permission to ignore it and we have to perform it for our job safety.* (Participant No. 6, Torabi et al. 2020, p.412) [53] Acts were also taken such as causing intentional rib fractures [92] "*Sometimes acts were also taken to prevent legal problems, such as causing intentional rib fractures and injecting medications to increase its blood level concentration in the case of complaint*" (Zali et al. 2023, p. 251) [92] "*comforts the family to know that CPR will happen*" [69] "*CPR so that the patient's companions did not think we did nothing for the patient*" [64] CPRs are done only for show [9] *"If the companion sees the patient, the resuscitation will start again, only chest compressions, because the companion is sensitive to chest compressions. Then we quickly draw the curtains and take the companion out and no more resuscitation is done." (P.12, Zali* et al. *2023, p.251)* [92] *"Perform resuscitation in a fake way"* [68] "*We had to ineffectively resuscitate the patient*" [67] *"Some patients don't respond to resuscitation due to their terminal conditions; however, they (i.e., authorities) have required us to perform resuscitation in a fake way due to the ethical and legal issues related to resuscitation"* (P. 13, Dehi et al. 2021, p.125) [68]

facilitators to DNAR decision-making [9, 64, 69, 72]. Family requests for non-disclosure were often acceded by the HCPs as they were often the first point of contact [66, 69, 70, 89] and primary caregivers at EOL [69]. Moreover, preferences to discuss with patients, family, or both were influenced by HCPs' country of origin and training [66, 89]. One study found that Egyptian nurses felt that family preferences influenced their DNAR practice [90].

HCPs (trainees more than physicians) reported families as the most significant barrier to DNAR [9, 64, 89]. Families in Iran and Pakistan were closely knit, emotional and fearful of death [9, 72]. The families not informed of prognosis were more insistent on CPR [9, 69, 72] DNAR was viewed as euthanasia and giving up on loved ones, which families felt guilty to approve [9, 69, 72]. Family disapproval, education level, language barrier, intra-family conflicts, and doctor in the family impeded DNAR discussions [89]. Notably, they considered both the extremes of families abdicating decision-making on them as well as deciding against their recommendations as hinderances to DNAR decision-making, which indirectly reflected their predilection for shared decision-making [89].

Affluent families sometimes demanded unhelpful interventions, which HCPs viewed as a self-serving behaviour [64, 72]. Contrastingly, poor families due to inadequate resources often acceded to DNAR decisions [9, 64]. Families agreed for DNAR to preserve patient's dignity [64, 72] which was the most common reason among Iranian families [64].

Religious beliefs

HCPs' ambivalent religious beliefs influenced their views on DNAR [55, 69, 75, 79]. Some viewed death as a predetermined fate [64], inappropriate CPRs as 'Sin' [9, 64] and DNAR not in contradiction with their religious beliefs [9, 34, 57, 63, 64, 71]. However, HCPs who believed in miracles, God-Centredness of life and death, suffering as a means to absolve sins and fear of committing sins were apprehensive of documenting DNAR [9, 36, 37, 55, 59, 64, 69, 72, 79, 80, 83]. Most studies reporting religious beliefs incompatible with DNAR were from countries where majority practiced Islam. The Iranian HCPs had conflicting religious beliefs between the inevitability of death (pro-DNAR views) and belief in miracles (anti-DNAR views) [9, 64]. HCPs from Iran [9] and Pakistan [72] described strong anti-euthanasia views while expressing their views on DNAR, with one explicitly equating DNAR with euthanasia in Pakistan [72]. No difference in attitude was observed between the Shia and Sunni nurses [79]. One study showed religiosity impacting HCPs attitude with orthodox more likely than secular to forego CPR [81].

Table 4 Study-wise contribution to themes and sub-themes [9, 34–37, 50, 53, 55, 57–92]

Colour coding: Quantitative studies, Qualitative studies, Mixed-methods study																			
	Awareness/ Understanding	Perceived Implications	Timing	Benefits/ burdens	Mitigates Suffering	Resources	Individual factors	Family views	Religious Beliefs	Social norms	Organizational challenges	Moral conundrums	Legal status	Emotions	Practice	Informal orders	Threatened autonomy	Hierarchical	Symbolic
Abu-Saad [50]							√												
Adhikari and Rijal [57]			√	√	√		√		√	√		√		√		√			
Agrawal [58]				√			√												
Awny [62]							√												
Azab [63]				√	√	√	√		√			√			√	√			
Chang [37]	√	√	√				√		√			√			√				
Dabar [66]			√			√		√		√	√			√	√		√		
Fallahi [34]			√	√	√		√		√	√		√			√				
Fallahi [70]			√				√	√									√	√	
Fayyazi [71]			√	√	√		√		√			√							
Goel [73]				√			√								√				
Goodarzi [74]	√			√			√								√				√
Hassanin [35]	√						√				√				√	√			
Hemmatpour [75]	√	√		√	√	√	√		√	√	√		√	√	√	√	√	√	
Kassa [77]							√												
Mirhosseini [78]	√						√												
Mogadasian [79]		√		√	√	√	√		√	√	√		√	√			√	√	
Naghshbandi [80]				√	√		√		√	√		√			√				
Ozer [81]							√		√	√									
Phua [82]							√												
Pinto [83]	√				√	√	√		√			√		√					
Pinto [84]	√			√															
Safari Malak-Kolaei [85]							√												
Saifan [55]				√	√	√	√		√	√	√		√	√		√	√	√	
Salahuddin [86]		√																	
Salins [87]			√				√								√				
Shrestha and Shrestha [88]	√	√	√	√		√	√						√			√	√	√	
Syed [89]			√				√	√		√	√			√			√		
Taha [90]		√		√	√	√	√	√			√		√	√	√	√		√	√
Aghabarary [59]									√				√	√					
Aghakhani [60]				√						√		√			√		√		
Assarroudi [61]		√		√	√		√					√	√	√	√	√			√
Bahramnezhad [64]				√	√	√		√	√		√	√	√	√	√	√			√
Borhani [65]											√		√	√		√			
Cheraghi [9]	√			√		√		√	√		√	√	√	√	√		√		√
Dehghan-Nayeri [67]					√	√	√						√	√	√				√
Dehi [68]													√						√
Dodd [69]	√	√	√		√	√	√	√	√	√	√		√	√	√	√	√		√
Gibbs [72]							√	√	√	√	√		√		√	√			
Jafari et al [76]			√											√					
Nankundwa [36]	√								√			√		√		√		√	
Torabi [53]				√							√		√						√
Zafar [91]							√						√						
Zali [92]				√	√									√			√		√

Society and socio-cultural norms

Iranian and Palestinian HCPs considered DNAR as culturally unacceptable [34, 55, 60, 75, 79, 80]. In Gibbs et al., a physician described DNAR as culturally prohibited in Uganda [72]. Geographical variation was evident as contrary to countries like Iran and Palestine with strong sanctity of life beliefs, physicians from Nepal reported DNAR not in conflict with their cultural beliefs [57]. Doctors' role was identified as life-saviours [69] and "*symbol of hope and not death*" [89]. Ozer et al. reported that physicians from Indonesia emphasized less on the quality of life (QoL) compared to physicians from Mexico, while three studies from Sri Lanka [69], Lebanon [66] and Palestine [55] reported that most physicians and nurses considered QoL more important that quantity of life.

Organisational challenges

HCPs reported lack of formal protocols, systems, national guidelines, DNAR policies, standardized forms, and institutional support for DNAR implementation [9, 35, 53, 64, 65, 69, 89, 90]. Physicians cited time constraints as a barrier to DNAR discussions [66, 69, 89]. Pakistani physicians (trainees more than physicians) reported lack of administrative support, trained nurses and hospital policies as barriers [89]. Physicians preferred counselling room for DNAR discussions with lack of designated space being a barrier [89]. Others reported hierarchical [69], stereotyped [9, 64] and private healthcare system [72] in LLMICs as barriers to DNAR implementation. While Egyptian nurses disagreed that hospital policy influenced their decisions [90], Iranian nurses reported being influenced by the hospital [75, 79] and peers [55, 75, 79] for implementing DNAR orders.

