



Emergency Healthcare Providers' Knowledge about and Attitudes toward Advance Directives: A Cross-Sectional Study between Nurses and Emergency Medical Technicians at an Emergency Department

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Abstract

This study compares the knowledge levels about advance directives (ADs) and life-sustaining treatment (LST) plans in end-of-life patients between emergency nurses and emergency medical technicians (EMTs). A cross-sectional study design was employed, and convenience sampling recruited 96 nurses and 68 EMTs from 12 emergency medical centers. The survey, conducted assessed knowledge about and attitudes toward ADs using both online and offline methods. The findings indicate that emergency healthcare providers had moderate conceptual knowledge about ADs and LST, with approximately half or fewer demonstrating knowledge about ADs, including the legal preparation process, roles of family or healthcare providers, and healthcare proxy. Nurses exhibited significantly greater knowledge than EMTs regarding ADs and LST. Positive attitudes among emergency healthcare providers were moderately low, with nurses showing less positivity than EMTs. Differences were noted based on age, years in the profession, personal end-of-life experiences, and perceived need for ADs, with younger and less experienced providers having lower knowledge levels. The study suggests a need for early professional education and training to improve emergency healthcare providers' confidence in delivering advanced care planning.

Keywords: emergency nurses, emergency medical technicians, advance directive, knowledge, attitudes

Introduction

Therapeutic advancements have brought both prolonged survival and increased burdens of care for individuals with chronic conditions. As these conditions progress, the need for supportive and palliative care becomes more prominent, especially as individuals approach the end of life. Advance care planning (ACP) plays a crucial role in addressing these burdens by actively involving individuals in decisions about their therapeutic and palliative care trajectories. Through an advance directive (AD), adults can articulate their end-of-life (EoL) values, preferences, and designate a healthcare proxy, with the flexibility to revise or withdraw these directives as needed. In the recent enactment of the Act for Life-Sustaining Treatments (LSTs) has heightened attention to ACP and ADs, leading to increased utilization of these legal instruments. (Aguilar-Sanchez et al., 2017)

While the benefits of ACP and ADs are well recognized, their utilization often falls short, with many individuals initiating or implementing them only close to death. Professional perspectives, particularly among healthcare providers, significantly influence patients' decisions regarding ACP and ADs. Knowledge and attitudes toward ACP and ADs are key modifiable factors that can enhance the likelihood of their

uptake, but these factors vary across professions and areas of expertise. For instance, palliative care specialists and geriatricians tend to exhibit more knowledge and positive attitudes toward LST withholding/withdrawing laws compared to other specialists, although knowledge gaps persist. (Smith et al., 2019).

Emergency healthcare providers, including nurses and emergency medical technicians (EMTs), are often confronted with making critical decisions about initiating or implementing ADs during emergencies. However, insufficient knowledge about patients' EoL wishes among emergency providers can impede their ability to deliver appropriate EoL care. Effective communication with AD carriers and their families is crucial in emergency care contexts, emphasizing the importance of emergency providers' accurate knowledge and positive attitudes toward ADs. (Sav et al., 2015)

This study delves into the knowledge and attitudes of emergency healthcare providers, specifically nurses and EMTs, regarding ADs in the context of emergency care settings. The objectives include exploring emergency providers' specific knowledge about ADs and LST plans, comparing knowledge levels about ADs and attitudes toward them between nurses and EMTs, and examining demographic factors influencing emergency providers' knowledge and attitudes toward ADs and LST plans. (Rocker et al., 2016)

Methods

Design and Participants

A cross-sectional study design was employed, involving a convenience sample of nurses and emergency medical technicians (EMTs) selected from 12 regional emergency medical centers. The study surveyed nurses and EMTs providing emergency care in the current practice setting.

Measures

Knowledge was assessed regarding Advance Directives (ADs) on Life-Sustaining Treatments (LSTs) through 7 items related to ADs and 7 items pertaining to LST plans. These items were revised by the authors following the enactment of the Act for the management of LSTs. Each item was rated on a dichotomous scale (1 = yes; 0 = no), with scores ranging from 0 to 7 for each subscale, where higher scores indicated greater knowledge. Reliability of the scales was assessed using Kuder Richardson (KR) Formula-20, yielding scores for ADs on LSTs and LST plans.

