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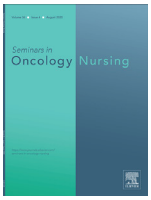

Research

Healthcare Professionals' Wishes Toward End-of-Life Conversations: A Descriptive Correlational Study (ConVita Study)

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ABSTRACT

Objective: End-of-life conversations could improve anxiety, depression, and quality of life of patients and their families. Most patients believe it is important to discuss prognosis with their healthcare professionals, however only a minority reports to do so. The aim of this study was to describe healthcare professionals' wishes regarding end-of-life if they were in hypothetical end-of-life condition.

Methods: In this descriptive-correlational study, 467 healthcare providers were selected using the census sampling method. Physicians, nurses, or nursing assistants who worked in the oncohematology, internal medicine, intermediate care, surgical areas, or hospices of three hospitals in the northwest of Italy were included. All participants were included if they agreed to participate in the study and signed a written informed consent. A modified version of the guide "Your Conversation Starter Kit," the ConVita Questionnaire, was used. A logistic regression to analyze possible associations between personal and professional characteristics and end-of-life wishes of healthcare professionals was performed.

Results: Of the 747 professionals who agreed to participate, 467 questionnaires were returned. Compared to physicians, nurses (OR = 2.551 [95% CI 1.306-4.982], *P* = .006) and nursing assistants (OR = 2.755 [95% CI 1.218-6.23], *P* = .015) were more likely to prefer receiving treatments regardless the discomfort these might cause. This was less likely to occur when professionals attended palliative care courses (OR = 0.655 [95% CI 0.431-0.997], *P* = .048). Professionals with longer working experience in the same unit were more likely to give more importance to the quality of life than to the amount of medical care (OR = 1.041 [95% CI 1.006-1.078], *P* = .022). Compared to physicians, nurses were more likely to worry about not receiving sufficient treatments (OR = 2.883 [95% CI 1.526-5.446], *P* = .001).

Conclusions: This study contributes to a better understanding of healthcare professionals' wishes if they were in the hypothetical condition of end of life. Healthcare professionals need support to gain insight into end-of-life issues.

Implication for Nursing Practice: By better understanding healthcare professionals' perspective on end of life, this study may help build the support they need to feel better equipped to address end-of-life conversations with patients and families. Palliative care courses may raise healthcare professionals' awareness toward a timely start of end-of-life conversations.

Every year, an estimated 40 million people need palliative care for a wide range of diseases. The global need for palliative care is expected to grow due to the aging of populations and the increase in chronic diseases.[1] Palliative care is a holistic discipline that plays an important role in the provision of high-quality end-of-life care and offers a support system to help patients live until their death.[1,2] Despite this, there are still a number of issues related to the adequacy of care in end-of-life situations.

Recent authoritative evidence in the context of oncology nursing, for example, has emphasized the essentiality of providing integrated person-centered care and optimal communication, highlighting as priorities the determination of the effects of early integrated palliative care, the development and testing of interventions for culturally sensitive palliative and psychosocial care and for the improvement of a two-way communication and shared decision making.[3–5]

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Layperson Summary

What we investigated and why

We investigated healthcare professionals' views on end-on-life by exploring their wishes regarding end-of-life if they were in hypothetically end-of-life conditions, because end-of-life conversations could improve anxiety, depression, and quality of life of patients and their families, however only a minority of them reports to do so.

How we did our research

We used a descriptive design to analyze possible associations between health professionals' personal and professional characteristics and their end-of-life wishes.

What we have found

If healthcare professionals had a terminal illness, most of them would like to be informed on their clinical condition and their prognosis and would like to be involved in their care plan. If nursing assistants and nurses had a terminal illness, they were over two times more likely to prefer receiving medical care even if treatments had severe side effects when compared to physicians. This preference was 35% less likely to occur when healthcare professionals attended palliative care courses.

What it means

Understanding healthcare professional's perspective can help build the support necessary for them to feel better equipped to address end-of-life conversations with patients and families. Palliative care courses may raise healthcare professionals' awareness towards timely start end-of-life conversations.

