

# Practice of end-of-life care for patients with advanced dementia by hospital physicians and nurses: Comparison between medical and surgical wards

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## Abstract

**Background:** Patients with advanced dementia are commonly hospitalized in acute care wards, yet there is limited data regarding the end-of-life (EOL) care delivered to this population. The aim of the study was to examine EOL care delivered to patients with advanced dementia hospitalized on acute wards as reported by physicians and nurses.

**Methods:** Participants were physicians and nurses from medical and surgical wards of two tertiary hospitals in Israel. Participants completed a self-report questionnaire evaluating EOL care experiences, knowledge, performance, assessment, communication, and perceived futile care regarding patients with dementia.

**Results:** The questionnaire was completed by 315 providers. There were 190 medical ward respondents and 125 from general surgical wards. Of them, 48.6% recognized dementia as a terminal disease, while 26.0% of the participants reported that they knew the end-of-life preferences for less

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than 10% of their patients. Among the providers, 53.3% reported that end-of-life ward discussions took place only when there was a life-threatening situation and 11.1%–16.5% never engaged in end-of-life communication regarding EOL patient's preferences, appointing an attorney for the patient, disease trajectory or the essence of palliative care, with patients or their representatives. Only 17.1% reported "never" performing care they considered to be futile for patients with advanced dementia. Controlling for gender, age, role, position (senior/junior), and exposure to patients with advanced dementia, surgical ward respondents reported performing less EOL care than medical ward respondents in almost all aspects of palliative care.

**Conclusions:** Despite growing attention, a significant portion of staff in acute care wards do not report applying EOL care to patients with advanced dementia in clinical practice, especially surgical ward staff.

## Keywords

advanced dementia, end-of-life care, healthcare professionals, medical ward, surgical ward

## Introduction

Acute care hospitals are increasingly providing care for people with advanced dementia, with occupancy rates of patients with dementia increasing to as much as 28% of all hospitals beds (Helm et al., 2018), and up to 40% among patients 70 years and older (Briggs, et al., 2017; Travers et al., 2012). However, acute care settings are often not tailored to meet the needs of patients with dementia (Donnelly et al., 2018; Martinsson et al., 2020), especially related to end-of-life (EOL) care (Leung & Todd, 2010; Mitchell et al., 2009).

Lack of knowledge related to the nature of end stage dementia and its appropriate care was found in several studies from different care environments. It has been reported that up to 50% of healthcare providers in nursing homes fail to recognize dementia as a terminal illness (Robinson et al., 2014), especially at its end stage (Mitchell et al., 2009). In a systematic review, Moon et al. (2018) found that those providing acute care to patients with dementia are increasingly aware of the terminal nature of end stage dementia; however, provision of EOL care was inconsistent. Healthcare professionals on acute hospital wards are usually trained to provide a quick diagnosis, cure disease, and save lives at any cost (Dewing & Dijk, 2016). They tend to be skeptical about the use of EOL care for patients with chronic diseases, with the exception of cancer (Lennaerts-Kats et al., 2020, Wong et al., 2020), and many lack the self-confidence to provide such care (Helm et al., 2018). In terms of communication, healthcare providers in the community were also found to be deficient in communicating the dementia illness trajectory and the goals of such care to patient caregivers (Armstrong et al., 2019; Livingston et al., 2011).

Despite a large body of literature regarding EOL care delivered to patients with dementia in long term and community settings (Coleman, 2012), there is less data describing the provision of EOL care in acute care settings. This information is particularly important since the acute care hospital is often the place where healthcare providers find themselves at the decisional crossroads regarding patients with advanced dementia during acute, emergency situations.

In Israel, an end-of-life law was legislated in 2005 (Jotkowitz et al., 2017; Shaulov et al., 2019). In general, the law applies to patients who have a life expectancy of less than six months and allows withholding, but not withdrawing, of continuous interventions such as mechanical ventilation. Nutrition and hydration, including artificial nutrition and hydration, are considered as "basic care" that cannot be withheld or withdrawn, unless the patient is in the final stage (last two weeks) of life

(Steinberg and Sprung, 2007). Tube feeding among patients with advanced dementia is widely used in Israel (Clarfield et al., 2006; Sternberg et al., 2021). Palliative care is provided in both inpatient and community settings, primarily to patients with cancer. Only recently, patients with advanced dementia are considered for palliative care services, with an emerging palliative care discourse in nursing homes and a pilot project of home hospice for advanced dementia (Shaulov et al., 2019; Sternberg et al., 2021).