Ethical and moral conundrums

HCPs had contrasting moral views on DNAR. Some viewed futile CPR as a violation of autonomy, beneficence and nonmaleficence, harming both body and soul [60, 64]. Non-maleficence was the most important moral principle informing HCPs views [64]. DNAR was considered as ethical and congruent to human dignity and autonomy [9, 34, 57, 63, 71, 83]. Iranian HCPs described inability to implement DNAR as morally challenging [60]. Contrastingly, in few studies, HCPs were unable to ascertain the morality of DNAR [61] and some considered it immoral [36, 80, 83] and inhumane [37].

Legal status

Lack of legal status was the most consistent and important barrier to DNAR implementation [9, 53, 55, 59, 61, 64, 65, 67–69, 72, 75, 79, 90, 91]. In one study, ED physicians reported that DNAR was not legally binding and had limited relevance in Pakistan [91]. HCPs expressed the need for a national DNAR policy, DNAR to be legalized and wished for better understanding of PC, advance directives (AD), patients' rights and legal ramifications of DNAR [55, 64, 65, 69, 72, 75, 79]. Emergency medicine (EM) personnel felt that legalisation and policy would accord them legal protection, reduce their burden, and ensure rational use of resources [67]. Religion impacted Palestinian HCP's attitude towards legalization of DNAR orders, with 65.3% of Muslims but none of the Christians in favour of it [55].

Theme 3: tensions and complexities of contemporary practices

A complex system has internal and external forces that can compete with or complement each other, creating tensions that may either favour or hinder the phenomenon [95]. Emotions evoked during the DNAR process, arbitrary and informal practice, threatened patient autonomy, hierarchical and non-consensual decision-making and symbolic and token CPRs are the forces that are creating tensions and threatening DNAR implementation in contemporary practice.

Emotions evoked

HCPs ubiquitously expressed fear of legal prosecution [9, 55, 59, 61, 64, 65, 68, 75, 76, 79, 89, 90, 93]. Other fears and concerns included fear of God [36], misuse potential for organ harvesting or secondary gains [83, 89], DNAR being incorrectly labelled [57, 69, 89], lack of guidance [57], patients being neglected, abandoned, treated differently, or receiving poor care after DNAR [36, 69, 89], therapeutic nihilism [69], misinterpreted as abandoning patients [69, 89] or neglect due to lack of communication skills [69], loss of public trust in the healthcare system [64], and fear of family reaction [89]. Trainees perceived them more as barriers [57, 89] and found it uncomfortable and difficult to discuss about death and DNAR [55, 75, 79, 89].

For a few, DNAR instilled feelings of despair, discomfort, depression, frustration, powerlessness, confusion, anxiety, anger and guilt [36, 57, 66, 88–90]. Iranian nurses described their DNAR experience as challenging with most citing religious beliefs, fear of legal prosecution, lack of formal DNAR policy and informal DNAR orders as the reasons [75]. HCPs coped with this distress by ensuring that the patients were comfortable, looked presentable, were not left to die alone and doing extra for the families [88, 90]. However, others adopted passive strategies and avoidance behaviours like anticipating improvement in patient's condition, requesting change in assignment, and avoiding families and patients [90]. HCPs expressed the inability to practice DNAR in Iran

as distressing [9, 64]. Performing inappropriate CPRs affected the quality of service delivered and led to staff burnout, depersonalisation, depression, moral distress, and guilt [9, 64].

Arbitrary and variable practice

DNAR practices were often variable with decisions made arbitrarily [9, 61, 69]. While some Iranian HCPs performed CPR routinely for all patients [9, 60, 64, 67], others reported experience in implementing or caring for patients with DNAR [34, 37, 61, 75, 80]. Educational level and DNAR knowledge were favourably associated with the DNAR decision-making [74]. There were within and between-country variations in DNAR practice. While some Indian physicians reported methods for DNAR in place [72], others felt it was not applicable in the Indian context and rarely discussed with patients [73, 87]. Some Egyptian HCPs reported practicing DNAR [35, 63] while others reported lack of written DNAR policy [90]. In Uganda, some agreed while others disagreed about having systems for DNAR [72]. Other studies reported that 20% (Sri Lanka) [37], 42.5%–56.2% (Nepal) [57] and 80% (Lebanon) [66] of HCPs had experience in DNAR decision-making. The practice of discharging terminally ill patients at EOL was common, culturally accepted and perceived as implicit DNAR in Sri Lanka [69].

Informal and verbal orders

Most HCPs believed that DNAR should be written and reviewed daily. They considered oral order illegal, with CPR being compulsory if DNAR was not documented [57, 72, 88] Contrastingly, most Egyptian nurses accepted verbal DNAR and reported poor documentation of reasons underpinning DNAR decisions, decision makers and participants in the medical records [90]. Lack of legal status and fear of legal prosecution refrained most HCPs from documenting DNAR with most orders being ambivalent, verbal or informal like placing a dot or sign on the medical records [36, 61, 64, 65, 69, 72, 74, 75, 90]. Lack of clear and written DNAR orders led to nurses not following them [55, 65] or applying wrong resuscitation measures [36] and reduced the team's motivation to perform CPR leading to ineffective resuscitation attempts [61]. While most HCPs complied with written DNAR orders [57, 63], only 17% applied verbal DNAR orders [63]. Only few reported using written DNAR orders [72].

Threatened patient autonomy

HCPs had mixed views towards involving patients and families. Some HCPs agreed that patients and families were key stakeholders and their preferences should be considered [9, 55, 66, 70, 75, 79, 88]. Physicians believed in shared decision-making and felt that informing patients and families reduces uncertainty, allows them to come to terms with their loved-ones death, gives time to prepare and complete unfinished business [69]. Non-disclosure led to a lack of comprehension of the clinical situation contributing to distress, anxiety and non-compliance with treatments [69]. HCPs felt that communication to establish resuscitation preferences were important for patient autonomy [69].

However, other HCPs perceived themselves to be better placed to make these decisions [55, 66]. They refused to involve patients based on their preconceptions that patients did not want to be informed; informing might upset them; lead to psychological disturbances; worsen their agony, health, mood and immunity; deprive them of their will to live; or default treatments [66, 69]. Patients feared to ask questions from busy doctors who were perceived to have a '*God-like-status*' [66, 69]. HCPs rationalised that patients lack education and are often unaware of their diagnosis, prognosis, reasons for hospitalisation, terminal phase or DNAR documentation [69]. Nurses expressed that physicians act unilaterally and undermine patients' autonomy [60, 75].

Hierarchical and non-consensus decision making

Nurses had ambivalent attitudes towards their involvement in the decision-making process. Nurses shared that physicians tend to undermine their role by not involving them in decision-making, ignoring their views and considering them as mere decision-implementors [36, 75]. Contrastingly, nurses in some studies preferred to abdicate DNAR responsibilities to the physician [55, 70, 75, 79, 88, 90]. Iranian nurses felt it difficult to talk about DNAR [75, 79]. While nurses from Nepal agreed [88], Iranian nurses disagreed that nurses could recommend DNAR order [70]. Nurses described both non-involvement in decision-making as well as caring for patients with DNAR as painful [36]. Some nurses and physicians believed that nurses must implement DNAR orders even if contrary to nurses', patients or families' wishes [70]. Whereas, others opted to report their disagreement to the administration/patients' family or decided not to follow DNAR [75].

Symbolic and tokenism

HCPs reported suboptimal practices of futile CPR being performed only for show and job safety [9, 53]. File forgery, that is CPR being recorded but not being performed [9, 74, 92], fake, symbolic, ineffective and pretended CPRs [67–69, 90, 92], slow code [9, 64], and intentional rib fractures [92] were practiced to avoid legal consequences. HCPs performed tokenistic CPR to comfort and satisfy family preferences [61, 64, 69, 92].

Discussion

DNAR decision-making is complex and is often influenced by HCP's views and beliefs [20, 22, 25, 26]. Consistent with the findings of previous SRs [2, 24, 25], most HCPs in LLMICs viewed DNAR as essential. However, they faced barriers to DNAR implementation at macro-(law, sociocultural norms), meso-(organization) and micro-(HCP- and family views) levels.