Attitudes toward ADs were measured using the Korean version of the 16-item Advance Directive Attitude Survey (K-ADAS). Participants rated their positive–negative attitudes toward ADs on a four-point Likert scale (1 = strongly disagree; 4 = strongly agree) across four sections. Scores ranged from 16 to 64, with higher scores indicating more positive attitudes. The K-ADAS demonstrated desirable reliability, with a Cronbach's alpha of 0.80.

Demographic information, including age, gender, marital status, religious affiliation, educational level, years in profession, and AD-related experiences, was collected using a standard form.

Procedure

Following institutional review board (IRB) approval, the principal investigator (PI) contacted executive personnel from 12 emergency medical centers to recruit participants. A cross-sectional survey on knowledge and attitudes toward ADs was conducted using both online and offline methods. The PI personally explained the study to potential participants, collecting informed consent and survey responses either in person or online.

Statistical Analysis

Descriptive statistics were used to summarize sample characteristics, and t-tests or chi-square tests were employed to compare characteristics between nurses and EMTs. Chi-square tests were used to compare correct responses between the two groups, and t-tests were used to compare knowledge and attitudes scores between nurses and EMTs. Demographic differences in knowledge and attitudes were analyzed using t-tests or one-way analyses of variance, with post-hoc analyses conducted using the Scheffé test. Data were analyzed using SPSS Ver. 23.0, with significance set at $p < 0.05$.

Results

Two hundred survey questionnaires were distributed, with a response rate of 95.0% (n = 190). The final sample consisted of 164 respondents who completed the survey questionnaires with the exclusion of 26 incomplete responses (nurses, mean age = 29.10 ± 5.09, men 24.0%; EMTs, mean age = 27.19 ± 4.58, men 35.3%). Nurses were older than EMTs (p = 0.033) and more likely to report a religious affiliation (p = 0.001). Both groups had a majority with college or baccalaureate degrees (85.4 vs. 88.2%, p = 0.853). Nurses had more years of practice on average compared to EMTs (5.82 vs. 3.53 years, p = 0.003).

Approximately one-third of nurses and EMTs had personal experience with end-of-life (EoL) care or advance directives (ADs) of families or relatives (35.4 and 25.0%, respectively, p = 0.165). More nurses than EMTs reported experiences with ADs for their family or relatives (p < 0.001). The majority of both groups expressed a need for ADs, with more nurses perceiving a need for an AD than EMTs (78.1 vs. 57.4%, p = 0.004).

Knowledge about ADs and LST Plans

Nurses demonstrated higher knowledge levels regarding ADs, showing significantly greater knowledge in all aspects compared to EMTs. Specifically, nurses had significantly greater knowledge in most items related to ADs on Life-Sustaining Treatments (LSTs) and LST plans compared to EMTs. Knowledge deficits were evident in both groups regarding ADs as legal documents, with more nurses reporting knowledge about family or healthcare providers' assistance with AD preparation, healthcare proxy, and registration.

Differences in Knowledge about and Attitudes toward Advance Directives between Nurses and EMTs

Overall, participants showed moderately low levels of knowledge about ADs and LST plans. Nurses exhibited significantly higher knowledge about both ADs than EMTs, while EMTs showed more positive attitudes toward ADs compared to nurses.

Demographic Differences in Knowledge about and Attitudes toward ADs of Emergency Healthcare Providers

Emergency healthcare providers who were older, with longer careers, personal end-of-life experiences, and a greater perceived need for ADs showed greater knowledge about ADs. Attitudes toward ADs were significantly higher in younger emergency healthcare providers compared to older counterparts.

Table 1. General characteristics of participants (n = 164).

