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International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

Research Paper

The quality of dying and death of patients with cancer from Shanghai in China from the perspective of healthcare providers: A cross-sectional study

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ARTICLE INFO

Article history:

Received 7 November 2023

Received in revised form

28 February 2024

Accepted 7 March 2024

Available online 8 March 2024

Keywords:

Death

Hospice care

Medical staff

Neoplasms

Patient outcome assessment

ABSTRACT

Objective: To evaluate the quality of dying and death among deceased patients with cancer in Shanghai from the perspective of healthcare providers.**Methods:** This cross-sectional study was conducted in Shanghai from April to July 2023. A convenience sample of 261 healthcare providers working at eight healthcare institutions participated. Each participant was asked to evaluate the quality of dying and death of one deceased patient who had been cared for recently using the Good Death Scale for patients in China (GDS-PCN). The scale included family companionship (eight items), dying with peace (six items), professional care (six items), preparation & no regrets (five items), maintaining dignity (four items), keeping autonomy (four items), and physical wellbeing (three items) seven dimensions, 36 items.**Results:** The total GDS-PCN score was 144.11 ± 17.86 . The professional care dimension scored the highest (4.21 ± 0.58), whereas the preparation and no regret dimension scored the lowest (3.75 ± 0.70). Significant differences in the GDS-PCN scores were based on the healthcare institution grade, ward type, hospitalization duration, communication about the condition, treatment, and death-related topics with the healthcare provider, and decision-making style ($P < 0.05$). The quality of dying and death of the deceased patients was higher among those who received care in community health service centers and hospice wards, those who had been hospitalized for more than 15 days, those who had discussed their personal conditions, treatment, and death-related topics with healthcare providers to a greater extent; and those who were involved in decision-making ($P < 0.05$).**Conclusion:** The overall quality of dying and death among cancer patients in Shanghai is moderate to high, but the quality of dying and death in the preparation and no regret dimension and the keeping autonomy dimension still have room for improvement. Increased utilization of hospice care and better communication between patients and healthcare providers may enhance decedents' quality of dying and death. Future research on this topic is required from different perspectives and on a broader scale in the mainland of China.© 2024 The authors. Published by Elsevier B.V. on behalf of the Chinese Nursing Association. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

What is known?

- The evaluation of the quality of dying and death could facilitate the enhancement of dying patients' outcomes and the quality of end-of-life care.

- Few studies have investigated the quality of dying and death among a limited cancer population in the mainland of China.
- Instruments for the quality of dying and death developed by international researchers are commonly used.

What is new?

- A culturally sensitive instrument was adopted to evaluate the quality of dying and death of deceased patients with cancer from healthcare providers' perspective.

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Peer review under responsibility of Chinese Nursing Association.

<https://doi.org/10.1016/j.ijnss.2024.03.010>2352-0132/© 2024 The authors. Published by Elsevier B.V. on behalf of the Chinese Nursing Association. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

- The overall quality of dying and death for deceased patients with cancer is moderate to high in Shanghai.
- The dimensions of “preparation and no regret” and “keeping autonomy” have room for improvement.
- Increased utilization of hospice care and better communication between patients and healthcare providers may enhance decedents’ quality of dying and death.

1. Introduction

The quality of dying and death is “the degree to which a person’s preferences for dying and the moment of death agree with observations of how the person died as reported by others” [1]. It is an important indicator of the level of good death [2] and an essential indicator of the quality of hospice services [3]. The quality of dying and death evaluation can facilitate the enhancement of dying patients’ outcomes and the quality of end-of-life care [4]. Scholars have focused on the quality of dying and death among the population with cancer in this domain [5–12]. Previous studies have been conducted in several areas of the world, including Israel [5], Canada [6], Korea [7], the United States [8], Japan [9], Uganda [10], and China [11,12], and the findings indicate that the quality of dying and death of the decedents vary. For example, only 39% of the bereaved caregivers rated the quality of dying and death of Canadian patients as good or almost perfect [6], while the quality of dying and death of Japanese patients was at the mid-to-high level in a national-wide survey [9]. The quality of dying and death of the cancer population in different areas is influenced by local socio-cultural and healthcare system factors.