HCPs, in this review, had contrasting views concerning religious beliefs, ethical dilemmas, futility of CPR and timing of DNAR consideration. Previous SRs have described similar challenges faced by HCPs [22, 25, 26]. In line with the previous research [22, 25, 26], HCPs in this review were often caught in the ethical dilemma between respecting autonomy and inflicting harm by informing about DNAR. Although many patients wanted to be involved in the decision-making [96] physicians underestimated their wish for involvement [22]. This underestimation of patient's wish for involvement in decision-making were reported even in HICs [22]. However, there is a shift in the developed countries with landmark legal judgements and position statements reinforcing patients' involvement in the decision-making [26, 95–98].

Our review findings showed that HCPs had conflicting views on the futility of CPR at EOL. However, across studies the descriptions of futility were subjective and ambiguous and demonstrated a lack of objective criteria to establish futility. Previous studies had also highlighted the vague and non-specific definitions of medical futility and lack of international consensus [22, 99, 100]. These non-specific descriptions make it difficult for HCPs to apply the concept of futility in the clinical practice [99] and their concern that it might be difficult to defend it in the court of law [101]. This could explain the negative attitude of some HCPs in the review who preferred to perform CPR even when deemed futile. In the absence of an international consensus, a pragmatic approach would be to use validated clinical prediction scores to estimate chances of survival with good neurological outcome which would allow the team (HCPs, patient and family) to make calculated decisions based upon the estimated success rate, other prognostic information, patient's self-perceived QoL and overall goals of care (GOC). A consensus-based approach devoid of euphemisms put into practice by HCPs who are compassionate and trained in communication skills could reduce the conflicts and concerns (incorrectly applied, therapeutic nihilism, loss of public trust, family reaction, lack of justification and misinterpretations as abandoning) identified in the review.

The findings of this review highlight lack of legal status as the most consistent and important barrier to DNAR implementation in LLMIC. Law is a powerful mediator of human behaviour [9] and as for all healthcare decisions, also dictates EOL decisions including DNAR [102]. There are significant national variations with many western countries having specific laws, policies and procedures [103] with consequent change in HCP attitude towards DNAR [104–106]. However, the laws are still at a nascent stage in many Asian countries [107] and as is evident from this SR were almost non-existent in the studied LLMICs. In the absence of legal sanctions, presumption falls in favour of implied CPR [69]. Previous SRs have also iterated lack of standard guidelines, law and fear of legal prosecution as factors influencing HCPs' decision-making [2, 24, 25]. HCPs worldwide have been reported to have poor knowledge of the law governing EOL decision-making [108]; translating into ungrounded fears and inappropriate treatments at EOL [109, 110]. This implies that a change in law in itself might not be sufficient [18, 110]. HCPs need to be educated about the existing laws, their provisions, and their application into practice.

This findings of this review show that HCPs' in LLMIC have conflicting religious beliefs towards DNAR. They were confronted with the religious dilemma between the '*inevitability of death*' and the '*sanctity of life*'. In Iran, strong sanctity and God-centredness of life beliefs made some HCPs to reject DNAR. However, when applied correctly, these religious beliefs prohibits one to end life and does not translate into undue and artificial prolongation of life, which was equally prohibited in Islam [20, 111, 112]. HCP's contradictory religious beliefs in this review accord with those of Saeed et al. who in a survey showed only 29% of Muslim physicians across countries agree on the clarity of Islamic teachings on DNAR [113]. Religious doctrines like Fatwas could help clarify the distinction and have been shown to facilitate formulation and acceptance of DNAR policies in other countries with predominant Islamic faith (in context: Fatwa no. 12086 in Saudi Arabia) [114].

This SR highlights that medical overoptimism was deeply entrenched in the medical and socio-cultural context. Not just in LLMICs, death is often misconstrued as a failure of both the medical profession and the society with both patients and families insisting on aggressive management [22, 109]. Consistent with our findings, other studies also highlighted that HCPs perceived families as a source of conflict [26]. Our findings concerning family as the locus of decision-making and non-disclosure resonate with studies from Asian countries with similar socio-cultural context [23, 24, 115], often ascribed to their collectivist culture [24].

Our review findings suggest that physicians tend to undermine not just patient's autonomy but also nurses

role in the decision-making process. This professional hierarchy not only demeaned nurses' autonomy but also deprived the team of a useful resource, who at least in theory, were most acquainted with patient's wishes [109]. This long-standing power imbalance and dissonance generated due to non-involvement might be responsible for most nurses delegating decision-making responsibility on to the physicians. Not just LLMIC, similar abdication of DNAR decision-making responsibility had been found among the Swedish nurses which could be due to lack of clear DNAR guidelines delineating the role of different HCPs [97]. Nurses considered involvement in the decision-making and clear DNAR orders as necessary for providing good nursing care [116]. However, in resonance with our findings, others have also shown DNAR documentations to be incomplete and variable [22]. Being just implementors of the decision without being conveyed its rationality, indications, and implications precipitated distress while caring for patients with DNAR orders, as expressed by some in this review [22]. de Vries et al. (2018), while viewing resuscitation decisions through the lens of CDT, anticipated that well-documented DNAR orders (including their justifications) would reduce the dissonance discomfort associated with them [48]. Introduction of standardized forms were shown to improve the quality of DNAR documentation [18]. DNAR wristbands reduced the frequency of wrong resuscitation measures being applied, as reported by some nurses in our review [18].

Another power imbalance to emerge from the SR was the hierarchical workplace culture. In sync with our findings, lack of PC and EOLC education and training left junior doctors ill-equipped to manage these discussions, subjecting them to stress and conflicts [17]. Even if trained, their views and opinion went unheard in the hierarchical organizational structure. Education in isolation was of little benefit [22, 97] and needed to be complemented with mentoring and role modelling [117, 118].

Cognitive dissonance theory as the theoretical lens to interpret the review findings

Attitude encompasses cognitive, affective and behavioral domains that is beliefs, emotions and actions towards a person, situation or issue [119, 120]. Dissonance exists when an individuals have contrasting beliefs or actions [45]. Cognitive inconsistency was observed throughout the review findings; rationalising the use of CDT to interpret the findings. The review findings delineate HCPs' inconsistent beliefs concerning DNAR and inconsistency between the perceived utility of DNAR and actual practice underpinned by multiple contextual barriers. These inconsistencies led to dissonance in the form of psychological disturbances, moral distress and guilt among HCPs. Our findings resonate with De Vriesis claims that resuscitation decisions can create dissonance in HCPs due to incongruent beliefs [48].

Dissonance motivates an individual to either change or rationalise one of the inconsistent elements to reduce the dissonance (Fig. 4) [45]. In this review, some strategies adopted by HCPs to mitigate dissonance were changes in attitudes and denial of responsibility. They adopted suboptimal resuscitation practices like hidden DNAR code to avoid inappropriate CPR or used slow code to satisfy legal requirements and family wishes. A few changed their attitude by rejecting the concept of DNAR, while some abdicated decision-making responsibility to others. Similar suboptimal practices like informal DNAR orders were reported from some HICs, which were attributed mainly to the HCP's lack of awareness of the guidelines [109]. Our findings also validate de Vriesis' hypothesis

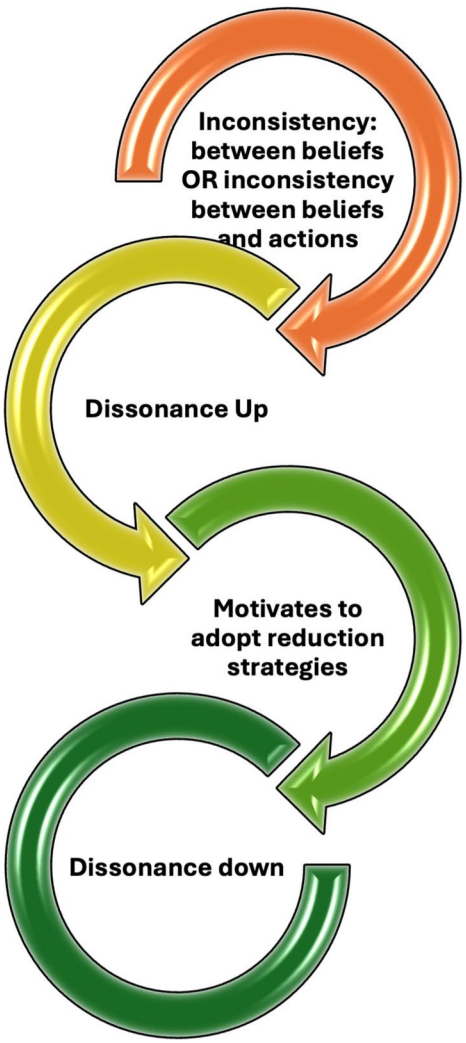

Fig. 4 Visual representation of cognitive dissonance theory

that families perceive DNAR as giving up on their loved one [48]. Consequent dissonance propels them to persuade HCPs to offer unhelpful treatments leading to HCPs to perform CPRs merely to comfort the families. Evidence suggest that HCPs perform futile CPRs to accommodate families' wishes, allowing them to come to terms, avoid confrontation and show that something has been done [25]. Timely discussion of goals of care and EOLC preferences provides families with enough justification in terms of what the patient would have wanted, thereby reducing the dissonance to do something (CPR) in an urgent situation like cardiac arrest [48].

