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ORIGINAL RESEARCH

Physician-Related Gaps in Hospice Referral for Patients with Advanced Dementia

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Purpose: Providing essential end-of-life care for patients with advanced dementia depends on physicians' ability to identify eligible individuals and refer them to hospice services. In practice, however, such referrals are often delayed—or not made at all. This study aimed to examine the factors associated with physicians' knowledge and attitudes toward referring patients with advanced dementia to home hospice care, and to compare characteristics of those who refer with those who do not.

Patients and Methods: This cross-sectional study assessed physicians' knowledge and attitudes regarding hospice services for patients with advanced dementia. A dedicated questionnaire was developed for the purpose of the study, based on a representative clinical case involving a patient with advanced dementia.

Results: A total of 200 physicians participated in the study. While 84.3% had treated at least one patient with advanced dementia in the past six months, only 88 physicians (44.2%) reported referring to home hospice care such patients during that time. Moreover, only 6% of physicians correctly answered all four knowledge questions on the topic. No significant differences were observed between referring and non-referring physicians in terms of participation in dedicated training, knowledge level, or attitudes. Higher professional status (board certification) and the number of advanced dementia patients treated in the previous six months were the only independent predictors of referral.

Conclusion: This study revealed substantial gaps in the recognition of advanced dementia and in the timely referral of affected patients to hospice care among community-based family physicians and hospital-based internists. Targeted training in hospice care for all relevant physicians, coupled with structured exposure to end-stage dementia patients and hospice services during residency, may improve clinical awareness and increase the likelihood of appropriate and timely referrals.

Trial Registration: The study received an exemption from the Meir Hospital Helsinki Committee.

Keywords: advanced dementia, home hospice, palliative care, physicians' attitudes and knowledge

Introduction

In 2019, the World Alzheimer Report estimated that approximately 55 million people worldwide were living with dementia, with approximately 10 million new cases emerging annually.[1] Dementia is among the leading causes of death, and no curative treatment has been discovered.[1,2] Its progression is characterized by severe cognitive and functional impairments, leading to significant suffering and increased mortality. Palliative and end-of-life care for patients with advanced dementia is considered essential for both patients and their family caregivers.[3–6] Hospice care can increase patients' quality of life, alleviate suffering, prevent unnecessary treatments and hospitalizations, and reduce the burden on primary caregivers.[3,6,7]

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Despite the lack of consensus regarding referral criteria for palliative care in patients with dementia[8] there is a consensus regarding the key clinical manifestations for admitting patients with advanced dementia to hospice care that correlates with a prognosis of 6 months or less survival.[5,9,10] They include a cognitive status of Stage 7 or higher on the Functional Assessment Staging Tool (FAST),[11] which describes patients with ambulatory ability lost combined with medical complications such as recurrent infections (pneumonia, sepsis, or ascending urinary tract infections), recurring fevers, pressure ulcers (grades 3--4), weight loss of 10% or more within six months, or a serum albumin level below 2.5 g/dL.

Physicians, particularly family doctors and internists who treat patients with advanced dementia, are expected to play a leading role in referring eligible patients to hospice care. However, only a minority of patients are referred,[12,13] and such referrals are often made too late. Physicians' barriers to hospice referral[14] includes difficulty predicting life expectancy and lack of knowledge of patient eligibility guidelines,[15] physician's personal experience of severe disease in the family and attitude to withdrawal of life-sustaining treatment (LST),[16] physicians' lack of awareness of hospice admission criteria for patients with late-stage Alzheimer's disease and uncertainty about prognostication in the last 6 months of life,[17] fear of patient/family anger.[18]

Factors associated with higher referral rate included longer professional experience[19] and personal experience with palliative care,[18] health professionals' ability to communicate openly and honestly about disease progression, availability and location of specialist palliative care (SPC) resources and doctors' expertise,[20] the proportion of a physician's patients who were enrolled in hospice,[21] physicians' palliative education.[19,22,23]

Numerous studies have explored the knowledge and attitudes of medical staff toward advanced dementia patients and hospice services.[17,24–26] However, most studies have not specifically addressed the recognition of advanced-stage dementia or the timing of hospice referrals. Furthermore, only a few studies have included family physicians and internists.[17,24]