Indeed, adequate communication and patient education could help patients have a better understanding and processing of cancer-related information, a higher quality of life, and a better experience of care, as well as being a prerequisite for shared decision-making.[6] This is especially important in palliative oncology, as patients may face particularly difficult decisions such as whether to receive treatments aimed at controlling rather than curing the cancer or that may offer marginal benefits at potentially significant risk.[6] Moreover, adequate communication between patients and healthcare professionals could reduce the risk of providing care that is not aligned with patients' desires for their end-of-life care.[7]

With regard to these solicitations, advance care planning might play a fundamental role in palliative care, as it is a process that supports adults at any age or stage of health in understanding and sharing their personal values, life goals, and preferences regarding future medical care.[3] Advance care planning has the potential to improve an alignment between medical care and patient values and prominent organizations worldwide have called for its implementation.[8–11]

In this context, end-of-life conversations between healthcare professionals and the patients and their families play a fundamental role to provide the patients and their families with the necessary support to deal with this process. End-of-life conversations have been shown to not only be useful to help improve anxiety, depression, and quality of life of patients and their family[12] but also be associated with lower end-of-life care costs, with delivering less acute and aggressive care, less time spent in hospital, greater use of hospice, and greater odds of dying outside the hospital.[13,14]

However, these conversations often do not happen, and only a minority of patients within months of death report having had such honest and sensitive discussions with their healthcare professionals.[15,16] This mainly happens because dealing with end-of-life conversations easily generates a sense of inadequacy and unpreparedness in healthcare professionals,[17,18] who recognize talking about end-of-life as one of the most difficult aspects of any healthcare profession.[19,20] It was recently found that 72% of healthcare professionals do not talk enough about death and dying because of negative emotions, such as personal fears and discomfort.[21] Moreover, an additional barrier to end-of-life care delivery can include a misalignment of priorities between healthcare professionals and patients and their families, which, on the other hand, can lead to moral distress and poor patient outcomes.[22]

Concerning nurses' context, death education is finding an emerging implementation in nursing curricula, yet the graduate nurses still feel unprepared to witness death as well as to discuss end of life with the patients and their caregivers.[23]

In Italy, from a legislative point of view, the law 219/2017 introduced,[24] for any person over the age of 18, the possibility of compiling their Advance Directives Declaration, establishing the individual's right to express their personal values, decide in advance what treatments to accept or not accept, and to nominate a surrogate decision-maker. However, from historical and social points of view, end of life and death are not topics of easy discussion and conversations regarding end of life might be even more difficult to be established. Despite this, there has been a progressive overcoming of the idea that a person cannot autonomously choose their assistance at the end of life,[25] but this can be achieved only with adequate end-of-life conversations.

Given the widespread recognition of end-of-life conversations as essential in end-of-life care and healthcare professionals' difficulty in undertaking them, it could be important to understand healthcare professionals' point of view on end-of-life. However, to the best of our knowledge, there are still few studies about end-of-life conversations, and they mostly explored physicians' perspective on their patient's end-of-life situations.[26-29] In Italy, a recent study investigated the differences between healthcare professionals' and the general public's choices of end-of-life care with the aim of orienting the discussion around end of life, highlighting the need to overcome the gap of knowledge regarding the healthcare professionals' point of view on end of life.[7] Moreover, investigating what healthcare professionals would wish for their own end-of-life care could help deepen this issue by authentically understanding their views and highlighting the essential features they attribute to end-of-life care. This could then help to build the support healthcare professionals need to feel better equipped to address end-of-life conversations with patients and their families. Therefore, the aim of this study is to describe healthcare professionals', including physicians, nurses, and nursing assistants, wishes regarding information, interventions, and treatments they would like to receive if they were receiving end-of-life care and to investigate the associations between healthcare professionals personal and professional characteristics and their preferences toward end-of-life care.

Methods

Study Design

This study is a descriptive correlational research design. We followed the STROBE checklist. Approval of the ethical committee of Liguria (#055/2018) was obtained before starting the data collection, which lasted from May to October 2019. All participants were included if they had accepted to participate in the study and signed a written informed consent.

Settings

The study was carried out in three hospitals of a large metropolitan area in the northwest of Italy. Specifically, the study was conducted in one teaching hospital and two general hospitals.

Participants and Inclusion Criteria

A census sampling method was used. We invited to participate in the study all physicians, nurses, or nursing assistants who worked in the following areas: oncohematology, internal medicine, intermediate care, surgery, and hospice. We included all those who gave their informed consent. We established a minimum sample size of 10 respondents for each item, as recommended, to perform a psychometric evaluation of the instrument.[30] Overall, the study sample consisted of 747 health professionals: 137 physicians, 484 nurses, and 126 nursing assistants, from 28 operational units.

Measurements

The tool used for this project is a modified version of the guide "Your Conversation Starter Kit" originally developed by The Conversation Project and The Institute for Healthcare Improvement with the aim of helping people talk about their wishes for end-of-life care.[31] We translated it from the English language using the forward-backward method and we adapted it to the Italian context. We then performed content and face validity through a think-aloud process, with experts who participated in palliative care: a nurse coordinator, two bioethicists, a university researcher, and a nursing assistant. The final version of the tool was delivered as a questionnaire in paper-and-pencil format: the ConVita Questionnaire.