In this study, we investigated how often providers assessed, made decisions and communicated about EOL care delivered to patients with dementia in medical and surgical wards as self-reported by physicians and nurses in the acute care setting in two tertiary hospitals in Israel. Our research questions were:

1. What are the end-of-life practices of hospital physicians and nurses for patients with dementia?
2. Is there a difference in end-of-life practice between physicians and nurses working on medical as opposed to surgical wards?

Our hypothesis was that medical ward staff would have a more palliative care approach than surgical ward staff, and that the overall palliative delivery for this population in acute settings is not optimal or perhaps lacking.

## Methods

### Participants

The sample was a convenience sample. Participants were physicians and nurses working on acute medical and general surgical wards at two tertiary university-affiliated hospitals in Israel. Overall, the study took place on 15 wards: nine medical and six surgical. These hospitals, while in different geographical regions, are comparable in size and both serve a very diverse yet similar patient population. Both medical and surgical wards have 35–40 beds each. Inclusion criteria were physicians and nurses working at least 12 months on those wards. The only exclusion criterion was formal postgraduate geriatric or palliative care training. The reason for this exclusion was to avoid the co-founder of advanced palliative and geriatric education.

### Instruments

A questionnaire was developed by the authors that measured the practice of EOL care for patients with advanced dementia among acute care practitioners. The questionnaire was based on a literature review that described the existing gap in studies of EOL care for this population, which focused specifically on the assessment and decision-making of the healthcare staff and on the implementation of decisions in acute care settings (Armstrong et al., 2019; Erel et al., 2017; Livingston et al., 2011; Robinson et al., 2014; Shaulov et al., 2015). Six experienced physicians, board certified in geriatric medicine, who work in acute care hospitals performed a content validity check.

A pilot study was conducted on one medical ward, which included 19 participants. As a result, we added an additional question, asking whether the respondent believed that dementia is a progressive disease that eventually threatens life.

The participants completed a demographic questionnaire that included age, gender, role (nurse/physician), years of work experience, position (senior/junior), and their amount of exposure to patients with advanced dementia in the last three months. Seniors were defined as physicians who

were board certified in either internal medicine or surgery or nurses who were either head nurses or charge nurses. All other providers were defined as juniors. The questionnaire assessing EOL care practice for patients with dementia included nine items: participants' knowledge of the terminal nature of advanced dementia, the frequency they assess the stage of dementia, their knowledge of patient EOL preferences, the timing of end-of-life treatment discussions on the ward, the number of discussions with patients and families about EOL preferences, power of attorney discussions, illness trajectory discussions, the essence of EOL care discussions, and the number of times futile care was performed in patients with dementia. All relevant items refer to the last three months. The four items that described the number of cases that met a certain palliative care communication practice and the item regarding futile care were measured on a 5-point scale, ranging from no exposure to over 20 cases in the last three months. The timing of ward discussions about EOL care preferences was rated by a six-answer multiple choice question.

This questionnaire was part of a larger study that used a mixed methods methodology aimed at investigating the decision-making process and cognitive biases related to care of patients with advanced dementia among healthcare workers in acute care hospitals. The qualitative part of the research was published previously (Erel et al., 2021a, 2021b).

### *Data collection*

Questionnaires were administered by paper and pencil and were completed during regular physician and nursing ward staff meetings. The researcher explained the study to the staff members and was available to answer questions that arose.

### *Statistical analysis*

Descriptive statistics were used to describe study variables. Percentages were calculated for dichotomous and categorical characteristics, and mean, standard deviation, median, and range were calculated for continuous variables, such as age and work experience. Differences between the medical and surgical staff on various demographic characteristics, work variables, and responses to items regarding end-of-life practices were calculated using chi-square or the Fisher's exact test in the case of categorical variables. Unpaired T-tests and Wilcoxon non-parametric test were used for the comparison of two groups in the case of continuous variables.

In addition, a multivariate logistic regression model was applied to assess differences in responses associated with medical specialty (medical vs. surgical wards), for each of the nine items and calculated the adjusted odds ratio (OR) and 95% confidence intervals (CIs) for medical versus surgical ward staff controlling for gender, age, role, position (senior/junior), and exposure to patients with advanced dementia in the past three months. A value of  $p < 0.05$  was considered statistically significant. The statistical analysis was carried out using IBM SPSS software version 27.

