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Exploring Challenges and Gaps of Internal Medicine Residents' Perception, Attitude, and Practice towards Do-Not-Resuscitate

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Abstract: **Objectives:** Given the frequent encounter of palliative care and DNR patients, the study aims to assess internal medicine residents' attitudes and practices concerning the care of DNR patients, and to understand the knowledge and practice gap in between juniors to seniors' residents. **Methods:** A cross-sectional study conducted among internal medicine residents in 4 training centers at Riyadh, Saudi Arabia. Electronic survey distributed among internal medicine residents that contains demographic data and items addressing three domains: Factors that determine the decision of DNR, frequency of encountering and applying interventions for DNR patients, and confidence in interventions and treating DNR patients. **Results:** More than half of the residents didn't have formal teaching on dealing with DNR (56.6%). Out of the factors determining DNR decision, disease prognosis was deemed the most important factor in the decision making by the participants (95.4%, n = 187). On the other hand, patient culture and background ranked the lowest (11.4%, n = 23). Over half of the participants have rarely or never applied advance directives or used assessment tools to evaluate prognosis, quality of life, and symptom severity (73.5% n = 144, 61.7% n = 121). On level-based analysis, 73.3% of seniors confirmed a high confidence level in leading family meetings compared to 20% of juniors (p-value = 0.001). Assessing and managing fear of death was reported to be highly confidence among 20% of the participants. Similarly, only 14% of the participants reported highly confidence in discussing organ transplant. **Conclusion:** The study demonstrates educational and clinical gaps in dealing with DNR patients among medical residents. With the increase in demand, continuous and formal teaching is needed to sharpen the residents' skills.

Key Words: DNR, Medical Residency, Palliative Care, Medical Education

INTRODUCTION

Cardiopulmonary resuscitation (CPR) is a medical practice that seeks restoration of cardiac and/or pulmonary function among patients who suffer from cardiac or pulmonary arrest. Do-not-resuscitate (DNR) is a code-status referring to patients not fit for CPR [1]. The Do Not Resuscitate (DNR) order has evolved for use in terminally ill patients. Based on the judgment of the most responsible physician (MRP), resuscitation efforts would be ineffective in saving the patient's life. This determination is made when the prognosis is poor or further treatment is futile [1-3]. In certain situations, a DNR decision is made by the patient or through advance directives, which are documents that communicate patients' preferences if they cannot express them. [4] From an Islamic point of view, DNR is acceptable if it's agreed by medical expertise for the patient's best interest, as was stated in Fatwa number 37020019 on 14/11/1437H [2].

Life expectancy worldwide has increased with the improvement in health care. In Saudi Arabia, the reported life expectancy has increased by 5.9 years from 2000 to 2021 to around 76.4 years [5], and the target life expectancy based on Saudi Vision 2030 is to reach 80 years. Additionally, the population increased from 23 million to 32 million between 2012 and 2022, projected to be 40 million by 2030 [5,6]. As the population grows, the demand for health care services, including palliative and hospice care, is expected to increase.

There are two primary perspectives: disease-centered, focusing on a phase of irreversible decline that leads to death. The other is time-based, typically defining this phase as occurring when a person has a life expectancy of six months or less [4,7,8]. The decision regarding DNR often presents a dilemma for physicians, as it is determined based on case-to-case variability. Extensive discussions frequently occur before reaching a DNR decision. Once the decision is made, the guidelines and policies ensure that DNR patients continue to receive a high level of care consistent with ethically appropriate practices [2,3,9]. In DNR patients, hospice and palliative care centers are provided to ensure the adequate relief of physical symptoms, psychological illness, and social needs, aiming to enhance quality of life.

According to the World Health Organization (WHO), In the light of current practice, the global need for palliative care is increasing, and adequate national policies, programs, and training are needed [10]. Many studies aimed to estimate students and interns practice towards palliative patients. However, no studies found in assessing internal medicine residents in such matter. Given the frequent encounters with palliative care and DNR patients, this study aims to assess internal medicine residents' attitudes and practices concerning the care of DNR patients.

MATERIALS AND METHODS

This multicentered, cross-sectional study was conducted among internal medicine residents in four training centers in Riyadh, Saudi Arabia. The included training centers are King Abdulaziz Medical City – Ministry of National Guard Health Affairs (MNGHA), King Fahad Medical City, King Faisal Specialized Hospital and Research Center, and King Khalid University Hospital. The four centers are tertiary hospitals that have several specialties with bed capacity above 1200 beds. The internal medicine program in Saudi Arabia is 4 years curriculum, with the first 2 years as a junior and the last 2 years as a senior. The study included all internal medicine residents in the previously mentioned centers. The study was approved by the Institutional Review Board (IRB) of King Abdullah International Medical Research center (KAMRC) with study number (NRC23R/669/09).