The ConVita Questionnaire is made of 16 items, divided into open-ended (3 items) and close-ended (13 items) questions on a Likert scale from 1 to 5 points that investigate the following aspects: (a) personal response in terms of the need for awareness, self-determination, appropriateness of treatments; (b) the core of conversation (e.g., decision-making); and (c) definition of the current norms available to citizens to plan their wishes about their health (e.g., advance planning of care; support administrator; advance declarations of treatment/living will). For each of them, we assessed through a yes-or-no question, if they were aware of each norm, agreeing in using them for themselves and for their patients. In this report, we present the results of the quantitative part of the questionnaire.

All participants were asked for the following demographic-professional characteristics: age, sex, educational level, number of years in their role, and number of years in the current clinical area, any experience of personal grief occurred in the last 12 months (YES-NO), and participation in refresher courses on palliative care/end of life (YES-NO).

The suitability of principal components analysis (PCA) was assessed before analysis, using the same database we used for the study. The correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin measure was 0.66. Bartlett’s test of sphericity was statistically significant ($P < .001$). PCA revealed six components. A Promax rotation was used to aid interpretability. The level of internal consistency was determined by Cronbach alpha ranging from 0.393 to 0.817, with two components below 0.7. The PCA results are reported in the supplementary file related to this article.

Research Ethics and Participants’ Consent

The study was conducted in accordance with the Declaration of Helsinki (Fortaleza version 2013) and in accordance with current regulations on clinical trials and good clinical practice.

The promoter of the study undertakes to protect sensitive personal data of the participants involved in the study in accordance with the provisions of European legislation (EU Regulation GDPR 2016/679). The absolute voluntary nature of participation in the study was guaranteed, as well as the possibility of not giving one’s consent and of withdrawing from the study at any time of its execution. All data were anonymized to guarantee the privacy of the participants according to the current privacy regulations (EU Regulation GDPR 2016/679).

Data Analysis

The preliminary analysis of the specific raw data was carried out to identify the inconsistent and missing data. The cleaned-up data were divided into a database containing the participants' information. Two analyses were carried out. The first analysis was a descriptive and comparative analysis of the variables that summarize similarities and differences. In these analyses, the data were used in aggregate form. Continuous variables were described with mean and standard deviation (SD), while qualitative variables with absolute and percentage frequencies. Descriptive statistics were used to present the sample’s sociodemographic and clinical characteristics and summarize the information collected through the questionnaire used in the study. The second analysis was a logistic regression to analyze possible associations between the answers to the close-ended questions of the questionnaire and participants’ characteristics such as profession, operative unit, sex, age, years of work, years in the operative unit, professionals who had a personal loss in the last year and the ones who did not, and professionals that had taken courses on palliative care and the ones that did not. We evaluated the Akaike Information Criterion and selected the model that showed the better quality. The level of statistical significance was set at $P \leq .05$. Statistical processing was carried out with SPSS 21 software.

Results

A total of 747 questionnaires were distributed. The number of invited professionals who decided to answer the questionnaire was 467, with a response rate of 62.5%.

The sample was composed mostly by women (79%) and by nurses (70%). The mean age of the participants was 45 (SD = 11) years (Table 1).

Nurses were the professionals with more years of working experience (mean = 20; SD = 12) and years in the same operative unit (mean = 9; SD = 8) (Table 2).

The working area of the participants were grouped in: oncohematology, internal medicine, intermediate care, surgery, and hospice (Table 3). The sample was composed mostly of professionals working in units of internal medicine (49%).

The first nine questions concerned the willingness to receive information and to what extent, opinions on the therapeutic treatments to be received, preferences on the place of death, and preferences on the involvement of their family (Table 4). The results showed that most professionals would like to be informed on their clinical condition (77%), on their prognosis (62%) and to be involved in their care plan (74%). Most professionals also gave more importance to quality of life instead of curative treatments (57%), especially if these caused discomfort (37%). Most professionals would rather spend their last days at home (51%) than in a health facility. Most professionals would like to share information about their health with their loved ones (35%) and most of them would also like to share the moment of their death with them (36%).

The professionals were then asked if they would have liked to receive treatments such as cardiopulmonary resuscitation, assisted breathing, artificial nutrition, and dialysis. Most professionals would not like to receive neither of them (Table 5).