## **Results**

The questionnaire was administered to 320 physicians and nurses who agreed to participate, five were excluded because they had had formal postgraduate training in geriatric medicine and/or palliative care. The final sample included 315 participants: 159 physicians and 156 nurses. One hundred and ninety of the participants were from medical wards and 125 from surgical wards (see Table 1). The median age was 33 years (mean 35.6, SD 9.4, range 24–71). The mean age of participants was higher in the surgical than in the medical wards ( $37.1 \pm 9.6$  vs.  $34.5 \pm 8.9$ ,  $p = 0.02$ ). Forty-seven percent

were male ( $n = 148$ ). Half of the participants had four years or less of work experience (mean 7.7, SD 8.6, range 1–50 years), and the median work experience was higher among surgical ward staff than medical ward's staff (5 vs. 4 years,  $p = 0.03$ ). A minority of physicians ( $n = 64$ ; 40.3%) and nurses ( $n = 33$ ; 21.2%) were senior staff. A large percentage of the participants reported having a high level of exposure to patients with advanced dementia during the last three months, having treated more than 20 such patients, with a higher prevalence among medical compared to surgical wards (62.1% vs. 29.6%).

Almost half of the respondents strongly agreed/agreed that dementia is a terminal, progressive disease that eventually threatens life ( $n = 153$ ; 48.6%) (see Table 2). One third of participants ( $n = 102$ ; 32.4%) reported that they never or rarely evaluated the stage of the disease, with only 6.0% ( $n = 19$ ) stating that they knew the end-of-life preferences for 90% or more of their patients. Almost all participants ( $n = 307$ ; 97.5%) reported discussing end-of-life treatments during staff meetings, although only one third ( $n = 104$ ; 33.1%) reported having this discussion within 24 h of a patient's admission to the ward. Most participants ( $n = 278$ , 88.3%) reported having a discussion with patients' representatives regarding end-of-life care preferences. Some ( $n = 52$ , 16.5%) had not held a conversation about appointing someone with power of attorney for the patient. Only 21.3% ( $n = 67$ ) of the providers discussed the essence of EOL care more than 20 times during the last three months while 16.2% ( $n = 51$ ) reported performing over 20 futile treatments in the last three months. In all domains, the medical ward staff reported a more palliative care approach.

Controlling for gender, age, role, position (senior/junior), and exposure to patients with advanced dementia, medical ward staff had a higher perception that dementia is a terminal disease (OR 1.93; CI 1.11, 3.35;  $p = 0.02$ , strongly agree/agree/neutral vs. not agree); more frequent assessment of the

**Table 1.** Demographic and work characteristics of the participants ( $N = 315$ ).

Variable		Total sample ( $N = 315$ )	Medical ward ( $N = 190$ )	Surgical ward ( $N = 125$ )	$p$ -value
Age (year)	Mean $\pm$ SD	35.6 $\pm$ 9.4	34.5 $\pm$ 8.9	37.1 $\pm$ 9.6	0.02 <sup>a</sup>
	Median	33	32	33	0.15 <sup>b</sup>
	Range	24–71	24–70	24–71	—
Work experience (years)	Mean $\pm$ SD	7.7 $\pm$ 8.6	7.0 $\pm$ 8.7	8.9 $\pm$ 8.4	0.06 <sup>a</sup>
	Median	4.0	4	5	0.03 <sup>b</sup>
	Range	1–50	1–50	1–39	—
Gender $n$ (%)	Male	148 (47)	97 (51)	51 (41)	0.07 <sup>c</sup>
	Female	167 (53)	93 (49)	74 (59)	
Role $n$ (%)	Physician	159 (50.5)	102 (55.7)	57 (45.6)	0.16 <sup>c</sup>
	Nurse	156 (49.5)	88 (36.3)	68 (54.4)	
position $n$ (%)	Senior	97 (30.8)	56 (29.4)	41 (32.8)	0.53 <sup>c</sup>
	Junior	218 (69.2)	134 (70.6)	84 (67.2)	
Exposure to patients with advanced dementia in the past three months $n$ (%)	No exposure	10 (3.2)	6 (3.2)	4 (3.2)	0.001 <sup>c</sup>
	1–20 patients	150 (47.6)	66 (34.8)	84 (67.2)	
	Over 20 patients	155 (49.2)	118 (62.1)	37 (29.6)	

SD = standard deviation. Differences between medical and surgical wards were assessed based on one of the following options: a. An independent t test; b. Wilcoxon non-parametric test; c. chi-square test.

