



The Attitude of Healthcare Providers and the General Population on the Concept of Do-Not-Resuscitate (DNR) Order in End-Stage Patients

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Abstract

Background: The do-not-resuscitate (DNR) order in end-stage patients constitutes a critical medical decision, directing healthcare providers to withhold cardiopulmonary resuscitation (CPR) in the event of cardiopulmonary arrest upon the patient's request.

Objectives: This study aims to analyze the attitudes of healthcare providers and the general population toward the concept of DNR orders in end-stage patients.

Methods: Conducted from September 2021 to May 2022, this cross-sectional study aimed to gauge the attitudes of healthcare providers and the general population toward DNR orders in end-stage patients using a questionnaire assessing attitudes toward DNR. The research population included healthcare providers—physicians and nurses—from healthcare centers affiliated with Iran University of Medical Sciences, selected through convenience sampling, and the general population comprising individuals frequenting parks near these healthcare centers within the relevant municipal districts.

Results: Among the 164 participating healthcare providers, 139 (84.8%) were female. Participants' ages ranged from 21 to 57 years, with an average age of 36.78 ± 7.79 years. The study found that healthcare providers had a significantly higher average attitude score toward DNR (29.85 ± 9.46) compared to the general population (27.08 ± 9.78). Healthcare providers with adequate financial status exhibited a more positive attitude toward DNR in end-stage patients compared to those with excellent or poor economic status ($P = 0.001$). Additionally, the relative frequency of individuals experiencing a poor prognosis of disease was significantly lower among healthcare personnel than the general population ($P = 0.018$). Healthcare providers without family members or friends in their end-stage of life demonstrated a more favorable attitude toward DNR for these patients ($P = 0.001$).

Conclusions: The study revealed that healthcare providers exhibited a significantly more positive attitude toward DNR compared to the general population. Furthermore, healthcare providers experienced a lower relative frequency of individuals facing a poor prognosis of disease compared to the general population. However, the relative frequency of experiencing family members or friends in the end stage did not significantly differ between healthcare providers and the general population. Healthcare providers with less than 2 years or more than 20 years of experience in the medical field demonstrated a more positive attitude toward DNR.

Keywords: Do-Not-Resuscitate (DNR), Healthcare Providers, General Population, Attitude

1. Background

The Do-not-resuscitate (DNR) order for end-stage patients constitutes a significant medical decision,

allowing healthcare providers to abstain from cardiopulmonary resuscitation (CPR) in the event of cardiopulmonary arrest upon the patient's request (1). The first hospital policies on DNR were published in

medical literature over 30 years ago (2). In Saudi Arabia, physicians typically make decisions based on Fatwa No. 12086, irrespective of the patient's or their family's request. This Fatwa stipulates that if three well-informed and reliable physicians concur that CPR is unsuitable for a patient with an incurable and debilitating disease, CPR and life support machines are no longer necessary (1). Do-not-resuscitate orders often face scrutiny due to ethical and religious concerns. Even if physicians permit DNR for patients or opt for CPR, it may not guarantee a cure and could potentially lead to increased pain and suffering (1). The concept of CPR futility gained attention in the US in 1970 due to reports of prolonged suffering and delayed death following unsuccessful CPR attempts (3).

The treatment of patients in their final days and hours of life has long been a challenge for healthcare providers, including physicians and nurses. Several papers in the medical literature have described severe distress endured by end-stage patients who underwent frequent CPR, only to prolong their death. Healthcare personnel sometimes perceive CPR as ineffective for these patients and refrain from resuscitation attempts (4, 5). According to a systematic review, the survival rate following CPR discharge for advanced patients is 10.1% in hospital wards and 2.2% in intensive care units (ICUs). Additionally, most successfully resuscitated patients with advanced diseases die within days to weeks in the ICU (6). In Islam, death is not considered the end of human life but a stage in one's spiritual journey. Consequently, some argue that prolonging the dying process using advanced medical technology may not be justifiable for all patients, and factors like equitable distribution of limited healthcare resources should be considered in decision-making (7).