In Israel, palliative care, including hospice services, is guaranteed under the Patients' Rights Law (1996). Health maintenance organizations (HMOs) offer these services at no cost to terminally ill patients with a life expectancy of six months or less, as determined by medical staff. Referring a patient with advanced dementia to hospice care is considered standard medical practice and a recognized therapeutic intervention. Any physician may initiate this referral without the need for prior authorization. Clalit healthcare services (CHS's), Israel's largest HMO, serve over 51% of the population. In the southern district of CHS, dedicated home hospice services for patients with advanced dementia have been available for several years. Referrals to this service are made by family physicians in primary care clinics or by physicians in the internal medicine departments at Soroka University Medical Center, the largest tertiary hospital in southern Israel. The referral criteria for home hospice for patients with advanced dementia are publicly available on a dedicated website accessible to all medical staff. The website includes a detailed description of the clinical state corresponding to Stage 7C on the FAST scale to assist physicians unfamiliar with it. Referrals are submitted through the patient's electronic medical record (EMR) in clinics or the hospital's EMR system. Based on the home hospice team's observations, many patients with advanced dementia who are referred to hospice care pass away within a brief period, typically days to weeks. During the early stages of the program's implementation in CHS's southern district, when proactive patient identification and referral were led by geriatricians,[27] as well as in a similar program in Israel,[28] the life expectancy of advanced dementia patients receiving home care ranged from three to six months.

The current study aimed to explore differences in knowledge and attitudes between physicians who referred and those who did not refer advanced dementia patients to home hospice care. Additionally, it examines the factors that facilitate or hinder such referrals.

Materials and Methods

Study Population

The Clalit Healthcare Services, the largest health care provider in Israel, provides services for 4.5 million residents in hospitals and in the community. In southern Israel it employs 1135 physicians in community clinics and the Soroka University Medical Center. The community clinics are spread across southern Israel, which comprises 60% of Israel's

area. The Soroka Medical Center is located in the southern city of Beer-Sheva. It is a tertiary care center with 1150 hospital beds.

The study population was composed of physicians who work in Soroka Medical Center and in community clinics in the city of Beer-Sheva. Physicians working in both settings routinely care for patients with dementia as part of their daily practice. This includes identifying advanced dementia and referring eligible patients to hospice care.

Study Protocol

Data was collected using anonymous, self-administered questionnaires distributed by the study team in two primary settings (convenient samples). The first included family medicine residents and board-certified physicians attending part of a continuing medical education (CME) course, as well as routine team meetings at Clalit Health Services (CHS) community clinics in Be'er Sheva. The second included internal medicine residents and board-certified physicians working in internal medicine departments or the emergency room at Soroka University Medical Center, where data collection also took place during routine staff meetings. Study investigators attended these meetings at prearranged times. In the community clinics, all physicians present attended the meetings. In the hospital setting, physicians on duty during the meeting participated, and additional sessions were arranged for staff members who were absent. Completed questionnaires were collected several days after distribution. Each questionnaire was assigned a unique study number, and responses were entered into a database for statistical analysis. All participants were informed that the study results would be published.

Inclusion Criteria

Male and female physicians (family physicians and internists) employed by the Clalit Healthcare Services who worked in its community clinics in Beer-Sheva or in the Soroka Medical Center (Internal Medicine Division) and gave their consent to participate in the study were included.

Exclusion Criteria

None

Study Instrument

Drawing on prior studies[16,19,29–33] the self-administrated questionnaire (Figure S1: Research Questionnaire) was developed for the study (in Hebrew). Content validity was assessed through expert review by professionals in the relevant field, who evaluated the relevance and representativeness of the questionnaire items. The experts panel comprised 15 geriatricians, 3 internal medicine specialists, and 3 palliative care specialists, who concluded that the case vignette and the questionnaire were suitable for the study's aims. Their recommendations were incorporated into the final version of the questionnaire. The questionnaire began with a short introduction to the background of the study and an assurance of anonymity. The following case vignette was included in the questionnaire:

An 89-year-old woman with a 10-year history of Alzheimer's dementia, diabetes and hypertension, lived at home with her family. Prior to her current illness, she was drowsy, bedridden, incontinent, unable to communicate, smile, or sit independently, and struggled with eating. Over the past six months, she has lost approximately 10 kg and has developed pressure ulcers on her heels. Over the past few days, she has presented with a fever of 38.5°C of unknown origin, a blood glucose level of 260 mg/dL, a blood pressure of 175/85 mmHg, and an oxygen saturation of 89%. Physicians were asked to select one of three options: (1) short-term acute home hospitalization (up to one week), (2) long-term home hospitalization for palliative care (dementia hospice care), or (3) referral to an internal medicine department with follow-up by the primary care physician after discharge.

The questionnaire covered five main areas: (a) knowledge about treating advanced dementia based on the clinical case and other knowledge subjects (Q1–4); (b) perceived barriers and factors influencing hospice referrals (Q5); (c) physicians' attitudes toward treating advanced dementia (Q6); (d) prior experience and training (Q7–8); and (e) sociodemographic details (Q9–17). Physicians were also asked about the number of advanced dementia patients treated in the

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past six months and their professional background. Knowledge questions were based on the FAST Scale and the Law of the Dying Patient (2005). Attitudes were measured using a five-point Likert scale.

Sample size was calculated to detect a 20% difference in referral rates (60% vs 80%) with 80% power, a 5% significance level, and a 1.5:1 ratio between groups. Using Fleiss' method with continuity correction, the required sample size was 193 physicians (77 exposed, 116 unexposed). To allow for 10% missing data, the final target was 212 participants.

Data Analysis Method

Data analysis was performed via SPSS version 29. Internal consistency was examined for the two multi-item Likert-scale sections using Cronbach's alpha. Question 5 (factors influencing referral to dementia hospice) demonstrated acceptable reliability ($\alpha = 0.722$), while Question 6 (attitudes toward advanced dementia care) showed lower internal consistency ($\alpha = 0.378$), likely reflecting the conceptual diversity of the items.

Differences between the study groups (physicians who referred/did not refer patients to dementia hospice care) were examined via the chi-square test or Fisher's exact test for categorical variables, depending on cell size. Differences in continuous variables were analyzed via one-way ANOVA. A logistic regression model was constructed to predict which physicians were more likely to refer patients with dementia to home hospice care. A p value of <0.05 was considered to indicate statistical significance in all analyses.

Ethics Approval

The study was submitted to the Institutional Helsinki Committee of Clalit Health Services (Meir Hospital Helsinki Committee) and was granted an exemption from full ethical review because it involved only anonymized, routinely collected data and no patient interventions, All methods were performed in accordance with the ethical standards as laid down in the Declaration of Helsinki and its later amendments or comparable ethical standards.

Results

Characteristics of the Study Population

The questionnaire was distributed to 265 physicians and 200 physicians responded to the questionnaire (response rate 75.5%), 77 of whom were women (38.7%). The average age of the respondents was 40.9 ± 11.7 years. Among them, 93 (46.7%) were board-certified physicians and 128 (64.0%) worked in primary care clinics. The sample included 112 family physicians (57.4%), 70 internal medicine physicians (35.9%), 10 emergency medicine physicians (5.1%), and 3 general practitioners (1.5%), with data missing for 5 participants.

In response to the primary research question, "Have you referred to home hospice care for advanced dementia at least one patient in the past six months?" eighty-eight (44.2%) physicians answered affirmatively. A comparison of the characteristics of physicians who referred patients to those who did not refer patients to home hospice care is presented in Table 1. Physicians who made referrals were more likely to be board-certified, work in primary care clinics, have greater professional experience and have treated more patients with advanced dementia in the past six months. 15.7% of physicians reported not having treated any patients with advanced dementia in the past six months, 38.9% treated between one and four patients, and 45.5% treated more than five patients. The proportion of physicians who had not treated any dementia patients in the past six months was significantly lower among referring physicians than among nonreferring physicians (4.5% vs 24.5%, $p < 0.001$). Fewer than half of the respondents (38.5%) indicated that they had received training in managing advanced dementia patients, with no statistically significant differences between physicians who referred patients and those who did not. Figure 1 illustrates the distribution of correct answers to knowledge questions regarding the care of advanced dementia patients. The percentage of correct responses to individual knowledge questions ranged from 34.0% to 53.0%. When all four knowledge questions were considered together, only 6.0% of the respondents answered all four questions correctly. No statistically significant differences were found between referring and nonreferring physicians regarding their knowledge of advanced dementia care or previous specialized training on the subject.