**Table 2.** End-of-life care practices for patients with dementia: Comparison between medical and surgical ward providers.

		Total sample N = 315	Medical wards N = 190	Surgical wards N = 125	p-value <sup>a</sup>
Level of agreement with the statement, "dementia is a terminal, progressive disease that eventually threatens life"	Strongly agree n (%)	58 (18.4)	38 (20.0)	20 (16.0)	0.047
	Agree n (%)	95 (30.2)	62 (32.6)	33 (26.4)	
	Neutral n (%)	71 (22.5)	39 (20.5)	32 (25.6)	
	Disagree n (%)	58 (18.4)	27 (14.2)	31 (24.8)	
	Strongly disagree n (%)	14 (4.4)	5 (2.6)	9 (7.2)	
	Missing n (%)	19 (6.0)	19 (10.0)	-	
How often is an assessment of the stage of dementia performed by the provider?	Never n (%)	28 (8.9)	6 (3.2)	22 (17.6)	<0.0001
	Rarely n (%)	74 (23.5)	39 (20.5)	35 (28.0)	
	Sometimes n (%)	105 (33.3)	72 (37.9)	33 (26.4)	
	Often n (%)	61 (19.4)	41 (21.6)	20 (16.0)	
	Always n (%)	45 (14.3)	30 (15.8)	15 (12.0)	
	Missing n (%)	2 (0.6)	2 (1.1)	—	
Does the provider have knowledge of patient EOL care preferences?	Less than 10% of patients n (%)	82 (26.0)	37 (19.5)	45 (36.0)	0.02
	10–50% of patients n (%)	113 (35.9)	74 (38.9)	39 (31.2)	
	51–90% of patients n (%)	93 (29.5)	62 (32.6)	31 (24.8)	
	Over 90% of patients n (%)	19 (6.0)	13 (6.8)	6 (4.8)	
	Missing n (%)	8 (2.5)	4 (2.1)	4 (3.2)	
When are ward discussions about EOL care preferences conducted (including DNR guidelines)?	At admission n (%)	26 (8.3)	22 (11.6)	4 (3.2)	<0.0001
	Within 24 h of admission n (%)	78 (24.8)	59 (31.1)	19 (15.2)	
	Toward discharge n (%)	3 (1.0)	0 (0.0)	3 (2.4)	
	When a risk to life or major deterioration is determined n (%)	168 (53.3)	91 (47.9)	77 (61.6)	
	Family request n (%)	31 (9.8)	16 (8.4)	15 (12.0)	
	Does not take place n (%)	8 (2.5)	1 (0.5)	7 (5.6)	
	Missing n (%)	1 (0.3)	1 (0.5)	—	
How many discussions were held with patients/families about EOL preferences? <sup>b</sup>	None n (%)	37 (11.7)	15 (7.9)	22 (17.6)	<0.0001
	1–4 n (%)	102 (32.4)	39 (20.5)	63 (50.4)	
	5–10 n (%)	61 (19.4)	43 (22.6)	18 (14.4)	
	11–20 n (%)	45 (14.3)	36 (18.9)	9 (7.2)	
	Over 20 n (%)	70 (22.2)	57 (30.0)	13 (10.4)	
How many discussions with patients/families were held regarding the appointment of a power of attorney? <sup>b</sup>	None n (%)	52 (16.5)	25 (13.2)	27 (21.6)	<0.0001
	1–4 n (%)	93 (29.5)	43 (22.6)	50 (40.0)	
	5–10 n (%)	73 (23.2)	48 (25.3)	25 (20.0)	
	11–20 n (%)	49 (15.6)	43 (22.6)	7 (5.6)	
	Over 20 n (%)	48 (15.2)	38 (20.0)	10 (8.0)	

(continued)