The study was conducted through an electronic questionnaire. The survey was adopted from a reliable instrument and modified to target the resident level based on the Saudi Commission for Health Sciences curriculum [11] objectives for the internal medicine program. Experts in internal medicine and hospice care validated the content. Then, the questionnaire underwent a piloting study with over 16 participants, and reliability testing with Cronbach Alpha was 0.74. The questionnaire items included primary data for grouping variables and three domains as outcome variables: Factors that determine the decision of DNR, frequency of encountering and applying interventions for DNR patients, and confidence in interventions and treating DNR patients. The survey was distributed among the residents through email. A total of 459 residents were invited. As electronic survey was used, it's only accepting submission after all variables were answered. With that, no missing variable was encountered. Prior to starting the survey, digital consent was obtained. Participants' anonymities were assured by no personal data was collected, and all inputs were transferred to data bank accessible by research members only.

Data was analyzed using Statistical Package for the Social Sciences version 26 (IBM Corp., Armonk, NY, USA). Frequency and percentage were generated for the categorical variables, and the distributed data were reported as mean and standard deviation (SD). Chi-square test was used to compare between the groups. P-value less than 0.05 was declared statistically significant.

RESULTS

A total of 196 respondents, with a response rate of 42.7%. The general demographic data is listed in Table 1. Most of the respondents to the study were juniors (63.8%). From the perspective of internal medicine residents, the most significant factor in determining DNR is disease prognosis(95.4%, n = 187), while patient culture and background ranked the lowest (11.4%, n = 23) (Figure 1).

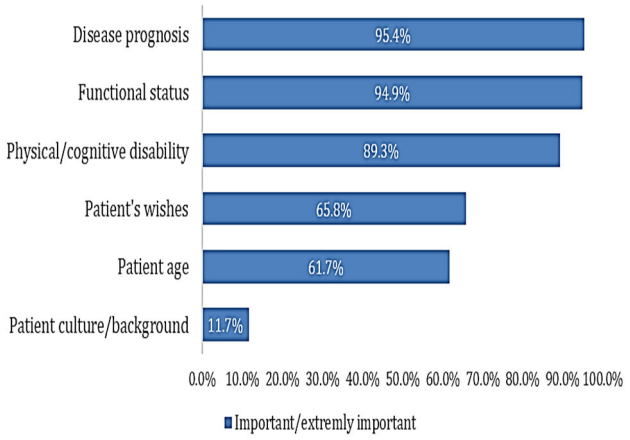

Figure 1: Reported Important Factors in Determining Do-Not-Resuscitate Decision

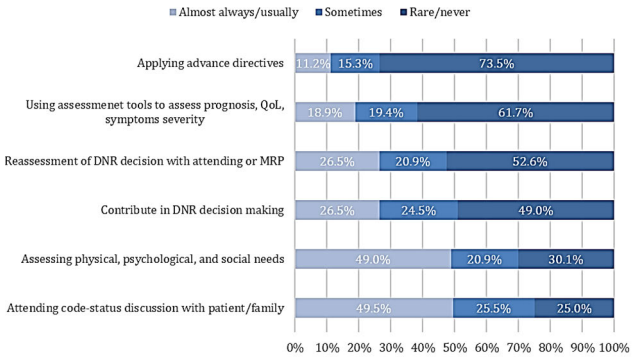

Figure 2: Represent How Often the Resident Applied the Following

QoL: Quality of Life, MRP: Most Responsible Physician, DNR: Do Not Resuscitation

Table 1: Participants' Characteristics, Level, and Training Center

Variables		Number (%)
Gender	Female	70 (35.7%)
	Male	126 (64.3%)
Training level	Junior	125 (63.8%)
	Senior	71 (36.2%)
Training Center	Ministry of National Guard Health Affairs (MNGHA)	55 (28.1%)
	King Fahad Medical City (KFMC)	51 (26.0%)
	King Khalid University Hospital (KKUH)	19 (9.7%)
	King Faisal Specialist Hospital and Research Center (KFSHRC)	71 (36.2%)
Have you received any training about the DNR process, dealing with DNR patients, or providing end-of-life management?	No	111 (56.6%)
	Yes	85 (43.4%)