TABLE 1
Demographics

	n (%)*	Mean (SD)	Missing (n)
Sex			
Male	82 (20.6)		68
Female	317 (79.4)		
Age		44.8 (10.8)	69
Profession			
Nurse	278 (70)		70
Physician	51 (12.8)		
Nursing assistant	68 (17.1)		
Years of work		18.1 (11)	80
Years in the operational unit		8.1 (7.9)	105
Personal loss			
Yes, in the last 12 months	114 (28.6)		68
Not in the last 12 months	285 (71.4)		
Courses on palliative care			
Yes	174 (43.6)		68
No	225 (56.4)		

* (%) = considering the respondent to the question (N Tot-Missing).

TABLE 2
Age, years of work, and years in the operational unit divided by profession

		Mean (DS)	
	Age, y	Years of work	Years in the operational unit
Nurse	44.5 (10.7)	19.5 (11.5)	8.6 (8.1)
Physician	40.5 (11.8)	11.9 (9.9)	7.3 (8.5)
Nursing assistant	49.8 (8.0)	17.5 (7.8)	6.8 (6.7)

The results from the logistic regression (Table 6) showed that healthcare professionals working in intermediate care or hospice units were more likely to want to know about their prognosis when compared to the professionals working in surgical unit, OR = 2.78 (95% CI 1.083-7.138), p = 0.034, and OR = 8.635 (95% CI 1.584-48.162), p = 0.014, respectively. When compared to physicians, nurses, and nursing assistants were over two times more likely to prefer to receive treatments regardless of the discomfort these might cause them, OR = 2.551 (95% CI 1.306-4.982), p = 0.006, and OR = 2.755 (95% CI 1.218-6.23), p = 0.015, respectively. The same happens when comparing professionals working in intermediate care and in surgical units, OR = 2.542 (95% CI 1.0498-6.157), p = 0.039. On the other hand, this preference was less likely to occur when professionals attended palliative care courses OR = 0.655 (95% CI 0.431 - 0.997), p = 0.048. Professionals who had been working longer in the same operative unit were more likely to give more importance to the quality of their life than the amount of medical care they could receive, OR = 1.041 (95% CI 1.006-1.078), p = 0.022. When compared to physicians, nurses were more likely to be worried that they would not receive sufficient treatments, OR = 2.883 (95% CI 1.526-5.446), *P* = .001. This concern was less likely to occur in professionals with longer working experience, OR = 0.958 (95% CI 0.924-0.992), *P* = .017. Professionals working in oncology units, compared to the ones working in surgical units, were less likely to be worried to receive aggressive treatments, OR = 0.286 (95% CI 0.116-0.705), *P* = .007. Professionals working in oncology or hospice were more likely to want to die in a health facility, when compared to the ones working in surgical units, OR = 3.402 (95% CI 1.411-8.205), *P* = .006, and OR = 4.173 (95% CI 1.231-14.15), *P* = .022, respectively. Professionals working in hospice were more likely to prefer to share the information about their health with their loved ones, when compared to the ones working in surgical unit, OR = 3.578 (95% CI 1.079-11.863), *P* = .037. This preference was less likely to occur when professionals worked longer in the operative unit, OR = 0.963 (95% CI 0.934-0.992), *P* = .012. Female professionals were more likely to want to share the moment of their deaths with their loved ones, OR = 1.899 (95% CI 1.156-3.119), *P* = .011. As regards treatments (cardiopulmonary resuscitation, assisted breathing, artificial nutrition, and dialysis) it was found that professionals with an older age were less likely to want to receive invasive ventilation, OR = 0.935 (95% CI 0.879-0.994), *P* = .032. Female professionals were less likely to intend to use the advance planning of care, OR = 0.404 (95% CI 0.181-0.902), *P* = .027. Professionals working in internal medicine were less likely to intend to use the advance declarations of treatment/living will, when compared to the ones working in surgical units, OR = 0.282 (95% CI 0.086-0.917), *P* = .035.

Discussion

This study contributes to a better understanding of healthcare professionals' wishes regarding information, interventions, and treatments they would like to receive if they were in the hypothetical condition of end of life.

Overall, the results of this study showed that most professionals would like to be informed on their clinical condition and their prognosis, and to be involved in their care plan. They would also like to share the information about their health with their loved ones, especially those healthcare professionals working in inpatient hospice unit, and to share the moment of their death with them.

Also, our findings pointed out that most professionals would give more importance to their quality of life instead of curative treatments, especially professionals with longer working experience. As regard the possibility of receiving treatments such as cardiopulmonary resuscitation, assisted breathing, artificial nutrition, and dialysis, most professionals would not like to receive neither of them. This emerged especially in professionals that attended palliative care courses. These findings suggest that healthcare professionals may be less impacted by factors leading to inequitable access to palliative care services.[32]

However, nurses and nursing assistants were over two times more likely to prefer to receive treatments regardless the discomfort these might cause them when compared to physicians, as well as professionals working in intermediate care when compared to those working in surgical units. Nurses were also more likely to be worried that they would not receive sufficient treatments, while this concern was less likely to occur in professionals with longer working experience.