**Table 2.** (continued)

		Total sample N = 315	Medical wards N = 190	Surgical wards N = 125	p-value <sup>a</sup>
How many discussions with patients/ families were held regarding the patient's illness trajectory and life expectancy? <sup>b</sup>	None n (%)	35 (11.1)	14 (7.4)	21 (16.8)	<0.0001
	1–4 n (%)	94 (29.8)	40 (21.1)	54 (43.2)	
	5–10 n (%)	65 (20.6)	41 (21.6)	24 (19.2)	
	11–20 n (%)	49 (15.6)	36 (18.9)	13 (10.4)	
	Over 20 n (%)	72 (22.9)	59 (31.1)	13 (10.4)	
How many discussions with patients/ families were held about the essence of EOL care? <sup>b</sup>	None n (%)	46 (14.6)	20 (10.5)	26 (20.8)	<0.0001
	1–4 n (%)	86 (27.3)	42 (22.1)	44 (35.2)	
	5–10 n (%)	59 (18.7)	33 (17.4)	26 (20.8)	
	11–20 n (%)	57 (18.1)	44 (23.2)	13 (10.4)	
	Over 20 n (%)	67 (21.3)	51 (26.8)	16 (12.8)	
For how many patients with dementia did you perform futile treatment to prolong their life? <sup>b</sup>	None n (%)	54 (17.1)	20 (10.5)	34 (27.2)	<0.0001
	1–4 n (%)	98 (31.1)	49 (25.8)	49 (39.2)	
	5–10 n (%)	70 (22.2)	53 (7.9)	17 (13.6)	
	11–20 n (%)	42 (13.3)	31 (16.3)	11 (8.8)	
	Over 20 n (%)	51 (16.2)	37 (19.5)	14 (11.2)	

DNR = do not resuscitate; EOL = end of life.

<sup>a</sup>Chi-square test (without missing category).

<sup>b</sup>In the last three months.

dementia disease stage by the provider (OR 2.81; CI 1.69, 4.67;  $p < 0.001$ , always, often, sometimes vs. rarely/never); earlier discussions about EOL care preferences during hospitalization (OR 3.71; CI 2.13, 6.46;  $p < 0.001$ ; at admission/within 24 h of admission vs. other options); higher number of patients/family members with whom discussions about EOL preferences were held (OR 2.89, CI 1.09, 3.99;  $p = 0.03$ ; >10 times vs. ≤ 10 times in the last three months), higher number of patients/families with whom discussions of the illness trajectory and life expectancy were held (OR 2.42; CI 1.32, 4.42;  $p = 0.004$ , >10 times vs. ≤ 10 times in the last three months); and higher number of patients/families with whom discussions of the essence of EOL care were held (OR 2.14; CI 1.19, 3.85;  $p = 0.01$ ; >10 times vs. ≤ 10 times in the last three months) (see [Table 3](#)).

## Discussion

We found that acute care practitioners perceived EOL care for patients with advanced dementia to be deficient in all of the examined domains. Controlling for gender, age, role, position (senior/junior), and exposure to patients with advanced dementia, we found a higher prevalence of awareness and implementation of EOL care among practitioners from medical than surgical wards.

The uniqueness of this study is in its description of the clinical basis of palliative and EOL care for patients in the advanced stage of dementia ([Mitchell et al., 2009](#)). Most of the studies conducted in the context of EOL care for patients with dementia in acute settings, as summarized in the review by [Moon et al., \(2018\)](#) refer to only one of the parameters that we examined.

Only about half of the sample reported perceiving dementia as a terminal disease. About a third did not evaluate the patient's stage of dementia, possibly due to a lack of recognition that the patient suffered from an end stage disease and would have greatly benefited from EOL care. These findings

**Table 3.** Adjusted<sup>a</sup> odds ratios for the association of ward (medical vs. surgical ward) and end-of-life care for patients with dementia: a multivariate logistic regression model.

Dependent variable		Medical ward versus surgical ward		
		OR <sup>a</sup>	95% CI	p-value
Level of agreement with the statement, “dementia is a terminal, progressive disease that eventually threatens life”	Strongly agree/agree/neutral versus not agree	1.93	1.11, 3.35	0.02
How often is an assessment of the stage of dementia performed by the provider?	Always/often/sometimes versus rarely/never	2.81	1.69, 4.67	<0.001
Does the provider have knowledge of patient EOL care preferences?	≥50% versus < 50%	1.53	0.94, 2.49	0.08
When are ward discussions about EOL care preferences conducted (including DNR guidelines)?	At admission/within 24 h of admission versus other options	3.71	2.13, 6.46	<0.001
How many discussions were held with patients/families about EOL preferences? <sup>b</sup>	>10 versus ≤10	2.89	1.09, 3.99	0.03
How many discussions with patients/families were held regarding the appointment of a power of attorney? <sup>b</sup>	>10 versus ≤10	1.77	0.95, 3.29	0.07
How many discussions with patients/families were held regarding the patient’s illness trajectory and life expectancy? <sup>b</sup>	>10 versus ≤10	2.42	1.32, 4.42	0.004
How many discussions with patients/families were held about the essence of EOL care? <sup>b</sup>	>10 versus ≤10	2.14	1.19, 3.85	0.01
For how many patients with dementia did you perform futile treatment to prolong their life? <sup>b</sup>	>10 versus ≤10	1.09	0.58, 2.06	0.8