Table 1 Comparison of Sociodemographic Characteristics, Experience, and Training of Physicians Referring Advanced Dementia Patients to Home Hospice Care

	Referred (n=88)	Not Referred (n=112)	Total (n=200)	p value
Gender				(1.000)
Male	34 (39.1%)	43 (38.4%)	77 (38.7%)	
Female	53 (60.9%)	69 (61.6%)	122 (61.3%)	
Age (Mean ± SD)	42.7 ± 12.8	39.5 ± 10.5	40.9 ± 11.7	0.054
Range	26–72	27–72	26–72	
Country of Birth				
Israel	45 (51.7%)	35 (31.5%)	80 (40.4%)	(0.005)
Other	42 (48.3%)	76 (68.5%)	118 (59.6%)	
Medical Education Location				
Israel	22 (26.8%)	28 (28.6%)	50 (27.8%)	(0.868)
Other	60 (73.2%)	70 (71.4%)	130 (72.2%)	
Professional Status				
Board Certified	51 (58.6%)	42 (37.5%)	93 (46.7%)	(0.004)
Resident/General practitioner	36 (41.4%)	70 (62.5%)	106 (53.3%)	
Main Workplace				
Primary Care Clinic	48 (54.5%)	80 (71.4%)	128 (64.0%)	(0.017)
Hospital	40 (45.5%)	32 (28.6%)	72 (36.0%)	
Years of Experience Mean ± SD (Range)	13.4 ± 12.2 (0.3–50)	9.6 ± 10.6 (0–42)	11.3 ± 11.5 (0–50)	0.024
Advanced Dementia Patients Treated (6 Months)				
None	4 (4.5%)	27 (24.5%)	31 (15.7%)	<0.001
1–4 Patients	33 (37.5%)	44 (40.0%)	77 (38.9%)	
>5 Patients	51 (58.0%)	39 (35.5%)	90 (45.5%)	
Training in Advanced Dementia				
No Training	49 (55.7%)	74 (66.1%)	123 (61.5%)	(0.145)
Received Training	39 (44.3%)	38 (33.9%)	77 (38.5%)	

Notes: p-values are based on chi-square tests unless marked with an asterisk (), indicating Fisher's exact test was used. P-values < 0.05 were regarded as statistically significant.
Abbreviation: SD, standard deviation.

Attitudes Toward Advanced Dementia

Table 2 presents the attitudes and perceived barriers regarding the care of patients with advanced dementia and compares physicians who referred such patients to home hospice care with those who did not. Most participants somewhat agreed (37.5%) or strongly/very strongly agreed (21.0%) with the following statement: "I prefer not to engage in hospice care for patients with advanced dementia owing to a lack of specialized training". In terms of factors influencing the referral of advanced dementia patients to home hospice care, most participants identified the following as key considerations:

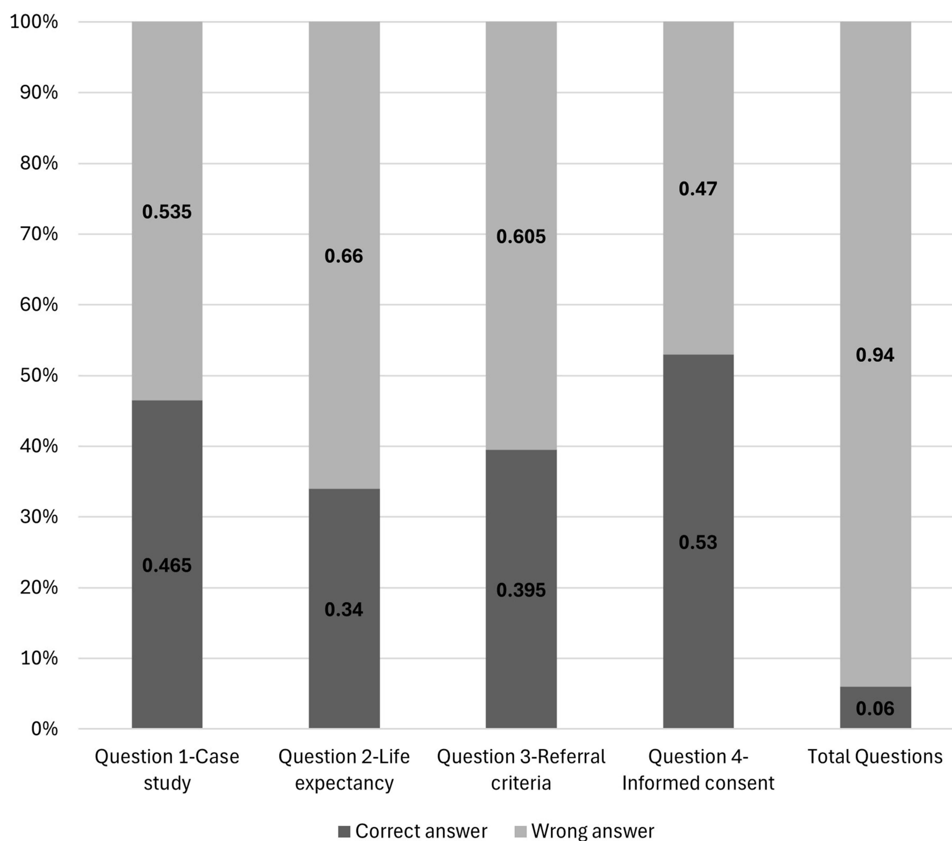

Figure 1 Distribution of correct answers to knowledge questions regarding the care of advanced dementia patients.

disease severity (94.5%), attitudes of close family members (87.9%), availability of services (79.4%), lack of knowledge about dementia (61.0%), dementia-related legislation in Israel (60.4%), anticipated benefits of hospice services (75.3%), and bureaucratic challenges in the referral process (58.5%). No statistically significant differences were found between referring and nonreferring physicians in relation to most attitude-related questions, except for disease severity. A logistic regression model was constructed to predict the characteristics of physicians who referred patients with advanced dementia to hospice services (Table 3). The model revealed that only board-certified physicians (OR = 2.22, 95% CI:

Table 2 Comparison of Attitudes and Barriers of Physicians Toward Advanced Dementia

Statement	Referring (N=88)	Non-Referring (N=112)	Total (N=200)	p value
Preference not to engage due to lack of training				
Slightly agree/disagree	42 (47.7%)	41 (36.6%)	83 (41.5%)	0.280
Somewhat agree	29 (33.0%)	46 (41.1%)	75 (37.5%)	
Strongly/very strongly agree	17 (19.3%)	25 (22.3%)	42 (21.0%)	
Preference not to engage due to personal experience				
Slightly agree/disagree	70 (79.5%)	86 (77.5%)	156 (78.4%)	0.802
Somewhat agree	13 (14.8%)	16 (14.4%)	29 (14.6%)	
Strongly/very strongly agree	5 (5.7%)	9 (8.1%)	14 (7.0%)	

(*Continued*)

Table 2 (Continued).

Statement	Referring (N=88)	Non-Referring (N=112)	Total (N=200)	p value
Preference not to engage due to fear of treating end-of-life patients				
Slightly agree/disagree	71 (80.7%)	90 (81.1%)	161 (80.9%)	0.979
Somewhat agree	10 (11.4%)	13 (11.7%)	23 (11.6%)	
Strongly/very strongly agree	7 (8.0%)	8 (7.2%)	15 (7.5%)	
Preference not to engage due to religious/spiritual reasons				
Slightly agree/disagree	74 (84.1%)	98 (89.1%)	172 (86.9%)	0.517
Somewhat agree	8 (9.1%)	8 (7.3%)	16 (8.1%)	
Strongly/very strongly agree	6 (6.8%)	4 (3.6%)	10 (5.1%)	

Notes: p-values are based on chi-square tests unless marked with an asterisk (), indicating Fisher's exact test was used. P-values < 0.05 were regarded as statistically significant.