A few studies have evaluated the quality of cancer-related deaths in China [11,12]. Liu et al. reported that the quality of dying and death in cancer patients in the city of Shenyang was low to medium [12]. Yang et al. evaluated the quality of dying and death in cancer patients in Beijing as poor [11]. An estimated 2,574,200 people in China died of cancer in 2022 [13]. However, among the large number of the decedents who died of cancer, few have been the subject of examinations that investigated their quality of dying and death. An appropriate instrument should be considered when assessing the quality of dying and death, as sociocultural factors should not be ignored. Several instruments have been adopted worldwide to evaluate the quality of dying and death. However, translated instruments developed by international researchers have been commonly used in previous Chinese studies, including the Quality of Dying and Death Questionnaire (QODD) [1], the Good Death Inventory (GDI) [14,15], and the ICU Quality of Dying and Death Questionnaire [16]. Culturally sensitive instruments are required to effectively research the quality of dying and death among the Chinese population. Chen et al. developed a questionnaire to assess older Chinese adults’ preferences for a good death [17]. Recently, Xiao et al. developed an instrument to evaluate the quality of dying and death of Chinese people who died of chronic diseases from the perspective of third parties [18]. Evaluation of the quality of dying and death in the Chinese population using this new culturally sensitive instrument may provide more valuable empirical evidence to enhance end-of-life care in China.

For decedents who pass away due to a chronic disease, the quality of dying and death is usually evaluated by a third party, such as healthcare providers or family caregivers. These individuals witness the patient’s journey at the end-of-life stage and are familiar with the patient’s situation. Both parties were invited to evaluate the quality of dying and death in previous studies [5–8,10–12,14,16,19–25]. Ideally, the quality of dying and death of the decedents who died in healthcare institutions should be evaluated by both healthcare providers and family caregivers for a

comprehensive understanding of the situation. However, according to our previous research, the number of bereaved family caregivers in China who are willing to evaluate the quality of dying and death is extremely low [18]; thus, healthcare providers appear to be the primary and most feasible resource for evaluating patients’ quality of dying and death. Healthcare providers have also participated in previous studies that evaluated the quality of dying and death of Chinese patients [11,12]. Hence, this study aimed to evaluate the quality of dying and death among deceased cancer patients in Shanghai using a culturally sensitive instrument.

2. Methods

2.1. Study design and participants

This cross-sectional study using convenience sampling was conducted in Shanghai from April to July 2023. The inclusion criteria for the participants included: i) being a formal staff member working in a healthcare institution in Shanghai, ii) being a doctor or nurse, and iii) had experience about caring for patients with terminal-stage cancer in the past two years. The exclusion criteria were as follows: being training or visiting staff in the healthcare institution.

We calculated the sample size according to the formula for the cross-sectional study: $n = [(Z_{\alpha/2})^2 * \sigma^2] / E^2$ [26]. The standard deviation (SD) of the total score for the GDS-PCN in the pilot study was 20.82. Z was set as 1.96 with a confidence interval (CI) of 95%, and the allowable error was fixed as $15\% * \sigma$, leading to a minimum sample size of 171. Anticipating 10% invalid questionnaires, the sample size was expanded to 190 participants. The effective sample size of the present study met these requirements.

2.2. Instruments

2.2.1. General data questionnaire

A self-developed questionnaire was adopted to collect general data about the participants and the patients whom the participants had cared for. The questionnaire comprised three parts. 1) Participants’ demographic characteristics. These included age, gender, education level, marital status, occupation, working duration, job position, specialty, ward type, and the healthcare institution where participants worked. 2) General characteristics of the deceased patients who died of cancer. Each participant was asked to provide general information about one of the deceased patients they had recently cared for. General information included patient age, gender, time of death, and main diagnosis. 3) Caregiving information for the deceased patient. This section was developed based on the previous literature [11,22,23,25,27–30]. The collected information included the hospitalization duration, the use of tracheal intubation and cardiopulmonary resuscitation, communication between patients and participants regarding the patient’s condition, treatment, and death-related topics, and details about the decision-maker responsible for the patient’s treatment. Five experts in oncology care and hospice care evaluated this part. The expert group consisted of two doctors and one nurse who were specialized in palliative care, one who was specialized in oncology nursing, and one who was specialized in oncology medicine. All of the experts had more than 12 years of working experience. The Kendall’s W value of expert consultation was 0.33 ($P < 0.05$), and the average item-level content validity index (CVI) was 0.96.