In 1992, the American Anesthesia Association (AAA) formulated ethical care guidelines for patients with DNR orders. Today, numerous medical and nursing associations, along with hospital centers in the United States and Saudi Arabia, have guidelines regarding DNR orders. Key principles include respecting personal choice, engaging in prior discussions with the patient or their guardian, obtaining consent, using standard methods to designate a patient's DNR order (e.g., special bracelets), acknowledging the patient's right to change their decision, and documenting the patient's preferences (6, 8). Previous research has shown varied perspectives on DNR decision-making among nurses and physicians, with reports of ambiguity and contradictory documentation (9, 10).

Numerous studies have highlighted demographic variables such as age, race, religion, marital status, and

education level as influencing perceptions and attitudes towards DNR orders. Hence, further local studies are warranted to evaluate societal knowledge, perceptions, and attitudes regarding DNR decisions (1, 11). With increasing global awareness and cultural shifts towards patient autonomy, patients prefer to understand their prognosis and participate in the decision-making process. Failure to address patients' DNR preferences may result in unwanted interventions for hospitalized patients (12).

In our country, given the importance of religious values and beliefs, a more precise interpretation is necessary to alleviate confusion among healthcare teams. The values and beliefs held by physicians and patients prevent us from simply adhering to guidelines from other countries, underscoring the need to develop guidelines based on Iranian-Islamic culture. Addressing this issue requires further studies on the attitudes of various societal groups towards DNR. While previous studies in Iran have explored the attitudes of physicians, nurses, and students regarding DNR, there is a lack of quantitative studies examining the attitudes of healthcare providers and the general population. Conducting additional research on this critical issue paves the way for the development of national guidelines. Therefore, assessing the knowledge, perception, and attitudes of healthcare providers and the general population regarding this medical decision may assist jurists and policymakers in making decisions that are legally, ethically, and morally acceptable to patients and their families.

2. Objectives

The present study aimed to investigate the attitudes of healthcare providers and the general population towards the concept of DNR orders in end-stage patients.

3. Methods

This cross-sectional study was conducted from September 2021 to May 2022 and was approved by the Ethics Committee of Iran University of Medical Sciences (IR.IUMS.REC.1400.710). The study aimed to measure the attitudes of healthcare providers and the general population towards DNR orders in end-stage patients through a questionnaire on attitudes towards DNR. Participation in the research was entirely voluntary, and participants could withdraw from the study at any time. Before commencing the study, all necessary ethical approvals and permissions were obtained, the study

objectives were explained to the participants, and their consent was obtained.

Inclusion criteria was individuals aged 18 years and above, conscious of time, space, and people, willing to respond to the questionnaire items.

Exclusion criteria was individuals who incompletely filled out the questionnaires for any reason were excluded from the study.

The research population comprised healthcare providers, physicians, and nurses from healthcare centers affiliated with Iran University of Medical Sciences (selected via convenience sampling from ICU wards in hospitals across various municipal districts), as well as members of the general population frequenting parks near these healthcare centers (in the same relevant municipal districts).

According to the study by Falahi et al. (12), to estimate a mean (μ) $\left(n = \frac{z_{1-\frac{\alpha}{2}}^2 \times \sigma^2}{d^2} \right)$, considering $\alpha = 0.05$ ($Z_{1-\frac{\alpha}{2}} = 1.96$), $\sigma = 0.84$ (standard deviation of attitude scores towards non-resuscitation in healthcare providers), and $d = 0.13$ (study precision), a sample size of 161 participants was determined for this study.

Sampling was conducted based on inclusion and exclusion criteria. The researcher was present in the ICU wards of the mentioned hospitals during all three working shifts (morning, evening, and night). The researcher introduced herself, explained the research objectives to the participants, and asked them to complete the questionnaires. Additionally, the researcher visited parks near these healthcare centers (in the same relevant municipal districts) and asked the general population to complete the questionnaires. In cases where participants were illiterate, the researcher assisted in filling out the questionnaires. For both groups (healthcare providers and the general population), the "Iranian Physicians' attitude toward the DNR order" reliable-validated questionnaire developed by Falahi et al. (12) was utilized.

The data collection instruments included a demographic information questionnaire and the questionnaire on attitude about the DNR order developed by Falahi et al. (12) which comprises 11 items. Each item is rated on a five-point Likert scale ranging from "absolutely agree" to "absolutely disagree." The scores range from 1 for "absolutely disagree" to 5 for "absolutely agree." A higher score indicates a more positive attitude towards the item. However, in item 11, which has a negative connotation regarding DNR, the score was reversed. The respondents' attitudes toward

the DNR order were measured by summing up the scores of the items in the first part of the questionnaire. Depending on the mean score (1 to 2, 2 to 3, 3 to 4, or 4 to 5), the attitude towards the DNR order was categorized as very negative, negative, positive, or very positive, respectively.