<sup>a</sup>Adjusted for gender, age, role, position (senior/junior), and exposure to patients with advanced dementia in the past three months.

<sup>b</sup>In the last three months.

may be associated with gaps in provider knowledge of the dementia trajectory. Other researchers, from both acute and long-term settings, also found a lack of knowledge regarding the terminal nature of advanced dementia among providers or reported a lack of EOL care and palliative care organizational regulations and care protocols (Livingston et al., 2011; Timmons et al., 2016). The low rate of provider communication with patient representatives about all aspects of EOL care adds to the resulting picture of insufficient attention given to the patient’s terminal state.

It has been recognized that many patients do not complete Advance Directives, and those who have such directives continue to receive treatments in acute care settings that are not consistent with their values and preferences (Moody, 2021). These findings are reinforced by the results of our study, which reveal that few providers are familiar with actual patient preferences.

Another, albeit different tool that assists practitioners to make tailored end-of-life treatment decisions are ward multidisciplinary discussions. Few of the participants in our sample reported having such a discussion within 24 h of patient admission, with the majority reporting such discussions only in life-threatening situations. Similar to our findings, practitioners initiating do not resuscitate (DNR) orders often did so under pressure of emergency situations (Keijzer-Van



Laarhoven et al., 2020; Thune-Boyle et al., 2010). The European Society of Palliative Care (Van der Steen et al., 2014) has recommended that providers consider providing palliative care tailored to personal preferences and choices for every patient in advanced dementia. Hence, regardless of the patient's condition at the time of hospital admission, a discussion should take place as early as possible, in order to prevent the discussion from taking place under an emergency situation, where treatment decisions are made under stress and emotional arousal.

Good communication with patient representatives is an integral part of quality care (Brazil et al., 2015; Hanson & Winzelberg, 2013), which we found was underutilized in this study. Others found that family members of patients with advanced dementia reported a lack of dialog (Andrews et al., 2015), poor communication, and unmet family needs (Armstrong et al., 2019), and that rarely was information provided about future care options (Thune-Boyle et al., 2010).

We found that the majority of providers reported performing futile care for patients with advanced dementia during the last three months. Others reported a high prevalence of patients with dementia being over-treated at the end of life (Huang et al., 2017; Mitchell, 2015; Richardson et al., 2007). One study from a hospital acute geriatric ward in Israel found that 90.1% of patients with advanced dementia underwent invasive medical procedures during their last week of life (Aminoff & Adunsky, 2005), while another study from Ireland reported similar high rates during the final hospital admission, with no statistically significant differences between patients with or without dementia (Afzal et al., 2010). A survey of hospital healthcare providers in Ireland describes ambiguity related to the care approach for patients with dementia at the advanced stage, with diversity in attitudes and variability in care decision-making about initiation/withholding of potentially inappropriate medications (Parsons et al., 2014). Expert opinion articles and various guidelines, such as those of the European Association for Palliative Care, advocate against such interventions, and argue that patients with dementia are over-treated with no benefit to them, resulting in the extension of suffering (Mercadante et al., 2018; Van der Steen et al., 2014; Voumard et al., 2018). In addition, decisions about futile interventions may also depend on other aspects beyond the specific medical condition, like personal values, culture, and organizational routine (Anantapong et al., 2020).