2.2.2. The Good Death Scale for patients in China (GDS-PCN)

The GDS-PCN [18] was adopted to assess the quality of dying and death of deceased patients from the participants’ perspectives. This scale consists of 36 items and seven dimensions: family

companionship (eight items), professional care (six items), preparation and no regret (five items), dying with peace (six items), maintaining dignity (four items), keeping autonomy (four items), and physical wellbeing (three items). Each item was rated on a 5-point Likert scale (1 = totally disagree to 5 = totally agree), with total scores ranging from 36 to 180 and higher scores indicating higher quality of dying and death. Each dimension's score was calculated by the average score of the items on that dimension. The Cronbach's α coefficient for the total scale was 0.94, while the Cronbach's α coefficient for the seven dimensions ranged from 0.41 to 0.92 [18]. The correlation coefficient between GDS-PCN and GDI was 0.69 ($P < 0.01$) [18].

2.3. Data collection

Data were collected using an online questionnaire in two tertiary hospitals, two secondary hospitals, and four community health service centers in Shanghai, China. After obtaining approval from the administrators of the healthcare institutions, a designated staff member at each study site recruited the participants and collected the data. Staff members invited the participants in person and via the WeChat mobile application. The aims of this study were introduced on the first page of the online questionnaire. Participants completed the questionnaire using their mobile phones. Each participant was asked to evaluate one of the deceased patients they had recently cared for. The duration for each participant to complete the questionnaire ranged from 10 to 15 min.

Several measures were adopted to ensure the quality of the data collection: 1) limiting each ID to fill out the questionnaire only once; 2) setting confusion options; 3) limiting the number of consecutive selections of the same option; 4) only permitting submission after all the questions were answered; 5) deleting questionnaires with a completion time less than 5 min; 6) deleting questionnaires for which the participants' age did not meet the inclusion criteria; 7) deleting questionnaires with contradictory answers; and 8) having two researchers double-check the answers manually after the data were downloaded from the website.

2.4. Data analysis

Data were analyzed using SPSS version 26.0. Descriptive statistics were reported as frequencies, means, SDs, minimums, maximums, and percentages. Differences between groups were compared using the independent t -tests and one-way analyses of variance (ANOVAs). The least significant difference (LSD) was used for performing post hoc tests among the multiple comparisons. $P < 0.05$ was considered statistically significant.

2.5. Ethical considerations

This study was approved by the ethics committees of the School of Nursing, Fudan University (IRB # 2022-09-7) and the Shanghai Cancer Center of Fudan University (No. 2303272-14). All eligible healthcare providers voluntarily participated in the survey and provided informed consent before completing the questionnaire. All participants were informed that no private information would be collected and that the study procedure would follow rigorous rules to ensure confidentiality, privacy, and anonymity. All the procedures were performed by the ethical standards of the Declaration of Helsinki.

3. Results

3.1. Demographic characteristics of the participants and deceased patients

Overall, 318 participants completed the questionnaires and data from 261 participants were valid (82.1%) and included in the final analyses. The participants' mean age was 36.00 ± 6.93 . Most participants were women (92.3%), married (77.8%), and had a bachelor's degree (74.3%). The median number of years of work experience was 13 years (min = 1, max = 31). Most participants were nurses (79.3%) and worked in the community health service centers (64.8%). More than half of the participants (65.1%) had been working in the hospice wards (Table 1).