Table 3 Logistic Regression Model for Predicting the Referral of Advanced Dementia Patients to Home Hospice

Variable	OR	95% CI	p value
Gender (male)	1.237	0.624–2.452	0.543
Age	0.991	0.956–1.027	0.622
Country of Birth (Israel)	0.524	0.242–1.131	0.099
Professional Status (Board-certification)	2.217	1.047–4.697	0.038
Workplace (hospital)	0.816	0.365–1.827	0.622
Number of advanced dementia patients treated in the past 6 months			
None	1.000		
1–4 patients	5.363	1.446–19.885	0.012
≥5 patients	8.240	2.076–32.706	0.003

Note: P-values < 0.05 were regarded as statistically significant.

1.05–4.70, p = 0.038) and the number of advanced dementia patients treated in the past six months (1–4 patients: OR = 5.36, 95% CI: 1.45–20.0, p = 0.012, more than five patients: OR = 8.240, 95% CI: 2.08–32.7, p = 0.003) were statistically significant predictors of referral to home hospice care. The model's R^2 was 0.234.

Discussion

In the current study physicians who referred to home hospice care and those who did not revealed no differences in attitudes, level of knowledge or previous training in advanced dementia. While most physicians (84.3%) reported treating at least one patient with advanced dementia in the past six months, less than half (44%) of the physicians referred patients to dementia hospice care. In univariate analysis, physicians who made referrals were more likely to be board-certified, work in primary care clinics, have greater professional experience, and have treated more patients with advanced dementia in the past six months. In the logistic regression analysis, only being board-certified and having treated a higher number of patients with advanced dementia in the past six months were significant predictors of hospice referrals. Previous studies also support the correlation between a higher professional level, more intensive use of hospice services and an increased likelihood of referral to hospice.[23,34,35] Factors not included in the model were workplace

setting and years of professional experience. This may be due to the relatively small sample size or to the possibility that professional experience has less impact on knowledge of advanced dementia care than formal board certification.

Although the current study did not find a correlation between physicians' personal attitudes and their willingness to utilize hospice services, previous studies have reported different findings. For example, Spice[34] found that physicians with an interest in palliative care were more likely to refer patients to hospice services and were also more open to discussing hospice and palliative care options with patients' families. Additionally, older physicians were more likely to make hospice referrals. Similarly, Haapasalmi[19] identified several factors that influenced physicians' decisions to refer patients to palliative care, including the perceived benefit to the family and patient, ethical values, legal protection for the patient or physician, and the patient's age. A recent review on the subject of barriers to palliative care for advanced dementia[36] found that the following attitudes influenced physicians' decisions regarding providing palliative care to dementia patients: awareness of the illness, its treatment and expected outcomes, feelings of guilt and anxiety of family members and staff, healthcare providers' own care preferences, religious beliefs, cultural background and personal values, medical staffs' fear of death and fear to talk about death.

Gaps in Identifying Patients with Advanced Dementia and Referring Them to Appropriate Care

This study highlights challenges in identifying and referring advanced dementia patients to home hospice care. Similar findings have been reported in studies over the past decade.[17,24,36,37] According to this study, physicians who treated more advanced dementia patients were more likely to refer them to home hospice care, which likely reflects better recognition of such patients rather than a higher proportion of advanced dementia patients. Family physicians in CHS generally oversee 1000–1400 patients, with at least 15% of them aged 65 years or older. Considering the prevalence of dementia in this population, it is expected that a standard family physician will have 12 to 17 patients with dementia under their care, including some with advanced stages of dementia. Patients aged 65 and older constitute approximately 65% of all hospitalizations in internal medicine departments in the Soroka Medical Center, and the typical length of stay is 3–5 days. Consequently, internists are likely to encounter older patients, including patients with advanced dementia, at an even higher rate than family physicians are. Given this context, the finding that 15.7% of the physicians in the sample (2.8% in the hospital-based group and 23% in the clinic-based group, $p < 0.001$) reported not treating any patients with advanced dementia in the past six months suggests a gap in identifying these patients.