Table 2: Confidence Level Based on Resident Level

Variables		Junior Count (%)	Senior Count (%)	p-value
Breaking bad news	Not confident	20 (16.0%)	7 (9.8%)	0.004*
	Somewhat confident	46 (36.8%)	13 (18.3%)	
	Confident	59 (47.2%)	51 (71.8%)	
Leading family meeting	Not confident	53 (42.4%)	7 (9.8%)	0.001*
	Somewhat confident	47 (37.6%)	12 (16.9%)	
	Confident	25 (20.0%)	52 (73.2%)	
Discussing and explaining code status	Not confident	43 (34.4%)	7 (9.8%)	0.001*
	Somewhat confident	32 (25.6%)	12 (16.9%)	
	Confident	50 (40.0%)	52 (73.2%)	
Discussing organ donation	Not confidence	92 (72.0%)	46 (64.7%)	0.043*
	Somewhat confident	21 (16.8%)	9 (12.6%)	
	Confident	12 (9.6%)	16 (22.5%)	
Assessing and managing fear of death	Not confidence	57 (45.6%)	31 (43.6%)	0.183
	Somewhat confident	42 (33.6%)	26 (36.6%)	
	Confident	26 (20.8%)	14 (19.7%)	
Assessing and managing anxiety/depression.	Not confidence	35 (28.0%)	25 (35.2%)	0.207
	Somewhat confident	41 (32.8%)	27 (38.0%)	
	Confident	49 (39.2%)	19 (26.7%)	
Assessing and managing pain	Not confident	23 (18.4%)	9 (12.6%)	0.578
	Somewhat confident	32 (25.6%)	19 (26.7%)	
	Confident	70 (56.0%)	43 (60.5%)	

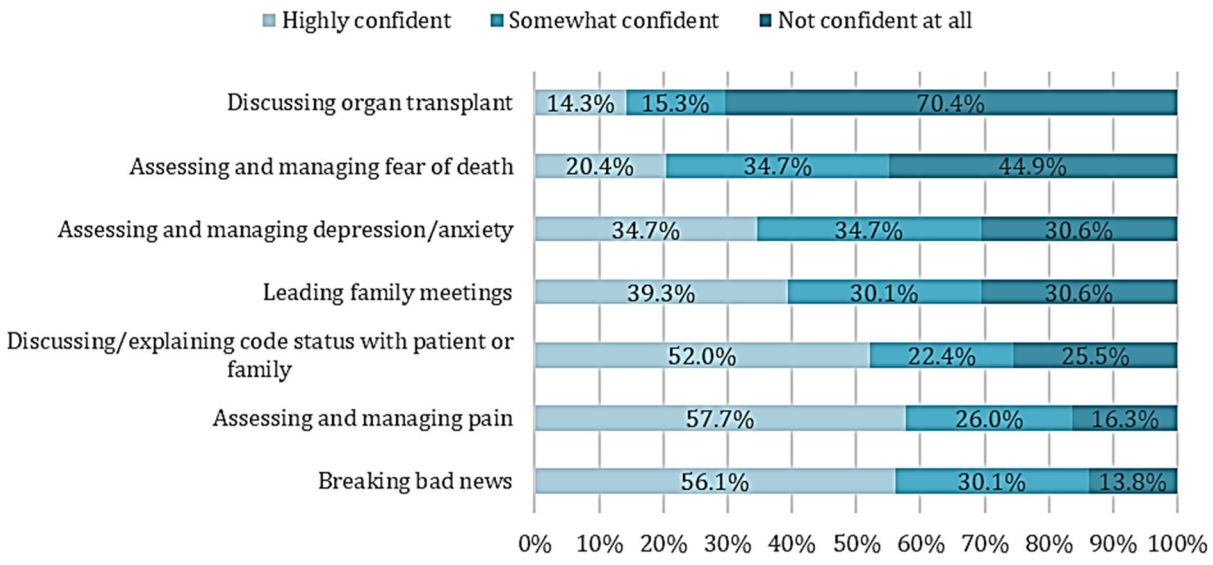

Figure 3: Overall Confidence Level in Performing the Following Tasks

Data indicates that a patient's cognitive and physical disabilities and functional status significantly influence decision-making (89.3% n = 175, 94.9% n = 186). Approximately 65.6% of residents believe that patient wishes are essential in decision-making. The patient's age is considered an important factor in decision-making by 61.7% (n = 121) of participants. Majority of participants didn't receive a formal teaching on DNR (56.6%, n =111).

Figure 2 illustrates the experiences of participants with DNR patients during their residency. Over half of the participants have rarely or never applied advance directives or used assessment tools to evaluate prognosis, quality of life, and symptom severity (73.5% n = 144, 61.7% n = 121) (Figure 2). Code status discussions and assessments of physical, psychological, and social needs are reported to be applied almost always or usually by 49% of the participants. Nearly half of the participants (49%) have rarely or never been involved in the DNR decision.