In the study by Falahi et al. (12), the validity of the instrument was confirmed through content validity, ensuring simplicity, clarity, and relevance of the questions. After preparing the data collection form and obtaining supervisor approval, it was provided to the faculty members for their input. Necessary changes were made based on their feedback before using the instrument. The reliability of the instrument was also established with a Cronbach's alpha coefficient of 0.88 in the original study and 0.79 in the current study. Content validity ratio (CVR) and content validity index (CVI) were calculated for the questionnaire on attitude about the DNR order based on expert opinions, with CVR and CVI values of 0.83 and 0.94, respectively, confirming the content validity of the questionnaire.

The results are presented as mean \pm standard deviation (SD) for numeric variables and summarized by absolute frequencies and percentages for categorical variables. The mean attitude score towards the DNR was compared based on demographic characteristics using an independent two-sample *t*-test or one-way analysis of variance (ANOVA). The association between numeric variables was examined using Pearson's correlation test. Statistical analysis was performed using SPSS version 24.0 for Windows (IBM SPSS Inc., Chicago, IL, USA), with all *p*-values considered significant at ≤ 0.05 .

4. Results

4.1. Healthcare Providers

Among the 164 healthcare provider participants, 25 individuals (15.2%) were male, and 139 individuals (84.8%) were female. The age of participants ranged from 21 to 57 years, with an average age of 36.78 ± 7.79 years. All participants had academic backgrounds. The majority of participants (86%) had sufficient economic status, and most were married (72.6%). Additionally, a majority (52.4%) had a work experience of 11 - 20 years, and 55.5% were employed in the intensive care department. All participants identified as Muslim and 101 individuals (61.6%) had attended CPR classes more than three times. Forty-six participants (28.0%) reported having a family member or acquaintance in an end-stage situation, with 24 of them (52.2%) having a filial relationship with the patient.

The average duration of hospitalization for end-stage patients was 23.78 ± 13.98 days, ranging from 3 to 60 days. Forty-two participants (25.6%) reported having witnessed the death of end-stage patients, while five participants (3.0%) had experienced an illness with a poor prognosis themselves.

The findings revealed that the mean attitude score of healthcare providers towards DNR in end-stage patients was 29.85 ± 9.46 , ranging from 14 to 47 (Table 1). The results presented in Table 2 indicated that healthcare providers with adequate financial status had a more positive attitude towards not resuscitating end-stage patients compared to those with excellent or poor economic status ($P = 0.001$). Furthermore, individuals who did not have any family member or friends in an end-stage of life situation had a more positive attitude towards not resuscitating these patients ($P = 0.001$). Among healthcare providers, those with less than 2 years or more than 20 years of job experience had a more positive attitude towards DNR ($P = 0.001$). The age of healthcare providers showed a weak negative correlation with the attitude score, which was statistically significant ($r = -0.201$, $P = 0.010$).

Table 1. Comparison of the Attitude of Healthcare Providers and General Population Regarding the Lack of Cardiopulmonary Resuscitation

Variables	Healthcare Providers (N = 164)	General Population (N = 170)	P-Value
Attitude score	29.85 ± 9.46	27.08 ± 9.78	0.009
variation range	(14 - 47)	(11 - 55)	
Attitude score classification			0.005
11 - 22	40 (24.4)	68 (40.0)	
23 - 33	75 (45.7)	54 (31.8)	
34 - 44	32 (19.5)	38 (22.4)	
45 - 55	17 (10.4)	10 (5.9)	
The experience of a disease with a bad prognosis by the own person	42 (25.6)	64 (37.6)	0.018
Experience in family members	46 (28.0)	48 (28.2)	0.970

Table 2. The Average Score of Attitude Towards Non-Resuscitation According to the Demographic Characteristics of the Healthcare Providers

Variables	Mean \pm SD ^a	P-Value
Gender		0.823
Male	30.24 ± 10.99	
Female	29.78 ± 9.21	
Position of economy		0.001
Poor	22.95 ± 6.04 A	
Suitable	31.04 ± 9.43 B	
Powerful	20.00 ± 3.61 A	