Characteristics	Categories	Nurse (n = 96)	EMT (n = 68)	χ^2 (p)
Age (years)	<26	22 (22.9)	29 (42.7)	6.79
	26–29	41 (42.7)	23 (33.8)	
	≥30	33 (34.4)	16 (23.5)	
Mean ± SD	29.10 ± 5.09	27.19 ± 4.58		
Gender	Male	23 (24.0)	24 (35.3)	2.50
	Female	73 (76.0)	44 (64.7)	
Marital status	Unmarried	71 (74.0)	57 (83.8)	2.26
	Married	25 (26.0)	11 (16.2)	
Religious affiliation	Yes	49 (51.0)	18 (25.4)	10.78
	No	47 (49.0)	50 (74.6)	
Educational level	Associate	30 (31.3)	23 (33.8)	0.32
	Bachelor	52 (54.1)	37 (54.4)	
	≥Master	14 (14.6)	8 (11.8)	
Years in profession	<3	34 (35.4)	42 (61.7)	11.35
	3–6	32 (33.3)	15 (22.1)	
	≥7	30 (31.3)	11 (16.2)	

Mean $\pm$ SD	5.82 $\pm$ 5.11	3.53 $\pm$ 3.33		
Personal experience	Family or relative death in the past year	No	62 (64.6)	51 (75.0)
		Yes	34 (35.4)	17 (25.0)
AD writing experience of family or relative	No	66 (68.8)	65 (95.6)	17.84
	Yes	30 (31.2)	3 (4.4)	
Experience of EOL care	No	35 (36.5)	31 (45.6)	1.38
	Yes	61 (63.5)	37 (54.5)	
Experience with DNR consent	No	29 (30.2)	11 (16.2)	4.25
	Yes	67 (69.8)	57 (83.8)	
Perceived need for an AD	Not necessary	21 (21.9)	29 (42.6)	15.13
	Necessary	36 (37.5)	22 (32.4)	
	Very necessary	39 (40.6)	17 (25.0)	

Table 2. Comparison of correct answer rate for specific knowledge about an AD on LSTs and LST plans between emergency nurses and emergency medical technicians (n = 164).

Categories	Items	Correct Answer, n (%)	χ^2 (p)
AD	1. An AD can be signed by any adult.	116 (70.7)	7.96 (0.005)
	2. An AD is a document in which an individual indicates desired end-of-life care in advance in case he/she is no longer able to make decisions due to illness or incapacity.	140 (85.4)	0.84 (0.358)
	3. Family can prepare an AD on behalf of an individual.	78 (47.6)	8.79 (0.003)
	4. A healthcare proxy as a surrogate decision maker can be designated on an AD.	25 (15.2)	1.09 (0.380)
	5. An AD can be registered in a designated agency only.	81 (49.4)	7.41 (0.006)
	6. A physician's or nurse's assistance is required to complete an AD.	63 (38.4)	24.28 (<0.001)
	7. Any changes or revocation is possible when needed.	124 (75.6)	17.75 (<0.001)
LSTPs	1. An LSTP is a document in which a terminal individual indicates desired end-of-life care.	128 (78.0)	2.43 (0.119)
	2. An LSTP is prepared by an attending physician.	86 (52.4)	7.55 (0.006)
	3. Terminally ill patients or patients in the dying phase can prepare an LSTP.	129 (78.7)	0.93 (0.336)
	4. An LSTP cannot be changed once it has been written.	125 (76.2)	10.81 (0.001)
	5. An LSTP can be written after discussion with the family.	6 (3.7)	1.63 (0.202)
	6. A DNR (do not resuscitate) order can be used instead of an LSTP.	66 (40.2)	15.96 (<0.001)
	7. All medical care including analgesics and antibiotics is discontinued on the completion of an LSTP.	120 (73.2)	17.69 (<0.001)

Table 3. Differences in knowledge about and attitudes toward ADs between nurses and emergency medical technicians (n = 164).

Variables	Total	Nurse	EMT	t (p)
	(Mean ± SD)			
Knowledge	AD (7 items)	3.82 ± 1.81	4.42 ± 1.66	29.34 (<0.001)
	LSTPs (7 items)	4.02 ± 1.72	4.51 ± 1.45	20.84 (<0.001)
Attitudes	(16 items)	31.04 ± 5.43	30.26 ± 5.28	4.84 (0.029)

Table 4. Demographic differences in knowledge about and attitudes toward ADs of emergency healthcare providers (n = 164).