Strengths and limitations

The exclusion of non-English studies and grey literature might have missed some relevant studies. Eight studies with Hawker's score < 20 were excluded [121–128]. All were quantitaive questionnaire-based studies conducted in India ($n=3$) [121–123], Iran ($n=2$) [124, 125], Pakistan ($n=1$) [126], Philippines ($n=1$) [127] and Bangladesh ($n=1$) [128]. None of them reported sample size calculation and except for two studies [122, 123]; none of them reported ethical clearance. A post-hoc analysis revealed that excluded studies contributed to one or more of the 19 generated sub-themes without any loss of depth or richness. The review explored voices of only HCPs. To ensure complete understanding, views of other stakeholders (patients, caregivers, social workers, policy makers) must be systematically reviewed. The findings of this SR should be viewed in the light that majority of the included studies were from countries where most practice Islam as their faith. This impacts the transferability of findings to non-Muslim LLMIC; represents sufficient evidence applicable to HCPs from Iran and other countries sharing similar socio-cultural and religious background.

The strength of this SR lies in its systematic, comprehensive, transparent, robust and explicit methodology and its ability to answer the review question satisfactorily. The heterogeneity of study designs and HCPs provided a rich and in-depth exploration of HCPs' views. This review adds to the richness of the existent literature by bringing forth the socio-cultural, theological, legal and ethical barriers to DNAR implementation in LLMICs. The CDT which provided the psychological framework to link HCP's inconsistent cognitions, dissonance generated thereof and resuscitation-preferences adopted by HCPs in LLMIC also helped to identify policy and practice recommendations to address the issues identified like formulation of standardized and context-specific DNAR guidelines, policies and forms; enactment of clear and unambiguous laws and education and training of HCPs in end-of-life care and communication skills. However, attitudes and behaviours once formed takes time to change with small and consistent steps required to bring a cultural-shift [129].

Conclusion

The review findings suggest that the majority of HCPs in LLMICs viewed DNAR as essential and necessary. They considered DNAR to avoid futile CPRs and unwarranted suffering at EOL and allow fair allocation of resources. However, lack of clarity led to inconsistent religious beliefs, ethical dilemmas and sometimes misinterpretation of DNAR with EOL. The review also highlighted some uniform barriers to DNAR practice in LLMICs like lack of legal status and standardised guidelines, HCPs' role identification as life-sustainer, families with their death-denying and non-disclosure attitude, and cultural interpretation of DNAR as doing nothing and euthanasia. These contradictory beliefs and barriers contributed to HCPs' fears, concerns and distress concerning DNAR. The CDT provided the lens to link HCPs cognitions, affect and behaviour into a chain of events that explained suboptimal resuscitation practices dominated by stereotyped CPRs, informal and verbal DNAR orders, symbolic and pretended CPRs in LLMICs. However, the SR findings need to be interpreted in light of its limited generalizability. About 70% of included studies were from countries where majority follow Islam as the predominant faith with 45% from only Iran. This was also reflected in the uniformity of findings across studies with each theme being contributed by a number of studies. The gaps identified in this review provide impetus for research from unrepresented countries with different socio-cultural and religious contexts.

Supplementary Information

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Supplementary Material 1.

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Authors' contributions

Conceptualization: MG, UJ, SRR, ML, NS; Methodology and Protocol registration: MG, UJ, SRR, ML, NS; Resources: MG, ML; Formulation of search strategy: MG, UJ, SRR, ML, NS; Literature search: MG, UJ; Record screening: MG, UJ, SRR; Data extraction: MG, UJ, SRR; Critical appraisal: MG, UJ, SRR; Data synthesis: MG, UJ, SRR, ML, NS; Validation: MG, SRR, ML, NS; Manuscript writing, original draft: MG; Manuscript reviewing and editing: MG, UJ, SRR, ML, NS; Supervision: NS, ML, SRR.

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Author details
[1]Department of Anaesthesiology, All India Institute of Medical Sciences, Bathinda, Punjab, India. [2]Bangalore Hospice Trust, Bengaluru, Karnataka, India. [3]Cardiff University School of Medicine, Cardiff University, Cardiff, UK. [4]Department of Palliative Medicine and Supportive Care, Kasturba Medical College Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India.