The quality of dying and death of 261 deceased patients was evaluated. More than half of the deceased patients were male (51.3%) and aged 60–80 years (63.2%). Approximately half of the deceased patients (46.0%) had been hospitalized for more than 15 days before their death. Before the patients died, most did not undergo tracheal intubation (94.6%) or cardiopulmonary resuscitation (90.8%). Most participants (62.1%) believed that the deceased patient knew of their condition before they died. Most participants reported varying degrees of communication about the patient's condition (80.5%) and treatment plan (85.4%). However, only slightly less than half of patients (45.6%) participated in their treatment decision-making. There was little communication on death-related topics occurred between participants and patients (Table 2).

3.2. The quality of dying and death of the deceased patients

The GDS-PCN score was 144.11 ± 17.86 , which denotes a medium-to-high score. The scores on the seven dimensions ranged from 3.75 to 4.21, with the professional care dimension scoring the highest (4.21 ± 0.58), the preparation and no regret dimension (3.75 ± 0.70), and the keeping autonomy dimension (3.86 ± 0.70) scoring the lowest (Table 3). The items with the lowest score in each dimension were "The patient obtained professional services to ease their death anxiety" (4.05 ± 0.79), "The patient's physical symptoms were effectively alleviated" (3.93 ± 0.88), "The patient passed away in a setting of his/her own choice" (3.75 ± 0.96), "The experience strengthened family bonds and cohesion" (3.75 ± 0.85), "The patient was well prepared for his/her death" (3.79 ± 0.88), "The patient maintained control over his/her life choices" (3.69 ± 0.92), and "The patient had a sense of completeness without life regrets" (3.54 ± 0.87).

3.3. Influencing factors of the quality of dying and death among the deceased patients

There were significant differences in the total GDS-PCN score based on the healthcare institution grade, ward type, hospitalization duration, patients' communication about their condition, treatment plan, and death-related topics with healthcare providers, and decision-making style ($P < 0.05$) (Table 4). The patients receiving care at community health service centers exhibited higher GDS-PCN scores than those in tertiary hospitals ($P < 0.05$). Patients in hospice wards had better GDS-PCN scores than those in non-hospice wards ($P < 0.05$). Patients hospitalized for less than three days had lower GDS-PCN scores than those hospitalized for 15 days or longer ($P < 0.05$). When considering communication regarding their condition and treatment, patients who communicated some and all information about their condition with healthcare providers had higher GDS-PCN scores than those who never discussed their condition ($P < 0.05$).

Table 1
Participant characteristics (n = 261).

Variables	n (%)	Variables	n (%)
Gender		Location of healthcare institution	
Female	241 (92.3)	Urban area	155 (59.4)
Male	20 (7.7)	Rural area	106 (40.6)
Education background		Type of the ward	
High school/college	50 (19.2)	Hospice ward	170 (65.1)
Bachelor degree	194 (74.3)	Oncology ward	52 (19.9)
Master/Doctor degree	17 (6.5)	Gerontology ward	34 (13.0)
Marital status		Other ward	5 (2.0)
Single	51 (19.5)	Grade of healthcare institution	
Married	203 (77.8)	Tertiary hospital	46 (17.6)
Divorced	7 (2.7)	Secondary hospital	46 (17.6)
Occupation		Community health service center	169 (64.8)
Doctor	54 (20.7)		
Nurse	207 (79.3)		

Table 2
Demographic and clinical characteristics of the deceased patients (n = 261).

Variables	n (%)	Variables	n (%)
Gender		1–2 month before death	88 (33.7)
Female	100 (38.3)	3–12 months before death	74 (28.4)
Male	134 (51.3)	Unclear	82 (31.4)
Unclear	27 (10.4)	Communication about condition with healthcare provider	
Age at death (years)		Never	51 (19.5)
< 60	34 (13.0)	A little	71 (27.3)
60–80	165 (63.2)	Some	81 (31.0)
> 80	62 (23.8)	Most	41 (15.7)
Time since death		All	17 (6.5)
Within six months	171 (65.5)	Communication about treatment with healthcare provider	
More than six months	90 (34.5)	Never	38 (14.6)
Duration of hospitalization (days)		A little	78 (29.9)
≤ 3	12 (4.6)	Some	78 (29.9)
4–7	39 (14.9)	Most	45 (17.2)
8–14	68 (26.1)	All	22 (8.4)
≥ 15	120 (46.0)	Decision-making style	
Unclear	22 (8.4)	Family with patient	119 (45.6)
Tracheal intubation		Family without patient	78 (29.9)
No	247 (94.6)	Relative healthcare proxy	61 (23.4)
Yes	6 (2.3)	Other	3 (1.1)
Unclear	8 (3.1)	Communication about death-related topics with healthcare provider	
Cardiopulmonary resuscitation		Never	78 (29.9)
No	237 (90.8)	A little	128 (49.0)
Yes	14 (5.4)	Some	46 (17.7)
Unclear	10 (3.8)	Much	9 (3.4)
Awareness of own condition			
Never aware	17 (6.5)		