Regarding residents' confidence in performing tasks related to end-of-life care, 56.1% of participants reported feeling highly confident in breaking bad news, while 30.1% felt somewhat confident. Similar results were observed in the assessment and management of pain, where 57.7% expressed high confidence and 26.0% reported somewhat confident levels (Figure 3). In comparison between senior and junior level, the majority of senior participants reported high confidence in performing breaking bad news (71.8% vs 47.2%); the findings were declared clinically significant with a p-value of 0.004 (Table 2). Over half (52%) of participants reported high confidence in discussing code status with patients and their families (Figure 3). There was a statistically significant difference between junior and senior responders (Seniors: 73%, Juniors: 40%; P-value: 0.001). Leading family meetings and assessing or managing depression and anxiety were reported nearly equally among all participants: Highly confident, 39.3% and 34.7%; Somewhat confident, 30.1% and 34.7%; Not confident at all, 30.6% in both cases. On level-based analysis, 73.3% of seniors confirmed a high confidence level in leading family meetings compared to 20% of juniors (Table 2), which is statistically significant (p-value: 0.001). Assessing and managing fear of death was reported to be highly confidence among 20% of the participants, and the rest were either somewhat confident (34.7%) or not confident (44.9%). A similar distribution between senior and junior levels, with a p-value of 0.183 (Table 2). 70.4% of the participants reported non-confidence in discussing organ transplantation, with statistically significant in level-based analysis (p-value: 0.043) (Table 2).

DISCUSSION

The process of determining DNR is complex and involves the patient, their family, and the healthcare team. In this study, we aimed to assess the significant factors in DNR decision-making from an internal medicine resident perspective, as shown in Figure 1. The study found that 95% of the residents believe the nature of the disease and poor prognosis are critical in such decisions. In line with our study, it has been noticed that physicians focus more on the prognosis as a strong factor in DNR decisions [12]. According to Pettersson et al, 73% of physicians considered the prognosis of disease an important factor, in contrast to 61% of nurses who shared the same view [12]. Previously, it was noted that physicians tend to avoid prognostication as it may cause distress to the patient [13,14]. With the emergence of end-of-life care, physicians tend to reduce suffering and avoid harm associated with treatment, particularly when the prognosis is futile. Another justification for making physicians discuss prognosis more often is that most patients want to know about their disease prognosis [15]. Many studies reported that knowing the prognosis of a disease would help in making DNR decisions and end-of-life plans for both the medical team and the patient/family [16,17]. The second reported factor in determining DNR was functional status (94%), followed by physical and cognitive disabilities. As noticed in oncology patients, a patient's functional status would impact treatment, intervention, and even DNR decision-making. In malignancy patients, oncologists usually use Eastern Cooperative Oncology Group (ECOG) to determine the patient's performance status [18]. Patients with high ECOG scores are believed to be less likely to benefit from the treatment [19]. This rationale stems from the known side effects and significant toxicity of treatment modalities, which might be debilitating and intolerant to the patients [20]. One study compared hospice and non-hospice patients with medical conditions, including gastrointestinal tract malignancies. The study found that the mean survival period of hospice patients is noted to be longer in certain conditions [21]. The respondents of our study are keener to do no harm and facilitate DNR decisions if the prognosis is poor, or the patient's functional status is not optimal.

Our study found that only 11.7% of the respondents think a patient's culture/background is essential in making DNR decision. Internationally, multiple studies suggest cultural background plays a significant role in such decisions [22, 23]. This huge gap between the prognosis as a solid determinant of DNR decision and the patient's cultural background might be justified by the respondent's objectivity rather than social predisposition or subjectivity. For instance, it has been suggested that families from religious community tend to be more desire for aggressive therapy when near death [24]. We believe that our respondents would focus more on the patient's clinical status if the DNR decision were purely initiated by the medical team while respecting the patient's wishes and decision (65%) (Figure 1). Knowing the patient's cultural perception and beliefs regarding death, end-of-life care, or DNR is important, as it would impact DNR decision-making significantly. Being aware of the patient's cultural background would help lead the meeting and approach the DNR subject. Some cultures value the place of death, which is, in most cases, their hometown [25].