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References

1. Goyal A, Sciammarella JC, Cusick AS, Cusick AS, Patel PH. Cardiopulmonary Resuscitation. [Updated 2023 May 29]. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023. Available at: https://www.ncbi.nlm.nih.gov/books/NBK470402/ [Accessed: 07 Sept 2023].
2. Raoofi N, Raoofi S, Jalali R, Abdi A, Salari N. The worldwide investigating nurses' attitudes towards do-not-resuscitate order: a review. Philos Ethics Humanit Med. 2021;16(1):5. https://doi.org/10.1186/s13010-021-00103-z.
3. Findlay GP. Time to intervene?: a review of patients who underwent cardiopulmonary resuscitation as a result of an in-hospital cardiopulmonary arrest. National Confidential Enquiry into Perioperative Deaths (NCEPOD); 2012. Available at: https://www.ncepod.org.uk/2012report1/downloads/CAP_fullreport.pdf (Accessed: 04 Apr 2023).
4. Burns JP, Truog RD. The DNR order after 40 years. N Engl J Med. 2016;375(6):504–6.
5. Rabkin MT, Gillerman G, Rice NR. Orders not to resuscitate. N Engl J Med. 1976;295(7):364–6. https://doi.org/10.1056/NEJM197608122950705.
6. Fritz Z, Slowther AM, Perkins GD. Resuscitation policy should focus on the patient, not the decision. BMJ. 2017;28(356):j813. https://doi.org/10.1136/bmj.j813.
7. Callus T. 'One day I will find the right words, and they will be simple'-Rethinking DNACPR at a national level. J Public Health (Oxf). 2018;40(2):404–8. https://doi.org/10.1093/pubmed/fdx047.
8. Perkins GD, Griffiths F, Slowther AM, George R, Fritz Z, Satherley P, et al. Do-not-attempt-cardiopulmonary-resuscitation decisions: an evidence synthesis. Southampton (UK): NIHR Journals Library; 2016. (Health Services and Delivery Research, No. 4.11.) Available at: https://www.ncbi.nlm.nih.gov/books/NBK355498/10.3310/hsdr04110 [Accessed: 13 Sept 2023].
9. Cheraghi M, Bahramnezhad F, Mehrdad N. Experiences of Iranian physicians regarding do not resuscitate: a directed-content analysis. J Med Ethics Hist Med. 2016;23(9):9.
10. Goodlin SJ, Zhong Z, Lynn J, Teno JM, Fago JP, Desbiens N, Connors AF Jr, Wenger NS, Phillips RS. Factors associated with use of cardiopulmonary resuscitation in seriously ill hospitalized adults. JAMA. 1999;282(24):2333–9. https://doi.org/10.1001/jama.282.24.2333.
11. Kumar SP, Sisodia V. Reporting of attitudes- a systematic review and quantitative analysis of research publications in palliative care journals. AJMR. 2017;6(4):1 [cited 2023 Nov.3] Available from: https://aijournals.com/index.php/ajmr/article/view/163 [Accessed: 13 Sept 2023].
12. World Bank Country and Lending Groups-World Bank Data Help Desk. Available at:https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups [Accessed 14 Feb 2023].
13. Sleeman KE, de Brito M, Etkind S, Nkhoma K, Guo P, Higginson IJ, Gomes B, Harding R. The escalating global burden of serious health-related suffering: projections to 2060 by world regions, age groups, and health conditions. Lancet Glob Health. 2019;7(7):e883–92. https://doi.org/10.1016/S2214-109X(19)30172-X.
14. Beane A, Ambepitiyawaduge PS, Thilakasiri K, Stephens T, Padeniya A, Athapattu P, Mahipala PG, Sigera PC, Dondorp AM, Haniffa R. Practices and Perspectives in Cardiopulmonary Resuscitation Attempts and the Use of Do Not Attempt Resuscitation Orders: A Cross-sectional Survey in Sri Lanka. Indian J Crit Care Med. 2017;21(12):865–8. https://doi.org/10.4103/ijccm.IJCCM_314_17.
15. Phua J, Joynt GM, Nishimura M, Deng Y, Myatra SN, Chan YH, Binh NG, Tan CC, Faruq MO, Arabi YM, Wahjuprajitno B, Liu SF, Hashemian SM, Kashif W, Staworn D, Palo JE, Koh Y. ACME Study Investigators and the Asian Critical Care Clinical Trials Group. Withholding and withdrawal of life-sustaining treatments in intensive care units in Asia. JAMA Intern Med. 2015;175(3):363–71. https://doi.org/10.1001/jamainternmed.2014.7386. Erratum in: JAMA Intern Med. 2015 Jul;175(7):1248.
16. Ocen D, Kalungi S, Ejoku J, Luggya T, Wabule A, Tumukunde J, Kwizera A. Prevalence, outcomes and factors associated with adult in hospital cardiac arrests in a low-income country tertiary hospital: a prospective observational study. BMC Emerg Med. 2015;16(15):23. https://doi.org/10.1186/s12873-015-0047-0.
17. Trivedi S. Physician perspectives on resuscitation status and DNR order in elderly cancer patients. Rep Pract Oncol Radiother. 2013;18(1):53–6. https://doi.org/10.1016/j.rpor.2012.12.002.
18. Field RA, Fritz Z, Baker A, Grove A, Perkins GD. Systematic review of interventions to improve appropriate use and outcomes associated with do-not-attempt-cardiopulmonary-resuscitation decisions. Resuscitation. 2014;85(11):1418–31. https://doi.org/10.1016/j.resuscitation.2014.08.024.
19. Cook I, Kirkup AL, Langham LJ, Malik MA, Marlow G, Sammy I. End of Life Care and Do Not Resuscitate Orders: How Much Does Age Influence Decision Making? A Systematic Review and Meta-Analysis. Gerontol Geriatr Med. 2017;12(3):2333721417713422. https://doi.org/10.1177/2333721417713422.
20. Cheraghi MA, Bahramnezhad F, Mehrdad N. Review of ordering don't resuscitate in Iranian dying patients. J Relig Health. 2018;57:951–9.
21. Chen LT, Hsiao FH. The effects of the interventions on the DNR designation among cancer patients: A systematic review. Palliat Support Care. 2019;17(1):95–106.
22. Mockford C, Fritz Z, George R, Court R, Grove A, Clarke B, Field R, Perkins GD. Do not attempt cardiopulmonary resuscitation (DNACPR) orders: a systematic review of the barriers and facilitators of decision-making and implementation. Resuscitation. 2015;1(88):99–113.
23. Osinski A, Vreugdenhil G, de Koning J, van der Hoeven JG. Do-not-resuscitate orders in cancer patients: a review of literature. Support Care Cancer. 2017;25:677–85. https://doi.org/10.1007/s00520-016-3459-9.
24. Martina D, Lin CP, Kristanti MS, Bramer WM, Mori M, Korfage IJ, van der Heide A, van der Rijt CC, Rietjens JA. Advance care planning in Asia: a systematic narrative review of healthcare professionals' knowledge, attitude, and experience. J Am Med Dir Assoc. 2021;22(2):349-e1.
25. Milling L, Kjær J, Binderup LG, de Muckadell CS, Havshøj U, Christensen HC, Christensen EF, Lassen AT, Mikkelsen S, Nielsen D. Non-medical factors in prehospital resuscitation decision-making: a mixed-methods systematic review. Scand J Trauma Resusc Emerg Med. 2022;30(1):24.
26. Hartanto M, Moore G, Robbins T, Suthantirakumar R, Slowther AM. The experiences of adult patients, families, and healthcare professionals of CPR decision-making conversations in the United Kingdom: A qualitative systematic review. Resuscitation Plus. 2023;1(13):100351. https://doi.org/10.1016/j.resplu.2022.100351.
27. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA, editors. Cochrane Handbook for Systematic Reviews of Interventions. 2nd ed. Chichester (UK): John Wiley & Sons; 2019.
28. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, McGuinness LA, Stewart LA, Thomas J, Tricco AC, Welch VA, Whiting P, Moher D. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;29(372):n71. https://doi.org/10.1136/bmj.n71.