Similarly, patients who had discussed some, most and more information about treatment details with healthcare providers demonstrated higher GDS-PCN scores than those who had not ($P < 0.05$). In contrast, patients with limited treatment communication with the participants had lower GDS-PCN scores than those with some communication ($P < 0.05$). Additionally, patients who discussed some death-related topics with healthcare providers had higher GDS-PCN scores than those who did not ($P < 0.05$). Regarding decision-making styles, the group in which only family members were involved scored lower on the GDS-PCN score than the group in which family members and patients participated in decision-making ($P < 0.05$).

4. Discussion

This study’s findings suggest that the quality of dying and death of cancer patients in Shanghai is at moderate to high level, which is a better result than that of previous research conducted in the mainland of China [11,12] and similar to the quality of dying and

death reported internationally [6,31,32]. The same quality of dying and death questionnaires reported that cancer patients in Canada and Spain had a moderate-to-high level of quality of dying and death [6,31]. Gurdogan et al. evaluated the quality of dying and death of patients with cancer in Turkey using another scale and found that the quality of dying and death of patients was moderate to high [32]. An abundance of high-quality healthcare resources may partially contribute to the optimistic result of the quality of dying and death, as high-quality healthcare resources have been identified as a positive factor for the quality of dying and death [8]. Shanghai is a city in the mainland of China with adequate high-quality healthcare resources. In 2021, there are 299,353 healthcare providers and 6,317 healthcare institutions in Shanghai [33], thus ensuring the accessibility of healthcare services at the end-of-life stage and facilitating the improvement of the quality of dying and death.

In the study, the lowest-scoring dimension was preparation and no regrets, and the two lowest-scoring items were “The patient had a sense of completeness and absence of regrets in life” and “The

Table 3
The score of Good Death Scale for Patients in China among deceased patients (n = 261).