Characteristics	Categories	n	AD on LSTs	LSTPs	Attitudes	M ± SD	t/*F(p)	M ± SD	t/*F(p)	M ± SD	t/*F(p)
* Age (years)	<25 a	51	3.04 ± 1.87	3.14 ± 1.71	2.05 ± 0.28	13.37	(<0.001)	27.16	(<0.001)	2.05	3.72 (0.026)
	25–29 b	64	4.00 ± 1.83	4.16 ± 1.59	1.90 ± 0.36						
	≥30 c	49	4.40 ± 1.43	4.78 ± 1.49	1.89 ± 0.35	a < b, c	a < b < c	a > b, c			
Gender	Male	47	3.89 ± 1.74	3.96 ± 1.85	1.87 ± 0.6	0.10		0.10		-1.57	(0.120)
	Female	117	3.79 ± 1.84	4.05 ± 1.67	1.97 ± 0.33						
Marital status	Unmarried	128	3.69 ± 1.81	3.80 ± 1.76	1.96 ± 0.33	3.34		10.87		1.96	1.22 (0.228)
	Married	36	4.31 ± 1.72	4.83 ± 1.25	1.88 ± 0.37			(<0.001)			
Religious affiliation	Yes	67	4.10 ± 1.77	4.46 ± 1.49	1.90 ± 0.36	2.78		7.70		1.90	-1.27 (0.216)
	No	97	3.63 ± 1.82	3.72 ± 1.80	1.96 ± 0.32			(0.006)			
* Educational level	College a	53	3.98 ± 1.74	4.09 ± 1.55	1.92 ± 0.38	2.44		2.64		1.92	0.29 (0.746)
	Bachelor b	89	3.57 ± 1.82	3.81 ± 1.75	1.96 ± 0.31						
	≥Master c	22	4.45 ± 1.79	4.73 ± 1.83	1.95 ± 0.31						

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* Years in profession	<3 a	76	3.28 ± 1.79	3.45 ± 1.70	1.97 ± 0.34	7.94		12.14		1.97	0.51 (0.600)
	3–6 b	47	4.06 ± 1.92	4.13 ± 1.70	1.92 ± 0.32			(<0.001)			
	≥7 c	41	4.56 ± 1.38	4.98 ± 1.29	1.91 ± 0.36	a < c	a < b < c	a > b, c			
Personal experience	Family or relative death in the past year	No	113	3.56 ± 1.76	3.88 ± 1.76	1.96 ± 0.34	8.206		2.74		1.96
	Yes	51	4.41 ± 1.79	4.35 ± 1.59	1.90 ± 0.34	(0.005)		(0.100)			
AD writing experience	No	131	3.65 ± 1.84	3.87 ± 1.79	1.95 ± 0.34	6.26		5.40		0.54	
of family or relative	Yes	33	4.52 ± 1.52	4.64 ± 1.25	1.91 ± 0.35	(0.013)		(0.021)			
Experience of EOL care	No	66	3.70 ± 1.95	3.74 ± 1.90	1.96 ± 0.37	0.54		3.02		0.57	
	Yes	98	3.91 ± 1.71	4.21 ± 1.56	1.93 ± 0.32	(0.465)		(0.084)			
Experience with DNR consent	No	40	3.90 ± 1.95	4.10 ± 1.60	1.94 ± 0.32	0.10		0.10		0.05	
	Yes	124	3.80 ± 1.77	4.00 ± 1.76	1.94 ± 0.35	(0.758)		(0.750)			
* Perceived need for an AD	Not necessary a	50	2.94 ± 2.15	2.76 ± 2.04	2.01 ± 0.37	10.67	(<0.001)	26.31	(<0.001)	1.50	1.50 (0.226)
	Necessary b	58	3.98 ± 1.52	4.41 ± 1.23	1.93 ± 0.29						
	Very necessary c	56	4.45 ± 1.43	4.75 ± 1.15	1.90 ± 0.35						