We also found that most professionals would rather spend their last days at home than in a health facility, emphasising the importance of the choice of place of care and death at the end of life.[33]

TABLE 3
Professionals divided by working area

	n (%)				
	Nurse	Physician	Nursing assistant	Unknown	Total
Oncology	83 (68)	11 (9)	9 (7.4)	19 (15.6)	122 (26.2)
Internal medicine	117 (51.3)	32 (14)	32 (14)	47 (20.6)	228 (48.8)
Intermediate care	44 (62.9)	6 (8.6)	17 (24.3)	3 (4.3)	70 (15)
Surgery	22 (78.6)	1 (3.6)	4 (14.3)	1 (3.6)	28 (6)
Hospice	12 (63.2)	1 (5.3)	6 (31.6)	0 (0)	19 (4.1)

TABLE 4
Descriptive Q1 through Q9

	n (%)				
	No information	A little information	Enough information	A lot of the information	All the information
1. If you were ill, how much information would you like to receive on your clinical condition?	2 (0.4)	9 (1.9)	25 (5.4)	73 (15.7)	357 (76.6)
	Not at all	A little	Enough	A lot	Extremely
2. How much would you like to be involved in the therapeutic treatments related to your clinical condition?	1 (0.2)	3 (0.6)	20 (4.3)	99 (21.2)	343 (73.6)
3. How much would you like to be informed on your prognosis if you were terminally ill?	11 (2.4)	7 (1.5)	44 (9.4)	114 (24.5)	290 (62.2)
	Completely disagree	Disagree	Neither in agreement nor disagreement	Agree	Completely agree
4a. If I was terminally ill, I would like to receive medical care to the last, regardless of the discomfort they cause me.	156 (33.6)	172 (37.1)	91 (19.6)	25 (5.4)	20 (4.3)
4b. If I was terminally ill, quality of life would be more important than the amount of medical care I could receive	4 (0.9)	6 (1.3)	31 (6.7)	160 (34.3)	265 (56.9)
	Not at all	A little	Enough	A lot	Extremely
5a. If you were terminally ill, how worried would you be about NOT receiving sufficient treatments?	52 (11.2)	143 (30.8)	119 (25.6)	94 (20.2)	57 (12.3)
5b. If you were terminally ill, how worried would you be about receiving a "therapeutic relentlessness"?	9 (1.9)	20 (4.3)	72 (15.5)	153 (32.8)	212 (45.5)
6a. If you were terminally ill, how much would you prefer to spend the last days of your life at home?	20 (4.3)	24 (5.1)	51 (10.9)	134 (28.7)	238 (51)
6b. If you were terminally ill, how much would you prefer to spend the last days of your life in a health facility?	169 (36.2)	201 (43.0)	49 (10.5)	32 (6.9)	16 (3.4)
7. If you were terminally ill, how much would you like your loved ones to be involved, in accordance with your wishes, even if this could create discomfort for them?	16 (3.4)	75 (16.1)	161 (34.5)	137 (29.3)	78 (16.7)
8. If you were terminally ill, how much would you like to share information about your health with your loved ones?	13 (2.8)	47 (10.1)	156 (33.4)	164 (35.1)	87 (18.6)
9. If you were terminally ill, how much would you like to share the intimate and private moment of your death with your loved ones?	7 (1.5)	34 (7.3)	86 (18.4)	170 (36.4)	170 (36.4)

However, health facilities were more likely to be the preference of professionals working in oncology or hospice areas.

As for advance care planning, this study found that female professionals were less likely to intend to use the advance planning of care, and professionals working in internal medicine were less likely to intend to use the advance declarations of treatment/living will compared to the ones working in surgical units.

There are a few studies that investigate healthcare workers' perceptions about end-of-life. Most studies about this topic concentrate on the perception of healthcare professionals about their patients' deaths and the discrepancies between healthcare professionals' and patients' perceptions.[26-29] Overall, these studies highlighted that both patients and their healthcare professionals recognized the importance of being informed about their illnesses and prognosis and of being involved in the decisions about their treatments. Also, they both recognized the important role of the involvement of patients' loved ones. As for treatments, both patients and healthcare professionals generally recognized a greater importance to the quality of life (e.g., relief from symptoms) than to the possibility of prolonging life with aggressive treatments.

TABLE 5
If you were terminally ill, which of the following treatments/interventions would you like to receive?

