Perceptions of and Attitudes Toward "Do Not Resuscitate" Among Non-Health Department College Students

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〈Abstract〉

Purpose: The objective of this descriptive survey research was to analyze college students` awareness of and attitude toward DNR to provide basic evidence for building objective standards of DNR that can be clinically applied. **Methods:** The survey was conducted from March to April 2022. The participants were 141 non-healthcare college students. The data were analyzed using SPSS 24.0 program. **Results:** Significantly more participants perceived the necessity of DNR (t=2.13, p<.05) and the DNR system (t=2.29, p<.05). Significantly more participants were willing to choose DNR for themselves (t=53.16, p<.05) and for parents (t=3.55, p<.01). **Conclusion:** Studies with more robust design should be conducted in the future to establish the standards for DNR.

Keywords : DNR, Recognition, Attitude, College Students

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1. Introduction

Death is an inevitable and supernatural phenomenon in humans. The development of modern biotechnology and healthcare technology has extended the average human lifespan by delaying death through life-sustaining treatments. However, the development of science and technology has changed human beliefs and value of life, thereby altering the dignity of life and people's values.[1].

The Act on Hospice Palliative Care and Decisions on Life-Sustaining Treatment for Patients in the Dying Process has been established in 2016 in Korea. The act has been in effect since 2018 and aims to regulate matters necessary for decision-making and the implementation and discontinuation of life-sustaining treatment. It aimed to protect the dignity and value of humans by ensuring the best interests of patients and respecting their self-determination. The core controversy surrounding this law is whether continuous life-sustaining treatment should be provided to patients who are dying.[2].

With the development in medical technology, the number of cases of diseases that were once difficult to cure are being treated increasingly. However, when a disease becomes untreatable, do not resuscitate (DNR), implying not performing cardiopulmonary resuscitation (CPR) in case of sudden cardiac arrest, is being increasingly chosen instead of CPR, which simply prolongs the time of death, potentially increasing the suffering of the patient.[3].

Artificial CPR on a patient, who is dying because of a disease or an accident, can temporarily restore the heartbeat but cannot have an absolute effect on the disease progression. DNR refers to not performing CPR (chest compressions, artificial respiration, emergency medication, and electrical defibrillation) in the event of cardiac arrest, with the certainty that there will not be a legal case.[4.5].

Rather than saving people from dying in any situation and condition, recognizing their right to die with dignity is more important. If extending life only means prolonging the period of suffering, it is better to let them end their lives and with dignity rather than extending it and cause suffering.[6].

We surveyed 141 non-healthcare college students nationwide to understand their perceptions of and attitudes toward DNR. Through this study, we hope to provide evidence to develop an educational program regarding the prohibition of CPR to ensure that life-sustaining treatment will be performed considering human dignity and autonomy. Death is an inevitable and supernatural phenomenon in humans. The development of modern biotechnology and healthcare technology has extended the average human lifespan by delaying death through life-sustaining treatments. However, the development of science and technology has changed human beliefs and value of life, thereby altering the dignity of life and people's values.[1].

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2. Methods

2.1 Design and Participants

This descriptive study was conducted to determine non-healthcare college students' perceptions of and attitudes toward DNR using a structured questionnaire. The survey participants were 141 university students in the Gyeongbuk region who understood and agreed to the purpose of the study.

2.2 Data Collection and Analysis

The purpose of the study was explained to the students in advance, and data were collected using a structured self-administered

questionnaire from those who agreed to participate. The questionnaires were distributed and retrieved on the field. A total of 150 questionnaires were distributed and collected from March to April 2023, and 141 were analyzed, excluding nine with poor response content. The data were analyzed using SPSS 24.0, and the analysis method for each variable was as follows.

1) Percentages were used to describe the participants' general characteristics and awareness of DNR.
2) The participants' attitude toward DNR was analyzed by mean and standard deviation.
3) The relationship between the participants' general characteristics, and attitude toward and awareness of DNR was analyzed using the t-test, analysis of variance (ANOVA), and Scheffe's post hoc test.The purpose of the study was explained to the students in advance, and data were collected using a structured self-administered questionnaire from those who agreed to participate. The questionnaires were distributed and retrieved on the field. A total of 150 questionnaires were distributed and collected from March to April 2023, and 141 were analyzed, excluding nine with poor response content. The data were analyzed using SPSS 24.0, and the analysis method for each variable was as follows.