29. Transforming and Scaling Up Health Professionals' Education and Training: World Health Organization Guidelines 2013. Geneva: World Health Organization; 2013. Available at: https://www.ncbi.nlm.nih.gov/books/NBK298950/ [Accessed: 10 Sept 2023].
30. Cleary J, Ddungu H, Distelhorst SR, Ripamonti C, Rodin GM, Bushnaq MA, Clegg-Lamptey JN, Connor SR, Diwani MB, Eniu A, Harford JB, Kumar S, Rajagopal MR, Thompson B, Gralow JR, Anderson BO. Supportive and palliative care for metastatic breast cancer: resource allocations in low- and middle-income countries. A Breast Health Global Initiative 2013 consensus statement. Breast. 2013;22(5):616–27. https://doi.org/10.1016/j.breast.2013.07.052.
31. Bern-Klug M. Considering the CPR Decision Through the Lens of Prospect Theory in the Context of Advanced Chronic Illness. Gerontologist. 2017;57(1):61–7. https://doi.org/10.1093/geront/gnw141.
32. Petticrew M, Roberts H. Systematic reviews in the social sciences: A practical guide. John Wiley & Sons; 2008. Available at: https://fcsalud.ua.es/en/portal-de-investigacion/documentos/tools-for-the-bibliographic-research/guide-of-systematic-reviews-in-social-sciences.pdf [Accessed: 10 Sept 2023].
33. Lockwood C, Porritt K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H, Carrier J, Stannard D. Chapter 2: Systematic reviews of qualitative evidence. In: Aromataris E, Munn Z (Editors). JBI Manual for Evidence Synthesis. JBI, 2020. Available at: https://synthesismanual.jbi.global. https://doi.org/10.46658/JBIMES-20-03 [Accessed: 10 Sept 2020].
34. Fallahi M, Banaderakhshan H, Abdi A, Borhani F, Kaviannezhad R, Karimpour HA. The Iranian physicians attitude toward the do not resuscitate order. J Multidiscip Healthc. 2016;29:279–84. https://doi.org/10.2147/JMDH.S105002.
35. Hassanin FS, Schaalan MF, Kamal KM, Miller FD. An initial investigation of do not resuscitate acceptance in Egypt. Am J Hosp Palliat Care®. 2016;33(9):823–8. https://doi.org/10.1177/1049909115594613.
36. Brysiewicz P, Nankundwa E. Lived experiences of Rwandan ICU nurses caring for patients with a do-not-resuscitate order. Southern Afr J Critical Care. 2017;33(1):19–22. https://doi.org/10.7196/SAJCC.2017.v33i1.281. [Accessed: 10 Sept 2023].
37. Chang T, Darshani S, Manikavasagam P, Arambepola C. Knowledge and attitudes about end-of-life decisions, good death and principles of medical ethics among doctors in tertiary care hospitals in Sri Lanka: a cross-sectional study. BMC Med Ethics. 2021;22(1):66. https://doi.org/10.1186/s12910-021-00631-5.
38. Hawker S, Payne S, Kerr C, Hardey M, Powell J. Appraising the evidence: reviewing disparate data systematically. Qual Health Res. 2002;12(9):1284–99. https://doi.org/10.1177/1049732302238251.
39. Firn J, Preston N, Walshe C. What are the views of hospital-based generalist palliative care professionals on what facilitates or hinders collaboration with in-patient specialist palliative care teams? A systematically constructed narrative synthesis. Palliat Med. 2016;30(3):240–56. https://doi.org/10.1177/0269216315615483.
40. Salins N, Ghoshal A, Hughes S, Preston N. How views of oncologists and haematologists impacts palliative care referral: a systematic review. BMC Palliat Care. 2020;19:1–19. https://doi.org/10.1186/s12904-020-00671-5.
41. Patra L, Ghoshal A, Damani A, Salins N. Cancer palliative care referral: patients' and family caregivers' perspectives–a systematic review. BMJ Support Palliat Care. 2022. https://doi.org/10.1136/spcare-2022-003990.
42. Lorenc T, Petticrew M, Whitehead M, Neary D, Clayton S, Wright K, Thomson H, Cummins S, Sowden A, Renton A. Crime, fear of crime and mental health: synthesis of theory and systematic reviews of interventions and qualitative evidence. Southampton (UK): NIHR Journals Library; 2014. (Public Health Research, No. 2.2.) Available at: https://www.ncbi.nlm.nih.gov/books/NBK262845/doi:10.3310/phr02020 [Accessed: 14 Sept 2023].
43. Büchter RB, Weise A, Pieper D. Development, testing and use of data extraction forms in systematic reviews: a review of methodological guidance. BMC Med Res Methodol. 2020;20:259. https://doi.org/10.1186/s12874-020-01143-3.
44. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, Britten N, Roen K, Duffy S. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme Version. 2006;1(1):b92. Available at: https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/fhm/dhr/chir/NSsynthesisguidanceVersion1-April2006.pdf [Accessed: 10 Sept 2023].
45. Festinger L. A theory of cognitive dissonance. Stanford: Stanford University Press; 1957.
46. Harmon-Jones E, Mills J. An Introduction to Cognitive Dissonance Theory and an Overview of Current Perspectives on the Theory. In: Harmon-Jones E, editor. Cognitive Dissonance: Reexamining a Pivotal Theory in Psychology. 2nd ed. Washington DC: American Psychological Association; 2019. p. 3–24. https://doi.org/10.1037/0000135-001.
47. Vaidis DC, Bran A. Respectable challenges to respectable theory: Cognitive dissonance theory requires conceptualization clarification and operational tools. Front Psychol. 2019;29(10):1189. https://doi.org/10.3389/fpsyg.2019.01189.
48. de Vriesis JM. Cognitive dissonance theory applied to CPR, DNAR, and the practice of slow codes. British Journal of Cardiac Nursing. 2008;3(12):565–70.
49. Haddaway NR, Page MJ, Pritchard CC, McGuinness LA. *PRISMA2020*: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. Campbell Syst Rev. 2022;18(2):e1230. https://doi.org/10.1002/cl2.1230.
50. Huijer HA, Dimassi H. Palliative care in Lebanon: knowledge, attitudes and practices of physicians and nurses. Le Journal medical libanais. Leban Med J. 2007;55(3):121–8.
51. Abu-Saad Huijer H, Abboud S, Dimassi H. Palliative care in Lebanon: Knowledge, attitudes and practices of nurses. Int J Palliat Nurs. 2009;15(7):346–53. https://doi.org/10.12968/ijpn.2009.15.7.43425.
52. Huijer HA, Dimassi H, Abboud S. Perspectives on palliative care in Lebanon: Knowledge, attitudes, and practices of medical and nursing specialties. Palliat Support Care. 2009;7(3):339–47. https://doi.org/10.1017/S1478951509990277.
53. Torabi M, Borhani F, Abbaszadeh A, Atashzadeh-Shoorideh F. Ethical decision-making based on field assessment: The experiences of pre-hospital personnel. Nurs Ethics. 2019;26(4):1075–86. https://doi.org/10.1177/0969733017736925.
54. Torabi M, Borhani F, Abbaszadeh A, Atashzadeh-Shoorideh F. Barriers to ethical decision-making for pre-hospital care professionals. Nurs Ethics. 2020;27(2):407–18. https://doi.org/10.1177/0969733019848044.
55. Saifan AR, Alrimawi I, AbuAlruz ME, Abdelkader R. The perspective of Palestinian physicians and nurses about the do-not-resuscitate order for terminally ill patients. Health Sci J. 2016;10(3):1.
56. Abdallah FS, Radaeda MS, Gaghama MK, Salameh B. Intensive Care Unit physician's attitudes on do not resuscitate order in palestine. Indian J Palliat Care. 2016;22(1):38. https://doi.org/10.4103/0973-1075.173947.
57. Adhikari S, Rijal S. Attitude of doctors working in a tertiary hospital towards Do-not-resuscitate decisions. J Gen Pract Emerg Med Nepal. 2019;6(8):13–6.
58. Agrawal K, Garg R, Bhatnagar S. Knowledge and awareness of end-of-life care among doctors working in intensive care units at a tertiary care center: a questionnaire-based study. Indian J Crit Care Med. 2019;23(12):568–73. https://doi.org/10.5005/jp-journals-10071-23293.
59. Aghabarary M, Nayeri ND. Reasons behind providing futile medical treatments in Iran: A qualitative study. Nurs Ethics. 2017;24(1):33–45. https://doi.org/10.1177/0969733016638142.
60. Aghakhani N, Habibzadeh H, Mohammadi F. Critical care nurses' moral sensitivity during cardiopulmonary resuscitation: Qualitative perspectives. Nurs Ethics. 2022;29(4):938–51. https://doi.org/10.1177/09697330221073998.
61. Assarroudi A, Nabavi FH, Ebadi A, Esmaily H. Do-not-resuscitate order: The experiences of Iranian cardiopulmonary resuscitation team members. Indian J Palliat Care. 2017;23(1):88–92. https://doi.org/10.4103/0973-1075.197946.
62. Awny MM, Al-Touny SA, Gaafar SE. Physicians' Knowledge, Attitude and Practice toward Ethical and Medical Issues of Palliative Care in Suez Canal University Hospital. Indian J Palliat Care. 2022;28(4):391–7. https://doi.org/10.25259/IJPC_65_2021.
63. Azab SMS, Abdul-Rahman SA, Esmat IM. Survey of End-of-Life Care in Intensive Care Units in Ain Shams University Hospitals, Cairo. Egypt HEC Forum. 2022;34(1):25–39. https://doi.org/10.1007/s10730-020-09423-7.
64. Bahramnezhad F, Cheraghi MA, Mehrdad N. Iranian nurses' perspective on non-resuscitation: Content analysis. Int J Med Res Health Sci.