	Yes n (%)	No n (%)	Missing (n)
Cardiopulmonary resuscitation	39 (9)	393 (91)	35
Assisted breathing	47 (10.8)	387 (89.2)	33
Artificial nutrition	67 (15.7)	367 (85.7)	33
Dialysis	51 (11.9)	377 (88.1)	39

Two Japanese studies[34,35] investigated what in general constitutes a good death according to pharmacists, oncologists, oncology nurses, and cancer patients. Overall, these two studies highlighted significant differences in various attributes that are relevant to a good death according to patients and to the different healthcare professionals. In particular, healthcare professionals tended to place less importance than patients on being able to fight the disease until the last moments of life, on being able to live as long as possible, and on the willingness to be unaware of death. However, those patients who emphasized the importance of physical and psychological comfort preferred not to fight against the disease.

In general, the results of all these studies can be considered in line with those found in our study. In fact, it appears that overall, healthcare professionals recognize that, in the condition of end of life, aspects such as inform and involve the dying person in the care plan, having the possibility to also involve the loved ones of the dying person, and promoting the quality of life become critically important, compared to curing the disease with the aim of prolonging life. Anyway, the perceptions of healthcare professionals were directed toward the end of life of their patients and not toward their own, contrary to what happened in our study. These perceptions may, therefore, be different from those they would feel if they were reflecting on their own end of life.

Only very few studies, one on nurses[29] and one on physicians,[26] investigated the wishes of these healthcare professionals if they were terminally ill, in addition to the perception about their patients' deaths. The factors recognized by nurses as most important for their

TABLE 6
Logistic regression

	Odds ratio	95% Confidence interval		P
		Inferior	Superior	
3. How much would you like to be informed on your prognosis if you were terminally ill?				
Nurses	1.717	0.869	3.392	.12
Nursing assistant	1.53	0.65	3.602	.33
Physician	1			
Intermediate care	2.78	1.083	7.138	.034**
Internal medicine	1.701	0.743	3.892	.209
Oncology	1.748	0.723	4.224	.215
Hospice	8.635	1.548	48.162	.014**
Surgery	1			
Female	1.201	0.692	2.084	.515
Male	1			
Age	1	0.96	1.042	.998
Years of work	0.995	0.955	1.037	.826
Years in the operational unit	1.008	0.975	1.042	.626
Courses on palliative care	0.982	0.62	1.554	.938
No courses on palliative care	1			
4a. If I was terminally ill, I would like to receive medical care to the last, regardless of the discomfort they cause me.				
Nurses	2.551	1.306	4.982	.006**
Nursing assistant	2.755	1.218	6.23	.015**
Physician	1			
Intermediate care	2.542	1.049	6.157	.039**
Internal medicine	1.46	0.65	3.276	.359
Oncology	1.842	0.784	4.328	.161
Hospice	1.02	0.299	3.474	.975
Surgery	1			
Female	0.976	0.591	1.611	.925
Male	1			
Age	0.974	0.938	1.01	.155
Years of work	1.016	0.979	1.054	.407
Years in the operational unit	0.983	0.953	1.013	.256
Courses on palliative care	0.655	0.431	0.997	.048**
No courses on palliative care	1			
4b. If I was terminally ill, quality of life would be more important than the amount of medical care I could receive				
Nurses	0.514	0.242	1.094	.084
Nursing assistant	0.464	0.187	1.151	.098
Physician	1			
Intermediate care	0.411	0.155	1.085	.073
Internal medicine	0.671	0.274	1.646	.384
Oncology	0.726	0.281	1.878	.509
Hospice	1.979	0.426	9.193	.384
Surgery	1			
Female	1.09	0.63	1.892	.754
Male	1			
Age	0.996	0.957	1.037	.851
Years of work	0.991	0.953	1.031	.659
Years in the operational unit	1.041	1.006	1.078	.022**
Courses on palliative care	1.208	0.767	1.904	.414
No courses on palliative care	1			
5a. If you were terminally ill, how worried would you be about NOT receiving sufficient treatments?				
Nurses	2.883	1.526	5.446	.001**
Nursing assistant	1.403	0.646	3.044	.392
Physician	1			
Intermediate care	0.459	0.195	1.08	.075
Internal medicine	0.495	0.227	1.078	.077
Oncology	0.49	0.215	1.116	.089
Hospice	0.316	0.098	1.021	.054
Surgery	1			
Female	1.084	0.666	1.764	.746
Male	1			
Age	1.035	0.999	1.072	.059
Years of work	0.958	0.924	0.992	.017**
Years in the operational unit	0.996	0.968	1.026	.803
Courses on palliative care	0.972	0.647	1.458	.89
No courses on palliative care	1			
5b. If you were terminally ill, how worried would you be about receiving a "therapeutic relentlessness"?				
Nurses	1.003	0.525	1.914	.993
Nursing assistant	1.106	0.494	2.475	.806
Physician	1			
Intermediate care	0.524	0.207	1.332	.175
Internal medicine	0.555	0.235	1.309	.178
Oncology	0.286	0.116	0.705	.007**
Hospice	1.709	0.422	6.927	.453