Variables	Mean \pm SD ^a	P-Value
Marital status		0.112
Single	30.10 ± 9.39	
Married	29.48 ± 9.470	
Divorcee	41.00 ± 0.0	
Suffer from EOL in the family		0.001
Yes	25.59 ± 9.63	
No	31.51 ± 8.90	
The experience of seeing people die		0.001
Yes	23.79 ± 7.86	
No	31.93 ± 9.09	
Work experience		0.001
0 - 2	41.08 ± 7.76 ^A	
3 - 10	28.63 ± 8.61 ^B	
11 - 20	28.35 ± 9.01 ^B	
> 20	36.89 ± 8.95 ^A	
History of participating in CPR classes		0.531
Yes	29.74 ± 9.53	
No	31.78 ± 8.44	
Workplace		0.575
General ward	30.30 ± 8.37	
Critical care	29.48 ± 10.29	
The experience of having a disease with a poor prognosis		0.783
Yes	31.00 ± 12.31	
No	29.81 ± 9.41	

Abbreviation: EOL, end of life.

^a Groups with different capital letters are statistically significantly differed in mean attitude score.

4.2. General Population

Out of 170 general population participants, 74 individuals were male (43.5%), and 96 individuals were female (56.5%). The average age of the participants was 48.74 ± 13.42 years, ranging from 19 to 79 years. Regarding education, 33 individuals were illiterate (19.4%), 60 (35.3%) had completed high school or obtained a diploma, and 77 (45.3%) had received an academic university education. Most participants were of sufficient economic status (70.6%) and were married (81.2%), with a significant portion being housewives (32.9%).

All participants identified as Muslim and 132 individuals (77.6%) had attended Basic CPR classes once. Forty-eight participants (28.2%) reported having a family member or friend in an end-stage of life situation, with 26 of them (54.2%) having a filial relationship with the patient. The average hospitalization duration for end-

end-stage patient, while four individuals (2.4%) had experienced a disease with a poor prognosis themselves.

Table 3 findings indicate that the general population with excellent financial status exhibited a more positive attitude toward not resuscitating end-stage patients compared to those with adequate or poor economic status ($P = 0.021$). Additionally, divorced individuals demonstrated a more positive attitude toward not resuscitating end-stage patients ($P = 0.018$).

Table 3. The Average Score of Attitude Towards Non-Resuscitation According to the Demographic Characteristics of General Population

Variables	Mean \pm SD ^a	P-Value
Gender		0.283
Male	26.16 \pm 9.27	
Female	27.79 \pm 10.15	
Position of economy		0.021.0
Poor	27.45 \pm 10.72 A	
Suitable	26.42 \pm 9.32 ^A	
Powerful	37.67 \pm 5.68 ^B	
Marital status		0.018.0
Single	27.59 \pm 8.55 ^A	
Married	26.40 \pm 9.46 A	
Divorced	35.40 \pm 13.46 B	
Suffer from EOL in the family.		532.0
Yes	27.83 \pm 9.51	
No	26.79 \pm 9.91	
The experience of seeing people die		390.0
Yes	26.25 \pm 9.66	
No	27.58 \pm 9.87	
The experience of having a disease with a poor prognosis		167.0
Yes	24.50 \pm 2.89	
No	27.14 \pm 9.88	

Abbreviation: EOL, end of life.

^a Groups with different capital letters are statistically significantly differed in mean attitude score.

The findings revealed that the average attitude score towards DNR in end-stage patients among the general population was 27.08 ± 9.78 , ranging from 11 to 55 (Table 1). The correlation analysis between age and attitude score in the general population showed a weak positive correlation, which was not statistically significant ($r = 0.086$, $P = 0.264$).

Table 1 presents a comparison between the attitudes of the general population and healthcare providers towards resuscitating end-stage patients. The data

indicated that the average attitude score among healthcare providers was significantly higher than that of the general population. Additionally, the relative frequency of "experiencing a poor prognosis disease by the individual" was significantly lower among healthcare personnel compared to the general population. However, there was no statistically significant difference in the relative frequency of "experiencing a family member or friend with end-stage" between healthcare providers and the general population.