In Figure 2, we aimed to assess the respondent's involvement in DNR decision-making and dealing with DNR-related topics. We found that the majority (73%) have not applied advance directives. This finding can be explained by the scarcity of documentation on advance directives among our patients. The late introduction of end-of-life care concepts to the patient or family, the patient's low functional or mental status, and the lack of knowledge of the prognosis are possible reasons for the low documentation of advance directives [26]. Supporting our observation, in one study, they found that a large proportion of cancer patients who had been hospitalized did not sign these DNR documents by

themselves [27]. We believe that discussing the prognosis and nature of the disease early on allows the patient to make informed choices regarding intensive measures. This is important for ensuring the patient's autonomy, especially if mental deterioration is anticipated to affect decision-making ability. The other aspect we investigated was using objective measures to make a prognosis using prognostication tools. Figure 2 shows that only 18% apply prognostication tools despite agreeing that the prognosis is essential, as seen in Figure 1. Multiple tools have been implemented and validated to ascertain accurate prognosis: Palliative Prognostic (PaP) score, Palliative Prognostic Index (PPI), Feliu Prognostic Nomogram (FPN), and Palliative Performance Scale (PPS) [28]. There are two main approaches to making prognoses in medical practice. On one hand, some professionals advocate for using validated tools to make objective predictions. On the other hand, some favor a more subjective approach, relying on clinical predictions of survival [29, 30]. The data on this topic has been inconsistent, but some studies indicate that clinical predictions may be superior to those generated by prognostication tools [31 -33]. We believe our respondents rely more on clinical predictions under the supervision of the assigned MRP in making the prognosis.

In Figure 3, we examined the confidence levels of our respondents in handling DNR-related situations. The percentages varied, but our comparison between senior and junior respondents revealed a statistically significant finding: senior residents were more confident in managing DNR-related tasks. These differences can be explained by the residents' experience, as seniors are expected to be experts and lead the team. In contrast, other studies showed that junior physicians are more confident and updated and discuss end-of-life matters more than seniors [34,35]. Our findings can be justified by the lack of unified or formal training in end-of-life care; as shown in Table 1, only 43% of the residents have received some form of training in end-of-life care. We believe that most training and knowledge are gained through experience, and the hidden curriculum of each institution influences decisions. A focused study examining internal medicine residents' perceptions of the hidden and formal curricula concerning DNR decisions found that the hidden curriculum is typically physician-centered and places excessive burdens on the trainees [36]. Failing to adopt a patient-centered approach in Do Not Resuscitate (DNR) decision-making complicates the process for trainees, patients, and their families. Research has shown that patients who engage in thorough discussions about their prognosis tend to feel less fearful and more supported by others [37,38]. Effectively managing pain is crucial for the well-being of patients with DNR orders, as it enhances physical and social health [39]. Additionally, emotional well-being plays a significant role and is influenced by various factors, particularly the medical team's support. One study found that patients who were fully aware of their prognosis experienced less depression compared to those who did not acknowledge their condition [40]. These findings emphasize the importance of patient-centered training for DNR decisions and related tasks. The objective is for a competent resident to lead discussions, family meetings, manage pain effectively, provide emotional support, and address DNR-related responsibilities.

The findings in this multicenter study highlight the residents' knowledge and practice in DNR decision-making and end-of-life care during their training. These findings would help improve end-of-life care and understanding of residents' perspectives of the process. Caring of DNR patients is an active process of providing medical care for those whose disease no longer responds to curative treatments and towards the end of life. It is a comprehensive approach to managing physical, psychological, and social suffering. There is a continuing need throughout a patient's terminal illness, irrespective of the nature or stage of the disease, for good pain and symptom control, combined with sensitive communication and shared decision-making, carried out by a complete and well-integrated healthcare team.

There are limitations encountered in the study. As the study is cross-sectional, it's study one time level of residents, and does not represent the dynamic change in residents knowledge and practice. The response rate in the study is subjected to non-response bias. Given the study settings and area, the data provided limiting its generalizability to the region and country.

CONCLUSION

With the current increase in population, demand for health care services is expected to increase. Dealing with DNR patients evolves on communication skills, applying ethically appropriate practice, and management targeting relieving and dealing with psychological, physical, and social aspects. Due to huge variety of cases seen by internal medicine residents, and with an emergent of palliative and end-of-life care among DNR patients, a continuous and formal education aiming to sharpen communication and clinical skills of internal medicine residents is needed.

Conflict of Interest

The research authors declare no conflict of interest.

Ethical Consideration

The study was approved by the Institutional Review Board (IRB) of King Abdullah International Medical Research center (KAMRC) with study number (NRC23R/669/09). A digital consent was required prior to starting the survey. The study adhered to the principles of the Declaration of Helsinki, 2013.

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