(*continued*)

TABLE 6 (*Continued*)

	Odds ratio	95% Confidence interval		*P*
		Inferior	Superior	
Surgery	1			
Female	1.496	0.904	2.475	.117
Male	1			
Age	0.998	0.962	1.036	.932
Years of work	1.004	0.967	1.042	.841
Years in the operational unit	1.009	0.979	1.04	.556
Courses on palliative care	1.295	0.848	1.976	.231
No courses on palliative care	1			
6b. If you were terminally ill, how much would you prefer to spend the last days of your life in a health facility?				
Nurses	1.217	0.632	2.34	.557
Nursing assistant	1.204	0.539	2.687	.651
Physician	1			
Intermediate care	1.555	0.627	3.855	.34
Internal medicine	1.643	0.715	3.776	.242
Oncology	3.402	1.411	8.205	.006**
Hospice	4.173	1.231	14.15	.022**
Surgery	1			
Female	1.235	0.742	2.058	.417
Male	1			
Age	1.033	0.995	1.071	.086
Years of work	0.984	0.948	1.021	.381
Years in the operational unit	0.998	0.968	1.028	.881
Courses on palliative care	0.964	0.632	1.472	.867
No courses on palliative care	1			
8. If you were terminally ill, how much would you like to share information about your health with your loved ones?				
Nurses	1.127	0.599	2.118	.712
Nursing assistant	0.865	0.397	1.885	.715
Physician	1			
Intermediate care	1.333	0.561	3.163	.515
Internal medicine	0.776	0.353	1.707	.528
Oncology	1.322	0.574	3.043	.512
Hospice	3.578	1.079	11.863	.037**
Surgery	1			
Female	1.05	0.641	1.72	.846
Male	1			
Age	1.021	0.985	1.059	.248
Years of work	1.007	0.972	1.044	.687
Years in the operational unit	0.963	0.934	0.992	.012**
Courses on palliative care	0.914	0.606	1.377	.666
No courses on palliative care	1			
9. If you were terminally ill, how much would you like to share the intimate and private moment of your death with your loved ones?				
Nurses	0.798	0.421	1.512	.489
Nursing assistant	0.621	0.282	1.366	.236
Physician	1			
Intermediate care	1.002	0.42	2.388	.997
Internal medicine	1.065	0.482	2.353	.877
Oncology	0.989	0.428	2.287	.98
Hospice	2.889	0.845	9.879	.091
Surgery	1			
Female	1.899	1.156	3.119	.011**
Male	1			
Age	1.005	0.969	1.042	.792
Years of work	1.01	0.974	1.048	.578
Years in the operational unit	0.981	0.952	1.01	.194
Courses on palliative care	0.859	0.568	1.298	.471
No courses on palliative care	1			
16b. If you were terminally ill, which of the following treatments/interventions would you like to receive?				
Assisted breathing (YES)				
Nurses	0.81	0.213	3.072	.756
Nursing assistant	0.468	0.104	2.098	.321
Physician	1			
Intermediate care	//	//	//	//
Internal medicine	//	//	//	//
Oncology	//	//	//	//
Hospice	//	//	//	//
Surgery	1			
Female	0.528	0.168	1.662	.275
Male	1			
Age	0.935	0.879	0.994	.032**
Years of work	1.055	0.99	1.124	.098
Years in the operational unit	0.964	0.915	1.016	.17
Courses on palliative care	1.355	0.612	3	.453
No courses on palliative care	1			

patients and for their own good death were relief from uncomfortable symptoms and receiving the full truth about their illnesses. For themselves, they also recognized the importance of not being a burden to their family, not receiving treatments to prolong life, and having their loved ones around. However, they rated passing away at home significantly lower for themselves than for their patients.[29] As for physicians, the factors that they recognized as more important for themselves than for their patients were those regarding the level of knowledge and involvement in the care plan, the level of preparedness to die, and to not receive treatments to prolong life.[26] Although these results are similar to those found in our study, possible correlations between participants' characteristics (e.g., attended palliative care course, working experience, wards) were not investigated.