Discussion

Emergency healthcare providers often encounter patients in need of Advance Care Planning (ACP) or Advance Directives (ADs), along with challenges related to implementing desired care stated in an AD. Our study revealed low knowledge among emergency healthcare providers about ADs, especially regarding the legitimate preparation process, healthcare proxy roles, and the roles of families or healthcare providers. Notably, Emergency Medical Technicians (EMTs) showed lower knowledge levels compared to emergency nurses, and both groups exhibited moderately low attitudes toward ADs, with nurses displaying less positive attitudes than EMTs. Younger providers with fewer years of experience, no personal exposure to ADs, and a higher perceived need for ADs had lower AD knowledge and less positive attitudes. These findings

underscore the need for educational interventions targeting novice emergency healthcare providers to enhance their knowledge and attitudes, which can facilitate effective communication with AD carriers during emergency care. (Stiel et al., 2015)

Understanding healthcare providers' knowledge and attitudes toward ADs is crucial for facilitating patient decision-making and effective implementation of ACP and ADs. Emergency healthcare providers face challenges in implementing end-of-life care for terminal patients, including issues related to AD availability, accuracy, and stakeholders' disagreements. However, there is a lack of emphasis on ACP and AD knowledge among emergency professionals, highlighting the need for targeted interventions. (Rietjens et al., 2017)

Our study compared knowledge levels among nurses and EMTs engaged in emergency care, revealing poorer knowledge among EMTs than nurses in various aspects of ADs and Life-Sustaining Treatment (LST) plans. While the conceptual definition of ADs was generally understood, knowledge deficits were significant concerning the legal process of AD preparation, healthcare proxies, and different types of ADs (e.g., LST plans vs. DNR). (An et al., 2019)

Comparative data from previous studies highlight variability in AD knowledge across healthcare specialties, with emergency healthcare providers exhibiting relatively lower knowledge levels compared to specialists like palliative care and geriatricians. This emphasizes the importance of enhancing emergency healthcare providers' knowledge through professional education and training to facilitate the use and effective administration of ACP and ADs. (Miller et al., 2019)

Additionally, our study assessed AD attitudes among Korean emergency healthcare providers, revealing moderately low levels of positive attitudes compared to other healthcare professionals. This discrepancy underscores the need to explore the relationship between knowledge and attitudes further. Possible reasons for knowledge deficits and less positive attitudes in our sample include limited emphasis on ADs in Asian countries like , ongoing developments in healthcare policies, and varying access to patients' medical histories among healthcare providers. (Jimenez et al., 2018)

To address these challenges, training programs should focus on increasing knowledge and fostering positive attitudes among emergency healthcare providers. This can enable them to assist AD carriers effectively during emergency care, contributing to a smoother transition to palliative care for patients with ADs. Further research is needed to investigate how training impacts communication with AD carriers in emergency care delivery. (Miller et al., 2019)

Strengths

Insights into Emergency Healthcare Providers' Knowledge and Attitudes: The study provides valuable insights into emergency healthcare providers' knowledge about and attitudes toward Advance Directives (ADs), which can aid in the prompt and effective implementation of ADs in emergency care settings.

Limitations

Convenience Sampling: The use of convenience sampling may limit the generalizability of the study results, as it may not accurately represent the entire population of emergency healthcare providers. Random sampling would be more robust for achieving sample representativeness.

Lack of Comparative Perspective: The study lacks information about how emergency healthcare providers' AD perspectives compare to those of other healthcare professionals. Including a comparative study design with a larger sample across various healthcare professions would provide a more comprehensive understanding.

Superficial Understanding with Survey Questionnaires: While survey questionnaires were used, they may only offer a superficial understanding of emergency healthcare providers' AD perspectives. Incorporating mixed-method approaches could provide deeper insights into their perspectives, especially regarding emergency AD care.

Implications for Practice and Research

Professional Education and Training: The study suggests the need for targeted professional education and training programs to enhance emergency healthcare providers' knowledge of legal procedures,

institutional policies, and positive attitudes toward ADs. This could improve their confidence in providing care through Advance Care Planning (ACP) and ADs in emergency situations.

Future Research Directions: Future research should focus on cross-organizational data collection, involving hospital leadership, to develop effective models for AD implementation during emergencies. This includes aligning models with legal procedures and organizational policies, laying the groundwork for related acts and policies.

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