Our findings indicate that there were significant differences between the care approaches of medical versus surgical ward providers, with medical staff tending towards a more palliative care approach. This difference cannot be explained only by differences in the amount of exposure to patients with advanced dementia or by differences in demographic characteristics, since the statistical analysis using a multivariate model took into account the amount of exposure healthcare providers had to patients with advanced dementia, and their gender, age, role, and position (senior/junior). One possible explanation for this difference is that surgical staff encounter different patient scenarios than medical staff. Many surgical cases may be perceived as potentially treatable and reversible with a better prognosis, such as the removal of a benign tumor. Two studies comparing medical to surgical staff found an association between medical education and goals of care (Erel et al., 2021a; Nabozny et al., 2016). Nabozny et al. (2016) found that internists were more than twice as likely to base treatment decisions on quality of life than surgeons. This finding is reinforced by the findings from the qualitative part of this study (Erel et al., 2021a). The majority of medical ward staffs perceived quality of life and the palliative care approach as the most appropriate care, while the surgical ward staffs perceived aggressive care (surgical intervention) to be best.

The American College of Surgeons recommends palliative care for surgical patients with a poor prognosis (Task Force on Surgical Palliative Care; Committee on Ethics, 2005), yet studies reveal that the level of implementation is low, and that discord between the goals of the surgeon and the goals of the patient regarding EOL care continues to persist (Suwanabol et al., 2018). Evans et al. (2020) analyzed data from 105 patients who died after being admitted to a surgical ward. They found

that only 37% received palliative care consultations. [Rodrigues et al. \(2015\)](#), who analyzed palliative consultation data from 521 patient records, reported similar results. They found that 85% of the consultations were for medical patients while only 15% were for surgical patients.

One possible explanation for this difference was given by [Weissman and Block \(2002\)](#), who found that medical postgraduate education and training often includes EOL care while most surgical specialties do not. In a survey of 131 surgeons, the vast majority (76.1%) reported no formal palliative care education, with 37.9% reporting inadequate training in EOL care and 42.7% inadequate preparation in EOL related communication ([Suwanabol et al., 2018](#)). Another possible explanation is that surgical training is task-oriented ([Dillon et al., 2018](#); [Suwanabol et al., 2017, 2018](#)), with a culture of heroics and a high level of pressure to succeed technically and never to give up on a patient or admit defeat ([Cunningham et al., 2019](#); [Schwarze et al., 2010](#)). [Cauley et al. \(2016\)](#) found that surgeons performed surgeries they knew would not benefit the patient so that the family had more time to cope and come to terms with the advanced dementia patient's expected demise.

This study has several limitations. First, this was a survey exploring self-reported knowledge and behavior and did not include an observation of actual clinical practice. Healthcare providers may act differently in real life. Social desirability also may have biased their responses. We excluded healthcare providers who had undergone formal training in geriatric or palliative care, but did not evaluate whether staff members had been exposed to informal training or the possible effect role models had on them. In addition, because we used a convenience sample and the research was conducted in two tertiary hospitals in Israel, generalization of the findings is limited.

Questions regarding the number of cases in which respondents practiced end-of-life care were analyzed primarily using descriptive statistics. Conclusions based on these results might be misleading as some respondents might have had a disproportional level of exposure than other respondents. Nevertheless, in the multivariate logistic regression model, we controlled for exposure to patients with advanced dementia. In this study, we did not include a number of confounders such as the average length of stay on each type of ward or the proportion of patients who have already had discussions regarding power of attorney by the time of admission.

It is recommended that a future study examine the differences in care approach for those with and without formal education and training in geriatrics and palliation. Larger, multicenter, international surveys and observational studies may also contribute to the care delivered by hospital healthcare professionals to patients with advanced dementia and to the additional education and training in the field of palliative care and geriatrics. In addition, future studies may include characteristics of patients and family members which might influence a palliative approach and practice.

## Conclusions

Despite the high prevalence of patients with dementia in acute inpatient settings, physicians and nurses do not regularly practice EOL and palliative care. Knowledge of the disease as being terminal, identifying the stage of disease, communication with patient representatives, and adjusting care based on patient and family values and preferences are key points in favor of ensuring the existence of quality EOL care. Findings from the current study show a low level of knowledge related to EOL care of those with advanced dementia among those working on acute wards. In addition, we found that surgical ward staff were less likely than medical ward staff to incorporate EOL care into their practice. This information provides the basis upon which increased EOL care training can be designed and implemented to fill in the existing gaps.

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## Ethics

Ethical approval was received from the ethics committee of each of the two hospitals (Case numbers: 5535–18-SMC; 0027–19-HMO). Health professionals received oral and written information about the study and written consent was obtained. There was no compensation for their contribution to this study. All questionnaires were numbered and personal information remained confidential.

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