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2.3 Research Tools

The questionnaire used in this study was obtained from previous studies that investigated DNR [7],[8], and sufficient reliability and validity were ensured through by consulting with two emergency rescue professors. The questionnaire consisted of 26 questions: 10 on awareness of DNR, 11 on attitudes toward DNR, and 5 on the participants' general characteristics. Attitudes toward DNR were assessed using a 5-point Likert scale, with higher scores indicating more positive attitudes. In this tool, the reliability of perceptions of DNR was Cronbach's α=.75 and that of attitudes toward DNR was Cronbach's α=.71.The questionnaire used in this study was obtained from previous studies that investigated DNR [7],[8], and sufficient reliability and validity were ensured through by consulting with two emergency rescue professors. The questionnaire consisted of 26 questions: 10 on awareness of DNR, 11 on attitudes toward DNR, and 5 on the

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3. Results

3.1 General Characteristics

Of the participants, 24.8% (n=35) were men and 75.2% (n=106) were women. In terms of grade, 38.3% (n=54), 32.6% (n=46), and 29.1% (n=41) were in second, third, and first grades, respectively. Regarding religion, 53.2% (n=75) said yes and 46.8% (n=66) said no. Of the participants, 63.8% (n=90) did not have a medical personnel in the family and 36.2% (n=51) had one. The experience of bystanders implementing DNR was high at 87.2% (123 people)(Table 1).

Table 1. General characteristics. (N=141)

Characteristics	Category	N	%
Gender	Male	35	24.8
	Female	106	75.2
Grade	First grader	41	29.1
	Second grader	54	38.3
	Third grader	46	32.6
Religion	Yes	75	53.2
	No	66	46.8
Do you have any medical personnel in your family	Yes	51	36.2
	No	90	63.8
Experience of DNR	Yes	18	12.8
	No	123	87.2

Note. DNR: Do not resuscitate.

3.2 Awareness of the Prohibition on CPR

Regarding the need for DNR, 92.2% (n=30) said "yes" and 7.8% (n=11) said "no." The reason for DNR was mentioned as "for a comfortable and dignified death" by 58.5% (n=76). The most common reason for not needing DNR was "because of legal issues" (27.7%, n=36). Regarding the need to directly explain DNR to patients who are terminally ill, 85.8% (n=121) said "yes" and 14.2% (n=20) said "no." The timing of explaining the DNR process to patients who are terminally ill was mentioned as "when the condition worsened during treatment for the terminal disease" by 53.2% (n=75), "immediately after being hospitalized for the terminal disease" by 39.7% (n=56), "after moving to the intensive care unit" by 3.5% (n=5), and "when the terminal disease relapses" by 2.1% (n=3). When asked whether DNR selection would increase, 8.7% (n=118) answered "yes" and 16.3% (n=23) answered "no." Regarding the need to enact DNR guidelines, 89.4% (n=126) said "yes" and 10.6% (n=15) said "no." Of the participants, 88.7% (n=125) said there was a DNR system and 11.3% (16 people) said there was not, and 56% (n=79) accepted DNR for themselves and 44% (n=62) did not. Finally, 56% (n=79) would choose DNR for parents and 44% (n=62) would not (Table 2).

Table 2. Awareness of the DNR. (N=141)

Characteristics	Category	N(%)
Necessity of the DNR		
Necessity		130(92.2)
	Comfortable death in dignified	76(58.5)
	Irreversible change of condition	36(27.7)
	Because I`m old	4(3.1)
	Due to financial difficulties	7(5.4)
	others	7(5.4)
Not Necessity		11(7.8)
	Due to legal problem	7(63.6)
	Due to medical team`s duty	1(9.1)
	Due to unclear of DNR decision time	1(9.1)
	Due to unclear of DNR decision maker	1(9.1)
	Due to negligence of treatment after DNR decision	1(9.1)
Explain about DNR to terminal stage patient and family	Yes	121(85.8)
	No	20(14.2)
Appropriate time of explanation for DNR	Immediately after admission	56(39.7)
	When it gets worse	75(53.2)
	When it reoccurs	3(2.1)
	Transfer to ICU	5(3.5)
	Other	2(1.4)
Increase DNR order after DNR explanation	Yes	118(83.7)
	No	23(16.3)
Necessity of written DNR guideline	Yes	126(89.4)
	No	15(10.6)
Consent to the DNR scheme	Yes	125(88.7)
	No	16(11.3)
Put DNR order to your family	Yes	114(80.9)
	No	27(19.1)
Put DNR order to yourself	Yes	79(56.0)
	No	62(44.0)

Note. DNR: Do not resuscitate; ICU: intensive care unit.