5. Discussion

The findings of the present study demonstrated that healthcare providers held a significantly more positive attitude towards DNR orders compared to the general population. Moreover, healthcare personnel had a significantly lower relative frequency of "experiencing a poor prognosis disease by the individual" compared to the general population. Conversely, there was no statistically significant difference in the relative frequency of "experiencing a family member or friend with end-stage" between healthcare providers and the general population. Additionally, individuals with adequate financial status exhibited a more positive attitude towards DNR in end-stage patients compared to those with excellent or poor economic status. Healthcare providers who had not witnessed the death of individuals or did not have any end-stage patients in their family or circle of friends also displayed a more positive attitude towards DNR. Furthermore, healthcare providers with less than 2 years or more than 20 years of experience in the medical field exhibited a more positive attitude towards DNR. Consistent with previous studies, healthcare providers generally displayed a positive attitude towards the do not resuscitate order (13, 14).

One study revealed that 86 percent of nurses held a positive attitude toward the DNR order. Even in cases where there was no hope for the patient's survival despite all treatments, nurses expressed a positive attitude toward the DNR order, emphasizing the importance of respecting patients' and their companions' beliefs and wishes. Nurses believed that when patients are Well-Informed about their medical condition and refuse resuscitation during cardiac arrest, their wishes should be honored (15). Additionally, the findings of the present study among the general population indicated that the average attitude score towards DNR orders in end-stage patients ranged from 11 to 55.

Another study's findings indicate that nursing students hold a negative attitude toward the DNR order. This negative attitude and the discrepancy within the results of the present study may be attributed to the fact that nursing students, lacking clinical experience, may have a limited understanding of resuscitation and its consequences. However, as they gain more exposure to bedside activities, their attitude toward the DNR order could potentially change (16). Furthermore, training students regarding ethical challenges such as the DNR order could potentially alter their attitude. However, further research is needed to confirm these findings. It is believed that attitudes towards the DNR order may vary depending on the physicians' specialties. For example, in England, specialists in geriatrics were more inclined to perform CPR than other doctors and were opposed to the DNR order (17). Additionally, a study (18) found a significant relationship between attitudes toward DNR and physicians' specialty, duration of medical training, and years of experience. Intensive care physicians, for instance, tended to recommend the DNR order more frequently than other specialists. However, there was variation in attitudes among physicians based on their academic backgrounds. Subspecialist doctors held a more positive attitude towards the DNR order compared to other groups, while general practitioners had the lowest average attitude score concerning the DNR order.

Consistent with these findings, a study investigating the attitudes of various healthcare provider groups (including doctors, nurses, technicians, and patients) towards the DNR order and decision-making regarding it revealed that nurses and doctors with higher levels of education advocated for the execution of the DNR order in more situations than other groups. However, there was no significant difference in nurses' attitudes towards the DNR order based on their level of education. Therefore, given the direct impact of higher education levels and involvement in patient care on attitudes towards non-resuscitation, it can be inferred that, unlike doctors, nurses' participation in patient care does not necessarily increase with continuing education. Moreover, ethical challenges, such as the DNR order, have not been adequately integrated into the training curriculum of nurses (19).

It's worth noting that some participants were unable to answer the questions due to unfavorable mental states. These participants were either excluded from the study or rescheduled for a more suitable time.

5.1. Conclusions

The results of the present study demonstrated that the average score of attitude among healthcare providers was significantly higher than that among the general population regarding DNR orders. The relative frequency of "experiencing a poor prognosis disease by the individual" among healthcare personnel was significantly lower than among the general population. However, the relative frequency of "experiencing a family member or friends with end-stage disease" did not show a statistically significant difference between healthcare providers and the general population.

Furthermore, both physicians and nurses exhibited a positive attitude towards the DNR order, with no significant difference observed between their attitudes. Healthcare providers with less than 2 years or more than 20 years of experience in the medical field demonstrated a more positive attitude towards DNR. Additionally, individuals with higher education levels showed a more positive attitude towards the DNR order.

Footnotes

Authors' Contribution: Conceptualization: SH.KH and F.H; Methodology: S.G; Formal analysis and investigation: M.SF; Writing original draft preparation: B.G and SE.HZ.

Conflict of Interests: The authors further have no competing interests to declare that are relevant to the content of this article.

Data Availability: The data used to support the findings of this study are available from the corresponding author upon request.

Ethical Approval: Ethical approval The study was approved by the Ethical Committee of Iran University of Medical Sciences (IR.IUMS.REC.1400.710).

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