2016;5(6):136–45 Available at: https://www.ijmrhs.com/medical-research/iranian-nurses-perspective-on-nonresuscitation-content-analysis.pdf [Accessed: 11 Sept 2023].
65. Borhani F, Hosseini SH, Abbaszadeh A. Commitment to care: a qualitative study of intensive care nurses' perspectives of end-of-life care in an Islamic context. Int Nurs Rev. 2014;61(1):140–7. https://doi.org/10.1111/inr.12079.
66. Dabar G, Akl IB, Sader M. Physicians' approach to end of life care: comparison of two tertiary care university hospitals in Lebanon. BMC Med Educ. 2021;21(1):592. https://doi.org/10.1186/s12909-021-03022-x.
67. Dehghan-Nayeri N, Nouri-Sari H, Bahramnezhad F, Hajibabaee F, Senmar M. Barriers and facilitators to cardiopulmonary resuscitation within prehospital emergency medical services: a qualitative study. BMC Emerg Med. 2021;21(1):120. https://doi.org/10.1186/s12873-021-00514-3.
68. Dehi M, Norouzi K, Mohammadi F, Negarandeh R. Barriers to end-of-life care delivery to home-dwelling terminally-ill older patients: A qualitative content analysis. Nurs Midwifery Stud. 2021;10(2):121–9. https://doi.org/10.4103/nms.nms_108_19.
69. Dodd A, De Silva V, Fritz Z. A qualitative study of practice, culture and education of doctors in Sri Lanka regarding 'do not attempt cardiopulmonary resuscitation' decisions and disclosure. Clinical Ethics. 2018;13(1):17–25. https://doi.org/10.1177/1477750917738106.
70. Fallahi M, Mahdavikian S, Abdi A, Borhani F, Taghizadeh P, Hematpoor B. Nurses and physicians' viewpoints about decision making of do not attempt resuscitation (DNAR). Multidiscip Respir Med. 2018;13(1):1–7. https://doi.org/10.1186/s40248-018-0133-8.
71. Fayyazi Bordbar MR, Tavakkoli K, Nahidi M, Fayyazi Bordbar A. Investigating the Attitude of Healthcare Providers, Patients, and Their Families toward "Do Not Resuscitate" Orders in an Iranian Oncology Hospital. Indian J Palliat Care. 2019;25(3):440–4. https://doi.org/10.4103/IJPC.IJPC_29_19.
72. Gibbs AJ, Malyon AC, Fritz ZB. Themes and variations: an exploratory international investigation into resuscitation decision-making. Resuscitation. 2016;1(103):75–81. https://doi.org/10.1016/j.resuscitation.2016.01.020.
73. Goel A, Chhabra G, Weijma R, Solari M, Thornton S, Achondo B, Pruthi S, Gupta V, Kalantri SP, Ramavat AS, Kalra OP. End-of-life care attitudes, values, and practices among health care workers. Am J Hospice Palliat Med®. 2014;31(2):139–47. https://doi.org/10.1177/1049909113479440.
74. Goodarzi A, Sadeghian E, Babaei K, Khodaveisi M. Knowledge, Attitude and Decision-making of Nurses in the Resuscitation Team towards Terminating Resuscitation and Do-not-Resuscitate Order. Ethiop J Health Sci. 2022;32(2):413–22. https://doi.org/10.4314/ejhs.v32i2.22.
75. Hemmatpour B, Saedpanah N, Fallahi M, Mahdavikian S. The attitude and experience of Iranian nurses about do not resuscitate order. J Cardiovasc Dis Res. 2021;12(3):961–9 Available at: https://www.kums.ac.ir/kums_content/media/image/2022/04/172254_orig.pdf [Accessed:11 Sept 2023].
76. Jafari M, Hosseini M, Maddah SS, Khankeh H, Ebadi A. Factors behind moral distress among Iranian emergency medical services staff: A qualitative study into their experiences. Nurs Midwifery Stud. 2019;8(4):195–202. https://doi.org/10.4103/nms.nms_69_18.
77. Kassa H, Murugan R, Zewdu F, Hailu M, Woldeyohannes D. Assessment of knowledge, attitude and practice and associated factors towards palliative care among nurses working in selected hospitals, Addis Ababa, Ethiopia. BMC Palliat Care. 2014;13(1):6. https://doi.org/10.1186/1472-684X-13-6.
78. Mirhosseini S, Aghayan SS, Basirinezhad MH, Ebrahimi H. Health Care Providers' Attitudes Toward Do-Not-Resuscitate Order in COVID-19 Patients: An Ethical Dilemma in Iran. Omega (Westport). 2022;18:302228211057992. https://doi.org/10.1177/00302228211057992.
79. Mogadasian S, Abdollahzadeh F, Rahmani A, Ferguson C, Pakanzad F, Pakpour V, Heidarzadeh H. The attitude of Iranian nurses about do not resuscitate orders. Indian J Palliat Care. 2014;20(1):21–5. https://doi.org/10.4103/0973-1075.125550.
80. Naghshbandi S, Salmasi S, Parsian Z, Rahmani F. Attitude of nurses in intensive care units towards Do Not Resuscitate order. J Res Clin Med. 2019;7(4):122–8. https://doi.org/10.15171/jarcm.2019.023 Available at:https://jrcm.tbzmed.ac.ir/Article/jarcm-31723 [Accessed: 11 Sept 2023].
81. Ozer J, Alon G, Leykin D, Varon J, Aharonson-Daniel L, Einav S. Culture and personal influences on cardiopulmonary resuscitation-results of international survey. BMC Med Ethics. 2019;20:1–8. https://doi.org/10.1186/s12910-019-0439-x.
82. Phua J, Joynt GM, Nishimura M, Deng Y, Myatra SN, Chan YH, Binh NG, Tan CC, Faruq MO, Arabi YM, Wahjuprajitno B. Withholding and withdrawal of life-sustaining treatments in intensive care units in Asia. JAMA Intern Med. 2015;175(3):363–71. https://doi.org/10.1001/jamainternmed.2014.7386.
83. Pinto MV, Varun R, Wanasinghe WM, Jayasinghearachchi TM, Herath HA, Kumarasiri PV. A cross-sectional study of knowledge and attitudes of medical professionals towards end-of-life decisions in teaching hospitals of Kandy District (Sri Lanka). Anaesth Pain Intensive Care. 2013:40–4. Available at: https://www.apicareonline.com/index.php/APIC/article/view/478/465 [Accessed: 11 Sept 2023].
84. Pinto E, Marcos G, Walters C, Goncalves F, Sacarlal J, Castro L, Rego G. Palliative care in Mozambique: Physicians' knowledge, attitudes and practices. PLoS One. 2020;15(8):e0238023. https://doi.org/10.1371/journal.pone.0238023.
85. Safari Malak-Kolaei F, Sanagoo A, Pahlavanzadeh B, Akrami F, Jouybari L, Jahanshahi R. The relationship between death and do not resuscitation attitudes among intensive care nurses. OMEGA J Death Dying. 2022;85(4):904–14.
86. Salahuddin N, Shafqat S, Mapara S, Khan S, Siddiqui S, Manasia R, Ahmad A. End of life in the intensive care unit: knowledge and practice of clinicians from Karachi. Pakistan Int Med J. 2008;38(5):307–13. https://doi.org/10.1111/j.1445-5994.2007.01595.x.
87. Salins N, Johnson J, Macaden S. Feasibility and acceptability of implementing the integrated care plan for the dying in the Indian setting: survey of perspectives of Indian palliative care providers. Indian J Palliat Care. 2017;23(1):3. https://doi.org/10.4103/0973-1075.197952.
88. Shrestha A, Shrestha S. Knowledge and Attitude towards Do-Not-Resuscitate Order among Nurses of a Tertiary Level Hospital. Med J Shree Birendra Hospital. 2021;20(2):148–55.
89. Syed AA, Almas A, Naeem Q, Malik UF, Muhammad T. Barriers and perceptions regarding code status discussion with families of critically ill patients in a tertiary care hospital of a developing country: A cross-sectional study. Palliat Med. 2017;31(2):147–57. https://doi.org/10.1177/0269216316650789.
90. Taha S, Asfour H, Attia A. Critical Care Nurses' Knowledge and Attitudes Regarding the. J High Inst Public Health. 2010;40(3):528–62. Available at: https://jhiphalexu.journals.ekb.eg/article_20619_adbaae00086ff947c76ea3d4b2c52779.pdf [Accessed: 11 Sept 2023].
91. Zafar W. Moral experience and ethical challenges in an emergency department in Pakistan: emergency physicians' perspectives. Emerg Med J. 2015;32(4):263–8.
92. Zali M, Rahmani A, Powers K, Hassankhani H, Namdar-Areshtanab H, Gilani N. Nurses' experiences of ethical and legal issues in post-resuscitation care: A qualitative content analysis. Nurs Ethics. 2023;30(2):245–57. https://doi.org/10.1177/09697330221133521.
93. Grossman, M. Fostering Meaning Making. In: Promoting Healing and Resilience in People with Cancer: A Nursing Perspective. Cham: Springer; 2022. https://doi.org/10.1007/978-3-031-06101-1_10.
94. Bach-Mortensen AM, Verboom B. Barriers and facilitators systematic reviews in health: A methodological review and recommendations for reviewers. Res Synth Methods. 2020;11(6):743–59. https://doi.org/10.1002/jrsm.1447.
95. Chan C. Tensions and complexities in school-university collaboration. Asia Pacific J Educ. 2015;35(1):111–24.
96. Olver I, Eliott JA. The perceptions of do-not-resuscitate policies of dying patients with cancer. Psychooncology. 2008;17(4):347–53. https://doi.org/10.1002/pon.1246.
97. Pettersson M, Hedström M, Höglund AT. Ethical competence in DNR decisions–a qualitative study of Swedish physicians and nurses working in hematology and oncology care. BMC Med Ethics. 2018;2018(19):1–12. https://doi.org/10.1186/s12910-018-0300-7.
98. Macfarlane M, Shayler S, Nelms L, Willis D. Tracey judgement and hospice DNACPR orders: steady as she goes or seismic change? BMJ Support Palliat Care. 2019;9(4):e34–e34. https://doi.org/10.1136/bmjspcare-2018-001518.