3.3 Attitudes Toward DNR

Regarding attitudes toward DNR, the average was 3.01 points, with the score ranging between average (3 points) and acceptable (4 points). "I can autonomously make the decision not to perform CPR" (M=2.36), "I want to autonomously make the decision to not perform CPR" (M=2.72), "I actively reflect on my decision" (M=3.35), "Not performing CPR is for a comfortable and dignified death" (M=2.70), "Not performing CPR will ease the financial burden on the family" (M= 2.64), "I think it is desirable to allow people to die comfortably if resuscitation is difficult" (M=3.35), "Even if there is no hope, all treatment should be carried out to the end" (M=2.38), "It is important to let my opinion know in advance about not performing CPR in case things get worse" (M=3.40), "If I have an incurable disease, I want to know that" (M=2.96), "I want my decision to be respected when my opinion differs" (M=3.79), and "I want my family to know my decision in advance" (M=3.47)(Table 3).

Table 3. Attitude to DNR. (N=141)

Items	M±SD
I can make the DNR decision myself	2.36±1.14
I want to make the DNR decision autonomously	2.72±0.92
I want to actively reflect my decision	3.35±0.86
DNR is for comfort and decent death	2.70±0.81
DNR will reduce the family`s economic burden	2.64±0.81
If resuscitation is difficult, I think it is desirable to have a comfortable deathbed	3.35±0.97
Evin if there is no hope, all treatment should be Done	2.38±0.85
I would like to inform my family in advance of my decision about DNR	3.40±0.88
I want to know if I have an incurable disease	2.96±0.75
I hope my decision will be respected when my opinion is different about DNR	3.79±0.62
I want my family to know my decision in advance	3.47±0.66
Total	3.01±0.56

3.4 General Characteristics and Their Relationship With Attitudes Toward DNR

The relationship between general characteristics and attitudes toward DNR is shown in Table 4. A significant difference is observed between the scores of men (2.89±0.05) and women (3.04±0.03), with women having more positive attitudes toward DNR (F=3.64, p<.01).

Table 4. Relationship between general characteristics and attitudes toward DNR (N=141)

Characteristics	Category	M±SD	t/F	*p*
Gender	Male	2.89±0.05	3.64	.004
	Female	3.04±0.03		
Grade	First grader	3.01±0.31	1.07	.34
	Second grader	2.95±0.42		
	Third grader	3.0±0.37		
religion	Yes	3.02±0.04	0.79	.51
	No	2.98±0.04		
Do you have any medical personnel in your family	Yes	2.99±0.39	0.31	0.71
	No	3.01±0.37		
Experience of DNR	Yes	3.15±0.09	0.66	1.73
	No	2.98±0.36		

Notes. DNR: Do not resuscitate. *p<.05, **p<.01

3.5 Relationship between Perceptions f and Attitudes Toward DNR

The relationship between awareness of and attitudes toward DNR is shown in (Table 5) There was a significant difference in whether DNR was needed (t=2.13, p<.05), with more people saying "yes" (3.00±0.37) than saying "no" (2.77±0.34). There was a significant difference in whether they agreed to the DNR system (t=2.29, p<.05), with more participants saying "yes" (3.03±0.37) than

Table 5. Relationship between perceptions of and attitudes toward DNR (N=141)

Characteristics	Category	M±SD	t/F	*p*
Necessity of the DNR	Necessity	3.00±0.37	2.13	.03
	Not Necessity	2.77±0.34		
Necessity	Comfortable death in dignified	2.98±0.36	1.36	.24
	Irreversible change of condition	3.13±0.39		
	Because I`m old	3.04±0.35		
	Due to financialifficulties	2.89±0.36		
	others	3.09±0.37		
Not Necessity	Due to legal problem	2.97±0.31	1.45	.32
	Due to medical team`s duty	2.72		
	Due to unclear of DNR decision time	2.27		
	Due to unclear of DNR decision maker	2.45		
	Due to negligence of treatment after DNR decision	2.54		
Explain about DNR to terminal stage patient and family	Yes	3.0±0.37	-.18	.85
	No	3.0±0.42		
Appropriate time of explanation for DNR	Immediately after admission	3.03±0.4	0.91	.46
	When it gets worse	2.98±0.36		
	When it reoccurs	3.3±0.29		
	Transfer to ICU	2.87±0.29		
	Other	2.86±0.64		
Increase DNR order after DNR explanation	Yes	3.03±0.38	1.60	.11
	No	2.89±0.32		
Necessity of written DNR guideline	Yes	3.03±0.36	2.70	.08
	No	2.76±0.38		
Consent to the DNR scheme	Yes	3.03±0.37	2.29	.02
	No	2.80±0.31		
Put DNR order to your family	Yes	3.05±0.37	3.15	.02
	No	2.80±0.30		
Put DNR order to yourself	Yes	3.10±0.38	3.55	.001
	No	2.88±0.33		

Notes. DNR: Do not resuscitate. *p<.05, **p<.01

saying "no" (2.80±0.31). Acceptance of DNR differed significantly with more participants (t=53.16, p<.05) saying "yes" (3.05±0.37) than saying "no" (2.80±0.30).