Gaps of Knowledge and Training in Advanced Dementia Care

Both referring and non-referring physicians in the current study demonstrated low levels of knowledge—only 6.0% of respondents answered all four knowledge questions correctly, which may explain the absence of a correlation between knowledge level and patient referral to hospice care. Lack of knowledge is a common reason for the medical staff's lack of recognition of dementia as a terminal illness suitable for hospice care[17,24,32,36,38] and the correlation between physicians' level of knowledge in the field of dementia and more widespread use of hospice services is supported by previous studies.[22–24,34]

Consistent with previous studies, only a minority of physicians in this study (38.5%) had received specialized training in advanced dementia care, which may account for the overall low level of knowledge observed. While family medicine residents in southern Israel are required to rotate through home hospice settings as part of their residency, this exposure does not specifically focus on dementia hospice care, potentially limiting their expertise in this area. Likewise, internal medicine physicians are not mandated to undergo specialized training in advanced dementia, highlighting a clear need for curriculum reform to better address this gap.

Strengths and Limitations of the Study

This study has several strengths, notably being the first in Israel to assess physicians' knowledge and attitudes regarding advanced dementia and dementia hospice care. It included a diverse group of participants, encompassing family physicians, hospital-based physicians, board-certified specialists, and residents.

One of the strengths of this study is the development of a new questionnaire tailored to the study objectives, which underwent expert validation. The questionnaire was grounded in a representative clinical case of advanced dementia, providing a relevant and focused framework for the assessment. A panel of experienced clinicians and researchers in geriatrics, palliative care, and dementia reviewed the questionnaire to ensure the relevance, clarity, and representativeness of the items, thereby enhancing its content validity.

However, this study has several limitations. The internal consistency of Question 5 (factors influencing referral to dementia hospice) was acceptable, supporting its use as a scale measuring factors influencing hospice referral decisions. However, the lower Cronbach's alpha observed in Question 6 (attitudes toward advanced dementia care) suggests that the attitudes explored may represent distinct dimensions rather than a unified construct. This heterogeneity may reflect the multifaceted and personal nature of physician attitudes toward advanced dementia care. Future research may consider refining or separating these items into clearer conceptual domains to improve internal reliability. The sample size was relatively small and based on convenience sampling, as questionnaires were distributed during team meetings, potentially excluding physicians who were not in attendance. Cultural background and the location of medical education may influence physicians' attitudes toward palliative care; however, this information was not available to the researchers. Data regarding the type of training received in palliative care in general, and dementia care in particular, were also inaccessible. It is important to note that in Israel there is no formal requirement for palliative care training during medical school or residency programs, resulting in wide variability in physicians' training in this area, with some physicians receiving no formal training at all. The self-reported data may create potential bias risks particularly recall bias and social desirability bias. No information was collected on the proportion of eligible patients who were actually referred to dementia hospice by the study physicians. Additionally, the study did not include physicians from other regions in Israel, limiting its generalizability. Finally, reliance on self-reported data tends to be related to recall and social desirability bias (physicians may overestimate their knowledge or present themselves in a more favorable light when completing questionnaires).

Conclusions

This study reveals significant gaps in physicians' training and knowledge related to the identification of advanced dementia and the timely referral of patients to hospice care. These findings highlight the urgent need to integrate hospice-focused education into family medicine and internal medicine residency programs, as well as to provide ongoing training for all physicians involved in caring for this patient population—regardless of their specialty, prior training, knowledge, or attitudes. Training programs should integrate theoretical knowledge with practical, hands-on clinical experience in managing advanced dementia and hospice referral practices. The authors also recommend that future research utilize more diverse or randomized sampling strategies to improve the generalizability of findings.

Abbreviations

FAST, Functional Assessment Staging Tool; HMO, Health maintenance organizations; CHS, Clalit healthcare services; EMR, Electronic medical record; OR, Odd ratio; CI, Confidence Interval.

Data Sharing Statement

Clalit Health Services does not allow sharing the data.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work. All authors read and approved of the final manuscript.

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Disclosure

All authors declare that there is no conflict of interest in this work.

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