99. Beck K. Medical futility regarding cardiopulmonary resuscitation in in-hospital cardiac arrests of adult patients: A systematic review and Meta-analysis. Resuscitation. 2022;172:181–93. https://doi.org/10.1016/j.resuscitation.2021.11.041.
100. Michalowski S, Martin W. DNACPR decisions: Aligning law, guidance, and practice. Med Law Rev. 2022;30(3):434–56. https://doi.org/10.1093/medlaw/fwac007.
101. Pope TM. Medical futility statutes: no safe harbor to unilaterally refuse life-sustaining treatment. Tenn L Rev. 2007;75:1–81 Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=989662 [Accessed: 14 Sept 2023].
102. Willmott L, White B, Parker M, Cartwright C, Williams G. Is There a Role for Law in Medical Practice When Withholding and Withdrawing Life-Sustaining Medical Treatment? Empirical Findings on Attitudes of Doctors. J Law Med. 2016;24(2):342–55.
103. Mentzelopoulos SD, Bossaert L, Raffay V, Askitopoulou H, Perkins GD, Greif R, Haywood K, Van de Voorde P, Xanthos T. A survey of key opinion leaders on ethical resuscitation practices in 31 European Countries. Resuscitation. 2016;100:11–7. https://doi.org/10.1016/j.resuscitation.2015.12.010.
104. Miller DL, Gorbien MJ, Simbartl LA, Jahnigen DW. Factors influencing physicians in recommending in-hospital cardiopulmonary resuscitation. Arch Intern Med. 1993;153(17):1999–2003.
105. Yaguchi A, Truog RD, Curtis JR, Luce JM, Levy MM, Mélot C, Vincent JL. International differences in end-of-life attitudes in the intensive care unit: results of a survey. Arch Intern Med. 2005;165(17):1970–5. https://doi.org/10.1001/archinte.165.17.1970.
106. Peimani M, Zahedi F, Larijani B. Do-not-resuscitate order across societies and the necessity of a national ethical guideline. Iranian J Med Ethics Hist Med. 2012;5(5):19–35.
107. Tanaka M, Kodama S, Lee I, Huxtable R, Chung Y. Forgoing life-sustaining treatment–a comparative analysis of regulations in Japan, Korea, Taiwan, and England. BMC Med Ethics. 2020;21(1):1–15. https://doi.org/10.1186/s12910-020-00535-w.
108. Hewitt J, Alsaba N, May K, Noon HS, Rennie C, Marshall AP. Emergency department and intensive care unit health professionals' knowledge and application of the law that applies to end-of-life decision-making for adults: A scoping review of the literature. Aust Crit Care. 2023;36(4):628–39. https://doi.org/10.1016/j.aucc.2022.08.002.
109. Tíscar-González V, Gea-Sánchez M, Blanco-Blanco J, Moreno-Casbas MT, Peter E. The advocacy role of nurses in cardiopulmonary resuscitation. Nurs Ethics. 2020;27(2):333–47. https://doi.org/10.1177/0969733019843634.
110. Baker DW, Einstadter D, Husak S, Cebul RD. Changes in the use of do-not-resuscitate orders after implementation of the Patient Self-Determination Act. J Gen Intern Med. 2003;18(5):343–9. https://doi.org/10.1046/j.1525-1497.2003.20522.x.
111. Oliver DP, Porock D, Zweig S. End-of-life care in U.S. nursing homes: a review of the evidence. J Am Med Dir Assoc. 2005;6(3 Suppl):S21-30. https://doi.org/10.1016/j.jamda.2005.03.017.
112. Sarhill N, LeGrand S, Islambouli R, Davis MP, Walsh D. The terminally ill Muslim: death and dying from the Muslim perspective. Am J Hosp Palliat Care. 2001;18(4):251–5. https://doi.org/10.1177/104990910101800409.
113. Saeed F, Kousar N, Aleem S, Khawaja O, Javaid A, Siddiqui MF, Holley JL. End-of-life care beliefs among Muslim physicians. Am J Hosp Palliat Care. 2015;32(4):388–92. https://doi.org/10.1177/1049909114522687.
114. Gouda A, Al-Jabbary A, Fong L. Compliance with DNR policy in a tertiary care center in Saudi Arabia. Intensive Care Med. 2010;36(12):2149–53. https://doi.org/10.1007/s00134-010-1985-3.
115. Tang ST, Liu TW, Lai MS, Liu LN, Chen CH. Concordance of preferences for end-of-life care between terminally ill cancer patients and their family caregivers in Taiwan. J Pain Symptom Manage. 2005;30(6):510–8. https://doi.org/10.1016/j.jpainsymman.2005.05.019.
116. Pettersson M, Hedström M, Höglund AT. Striving for good nursing care: nurses' experiences of do not resuscitate orders within oncology and hematology care. Nurs Ethics. 2014;21(8):902–15. https://doi.org/10.1177/0969733014533238.
117. Gorman TE, Ahern SP, Wiseman J, Skrobik Y. Residents' end-of-life decision making with adult hospitalized patients: a review of the literature. Acad Med. 2005;80(7):622–33. https://doi.org/10.1097/00001888-200507000-00004.
118. Billings ME, Curtis JR, Engelberg RA. Medicine residents' self-perceived competence in end-of-life care. Acad Med. 2009;84(11):1533–9. https://doi.org/10.1097/ACM.0b013e3181bbb490.
119. Wood ERG, Wood SE. The world of psychology. Allyn & Bacon; 1993.
120. Olufemi TD. Theories of attitudes. In: Logan CD, Hodges MI, eds. Psychology of attitudes. Nova Science Publishers; 2012. pp.61–78.
121. Kumar S, Chaudhary S. " Do not resuscitate" orders in Delhi. Natl Med J India. 1991;4(3):125–6.
122. Khandekar A, Acharya S, Shukla S, Acharya N. Knowledge and awareness regarding giving do-not-resuscitate orders among resident doctors in various intensive care units of a rural tertiary care center. J Datta Meghe Inst Med Sci Univ. 2020;15(3):364–7 Available from: http://www.journaldmims.com/article.asp?issn=0974-3901;year=2020;volume=15;issue=3;spage=364;epage=367;aulast=Khandekar [Accessed: 11 Sept 2023].
123. Barnett VT, Aurora VK. Physician beliefs and practice regarding end-of-life care in India. Indian J Crit Care Med. 2008;12(3):109–15. https://doi.org/10.4103/0972-5229.43679.
124. Ghajarzadeh M, Habibi R, Amini N, Norouzi-Javidan A, Emami-Razavi SH. Perspectives of Iranian medical students about do-not-resuscitate orders. Maedica (Bucur). 2013;8(3):261–4.
125. Emami-Razavi SH, Ghajarzadeh M, Oryani S, Askari F, Jalilian R, Azizi S. Perspectives of Iranian medical nurses about do-not-resuscitate (DNR) orders. Acad J Surg. 2014;1(3–4):49–51 Available from: https://ajs.tums.ac.ir/index.php/ajs/article/view/12 [Accessed: 11 Sept 2023].
126. Khan MA, Javaid A, Sajjad H, Ahmad F, Khattak A, Khan N, Adnan MAR. Clinicians approach to euthanasia in the province of Khyber Pakhtunkhwa. J Postgrad Med Inst. 2015;29(3):184–8.
127. Custodio JP. Views of ICU nurses on bioethical issues and nursing care requirements related to DNR order. Philipp J Nurs. 1998;69(1–2):30–5.
128. Faruq MO, Nooruzzaman AR, Tamanna RJ, Sultana A, Mallick UK, Asaduzzaman M, Islam MM, Islam MS, Khanam RA, Habib SH, Choudhury AH. Withholding and withdrawal of life-sustaining treatments in critically ill ICU patients: a study on attitude of physicians of Bangladesh. Bangladesh Crit Care J. 2019;7(2):66–72 Available from: https://bsccmjournal.org/wp-content/uploads/2019/10/Withholding-and-Withdrawal.pdf [Accessed: 11 Sept 2023].
129. Bishop JP, Brothers KB, Perry JE, Ahmad A. Reviving the conversation around CPR/DNR. Am J Bioeth. 2010;10(1):61–7. https://doi.org/10.1080/15265160903469328.

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