There was a statistically significant difference in whether one would choose DNR for self (t=3.55, p<.01), with "yes" (3.10±0.38) being higher than "no" (2.88±0.33).The relationship between awareness of and attitudes toward DNR is shown in Table 5. There was a significant difference in whether DNR was needed (t=2.13, p<.05), with more people saying "yes" (3.00±0.37) than saying "no" (2.77±0.34). There was a significant difference in whether they agreed to the DNR system (t=2.29, p<.05), with more participants saying "yes" (3.03±0.37) than saying "no" (2.80±0.31). Acceptance of DNR differed significantly with more participants (t=53.16, p<.05) saying "yes" (3.05±0.37) than saying "no" (2.80±0.30). There was a statistically significant difference in whether one would choose DNR for self (t=3.55, p<.01), with "yes" (3.10±0.38) being higher than "no" (2.88±0.33).

4. Discussion and Conclusion

This study aimed to determine the perceptions of and attitudes toward DNR among college students.

The results showed that, 92.2% of the participants considered that DNR was necessary, which was lower than that (92.7%) reported by Yoon [9], who targeted nursing students, and the 94.5% reported by Lee [10], who targeted emergency medical technicians. The average DNR attitude score was found to be 3.01 points, which was lower than 3.65 points for nursing students [9] and 3.78 points for other adult participants [11]. The majority of the participants in this study were non-healthcare college students and had a lower need of DNR than the participants of other studies; however, the majority of the students felt the need for DNR. The reasons for choosing DNR were the same as those for nursing students [9], emergency medical technicians [10], and adult participants [11], including "for a comfortable and dignified death" and "because recovery is impossible despite much effort." The reasons for opposing DNR were legal issues and prolonging life is the duty of medical professionals; another study [12] targeting nurses, found that the decision for DNR was opposed because of the lack of clarity on at what point the decision should be made. These results differed from those obtained at the highest level. This study targeted college students, while the other study [12] targeted nurses who are medical professionals, justifying the differences.

In this study, 85.8% of the participants thought it necessary to explain DNR directly to the patients who are terminally ill and the timing of explanation as "when the condition worsened during treatment for the terminal disease" (53.2%) and "immediately after hospitalization for the terminal disease"

(39.7%). This is consistent with the results obtained from nursing students [9] and emergency rescue students [13]. Therefore, the college students had a similar awareness about the need for DNR.

After the explanation of DNR, 83.7% responded positively to the increase in DNR selection and 89.4% agreed with the need to establish DNR guidelines. Yoon [9] obtained a higher percentage, which may be due to the differences in participant characteristics, such as nursing vs. non-healthcare students, and in majors.

In this study, 80.9% answered "yes" to whether they would accept DNR for themselves, and 58.0% answered "yes" to whether they would choose DNR for their parents. Consistent results were obtained by Kim [14] and Yoon [9] indicating a lower percentage of participants choosing DNR for family. This appears to be due to the fact that the decision to DNR for oneself can be taken autonomously according to one's own will; however, that for a family member should be taken by discussing with other family members and cannot be easily decided solely based on one's own will.

In this study, significantly more participants mentioned the need for DNR, agreed to the DNR system, accepted DNR, and chose not to opt for DNR for parents. These results are similar to those obtained by Kim et al. [14] and Lee [11], who targeted college students. This may be due to targeting samples with similar knowledge and educational levels and owing to the use of the same tools.

The results show that most college students recognize that DNR is necessary to ensure a comfortable and dignified death for patients who are terminally ill while guaranteeing that the patients' autonomy regarding their own death will be respected during the DNR decision-making process. In addition, most of the research participants believed that there was a need for DNR; however, they thought that the establishment of a legal guideline regarding DNR was necessary. As the participants of this study were college students in the Gyeongbu area, the generalizability of the results is limited. In follow-up studies, expanded and repeated research is needed to generalize the results regarding perceptions of and attitudes toward DNR. Moreover, research on the development of DNR education programs for college students is necessary.This study aimed to determine the perceptions of and attitudes toward DNR among college students.

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