To our knowledge, our study is one of the first ones that investigated also nursing assistants' point of view on end-of-life, this permits to gather a wider and complete understanding of the multidisciplinary teams involved in palliative care.

It is interesting to notice that, despite the literature suggesting that end-of-life conversations often do not happen because of cultural issues, negative emotions, a sense of inadequacy, and unpreparedness,[17,18,21,36] when asked about end-of-life, all healthcare professionals highlighted the importance of communication with the dying people and their families. This shows that they are keenly aware of the importance of end-of-life conversations, so much so that they would strongly desire to engage in them for themselves as well. Furthermore, literature suggests that feelings such as burnout or intention to leave may arise in healthcare professionals engaged in trying to ensure a comfortable death for the patient while trying to manage providing care for both the patient and his or her family,[37] a context in which end-of-life conversations could certainly play a key role. Our study showed that palliative care courses may raise healthcare professionals' awareness towards end-of-life. This may be an important starting point for future research that should focus on understanding how to build the support healthcare professionals need to feel better equipped to address end-of-life conversations with patients and their families.

Regarding Italy, a recent study investigated the perceptions regarding the different choices in end-of-life care made by healthcare professionals and the general public.[7] In particular, this study highlighted a higher knowledge in healthcare professionals about specific end-of-life topics, such as "active euthanasia," "palliative sedation," and "biological testament," than the general public. It also highlighted different decisions between healthcare professionals and general public regarding end of life. For example, healthcare professionals were more likely to avoid cardiopulmonary resuscitation or assisted breathing and to be more favorable to treatments to avoid suffering, such as the use of opioids. This study was one of the first to assess possible misalignments between healthcare professionals and the general public, identifying differences between them.[7]

The conjugation between these findings and those of our study can help to create a clearer picture of the challenges inherent to end-of-life care in Italy and offer a starting point for designing research, strategies, and policies aimed at improving care in this field.

Moreover, in a landscape that is still relatively poorly investigated, having validated a specific tool aimed at investigating this type of issue could help to stimulate research in this area, while encouraging the production of comparable results and thus helping to create a solid theoretical foundation on which future improvements could be built. Future research could contribute to deepening the psychometric process, including using other techniques to ensure validity, such as convergent and criterion validity, and thus helping advance the research in this field.

Strengths and Weaknesses/Limitations of the Study

This study has some weaknesses. It was conducted in one Italian region, so it is possible that the results may not be generalizable to the Italian population of physicians, nurses, or nursing assistant. Also, we did not consider cultural characteristics of participants. Moreover, we did not have exclusion criteria; therefore, participants might have had very different work experiences. For example, novice nurses might have been included as well as expert nurses. Anyway, in the logistic regression, we analyzed differences based on years of work and years working in the operational unit. Despite this, to our knowledge, this was one of the first studies that investigated physicians', nurses', and nursing assistants' wishes for their own end-of-life, focusing on many components, such as preferences on the level of involvement and self-awareness, the kind of treatments they would rather receive, knowledge and the intentions to use instruments to plan end-of-life care. Also, the involvement of different healthcare professionals from different operational units, allowed us to understand differences between the various professions and settings. Furthermore, despite our choice to perform only a PCA after estimating the sample size appropriate for an exploratory factor analysis, and the fact that two of the components obtained a Cronbach alpha below 0.7, the validation of the instrument used for this study provided promising results for the purpose of making available a new valid and reliable tool that could be used for future research.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Gianluca Catania: Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Michela Calzolari:** Writing – original draft, Visualization, Validation, Methodology, Formal analysis, Data curation, Conceptualization. **Milko Zanini:** Writing – review & editing, Supervision, Conceptualization. **Paola Pilastri:** Writing – review & editing, Investigation, Conceptualization. **Patrizia Borsellino:** Writing – review & editing, Investigation, Conceptualization. **Lorena Forni:** Writing – review & editing, Investigation, Conceptualization. **Camilla Guglielmelli:** Writing – review & editing, Investigation, Conceptualization. **Melanie Valera:** Writing – review & editing, Investigation, Conceptualization. **Silvia Marenco:** Writing – review & editing, Investigation, Conceptualization. **Michele Gallucci:** Writing – review & editing, Investigation, Conceptualization. **Bruno Cavaliere:** Writing – review & editing, Investigation, Conceptualization. **Roberta Rapetti:** Writing – review & editing, Investigation, Conceptualization. **Marco Di Nitto:** Writing – review & editing, Supervision, Investigation, Conceptualization. **Loredana Sasso:** Writing – review & editing, Supervision, Conceptualization. **Annamaria Bagnasco:** Writing – review & editing, Supervision, Project administration, Conceptualization.

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Supplementary materials

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