Dimension & items	Average score (Mean ± SD)	Total score (Mean ± SD)
Professional care	4.21 ± 0.58	25.25 ± 3.49
The professionals provided guidance on the patient's daily care.	4.27 ± 0.73	
The patient could access information and counseling from professionals.	4.24 ± 0.70	
The patient had trustworthy professionals.	4.24 ± 0.68	
The patient received the psychological support and spiritual comfort from professionals.	4.23 ± 0.70	
Symptom management was provided by professionals.	4.21 ± 0.80	
The patient obtained professional services to ease the death anxiety.	4.05 ± 0.79	
Physical wellbeing	4.17 ± 0.63	12.50 ± 1.87
The physical hygiene and personal appearance had been maintained.	4.51 ± 0.64	
The physical integrity of the patient was maintained, unaffected by treatment or trauma.	4.06 ± 0.96	
The patient's physical symptoms were effectively alleviated.	3.93 ± 0.88	
Maintaining dignity	4.07 ± 0.69	16.26 ± 2.74
The final surrounding of the patient was characterized by serenity and respect.	4.22 ± 0.78	
Personal preferences and autonomy of the patient were consistently honored.	4.17 ± 0.77	
The patient experienced physical touch and embrace.	4.11 ± 0.78	
The patient passed away in a setting of his/her own choice.	3.75 ± 0.96	
Family companionship	4.01 ± 0.59	32.08 ± 4.70
The family members stayed with the patient at the pivotal final moment.	4.21 ± 0.80	
Family members diligently managed the daily needs of their dying loved one.	4.15 ± 0.76	
The patient received frequent comfort and companionship from family members.	4.13 ± 0.81	
The choices and wishes of the patient were upheld and supported by the family.	4.03 ± 0.79	
The patient had quality time with family members.	4.00 ± 0.91	
The family members helped the patient understand complex information.	3.93 ± 0.85	
Accompanying the patient led to personal growth and valuable insights for the family members.	3.89 ± 0.82	
The experience strengthened family bonds and cohesion.	3.75 ± 0.85	
Dying with peace	3.97 ± 0.70	23.84 ± 4.18
The way of passing away aligned with the deceased's own wish and those of the family members.	4.24 ± 0.81	
The patient passed away peacefully.	4.05 ± 0.81	
The patient experienced a state of spiritual tranquility.	3.94 ± 0.87	
In facing death, the patient maintained a calm demeanor.	3.92 ± 0.88	
The patient accepted the reality and lived peacefully in the final days.	3.91 ± 0.89	
The patient was well prepared for the death.	3.79 ± 0.88	
Keeping autonomy	3.86 ± 0.70	15.43 ± 2.80
The patient could confide to someone before passing away.	4.08 ± 0.84	
The patient was able to arrange the posthumous affairs at his/her own will.	3.94 ± 0.84	
The patient involved in treatment decisions and participation as he/she wished.	3.73 ± 0.91	
The patient maintained control over his/her life choices.	3.69 ± 0.92	
Preparation & no regrets	3.75 ± 0.70	18.74 ± 3.52
The patient had opportunities to express gratitude, love, apologies, and farewells to family members and friends.	3.88 ± 0.85	
The patient arranged personal affairs well who before passing.	3.85 ± 0.88	
Farewell ceremony was conducted in alignment with the deceased's preferences.	3.82 ± 0.86	
The final wishes of the deceased were respected and fulfilled.	3.64 ± 0.88	
The patient had a sense of completeness without life regrets.	3.54 ± 0.87	

Note: The original scale is in Chinese. The items in this table were translated by the research team.

final wishes of the deceased were respected and fulfilled," which fall under this dimension. These findings suggest that some key issues in patients' psychological and spiritual wellbeing (e.g., death anxiety and preparation, life closeness and meaning) are not well addressed before the patients die. Other studies conducted in the mainland of China have reported that the patient's quality of dying and death was unsatisfactory in terms of spiritual wellbeing [11,23]. Therefore, measures are needed to improve the patients' quality of dying and death in the psychosocial-spiritual domains.

Other items with relatively low scores included "The patient maintained control over his/her life choices," "The patient was involved in treatment decisions and participation as he/she wished," and "The patient passed away in a setting of his/her own choice," which are related to patient's decision-making and autonomy. In this study, several healthcare providers discussed patients' conditions, treatment, and death-related topics to some extent, which indicates that the communication between the healthcare providers and the patients in this study may be better than previously reported. For instance, Zheng et al. found that most patients with cancer had limited information regarding their illness, and healthcare provider-family communication was poor [34].

Despite relatively better communication between healthcare

providers and patients, fewer participants reported that the deceased patients were involved in the decision-making regarding the final treatment plans, which indicates that patients may not fully participate in the decision-making process despite their involvement in treatment discussions. Wen et al.'s study demonstrated notable differences between the treatment preferences of patients with cancer and the treatment they received [35]. The low score of the item "The patient passed away in a setting of his/her own choice" was also echoed by another study in Beijing in which Yang et al. found that the score for the item "Dying in a favorite place" on the GDI was very low [11]. Patient preferences and wills may not have been followed in the end. Maintaining the autonomy and dignity of the patients with end-of-life issues remains a challenge faced by the whole society in the mainland of China.

In this study, the quality of dying and death of deceased patients dying in hospice wards was higher than that of the patients dying in non-hospice wards. Family caregivers rated the quality of dying and death of those dying in hospice wards was higher than for those dying in non-hospice wards in a previous study as well [36]. In another study, the community-based palliative care unit was a positive factor associated with a better quality of dying and death [37]. These findings indicate that hospice care is positively related to the quality of dying and death. This may partially explain why

Table 4
Factors of the quality of dying and death of patients (n = 261).

Characteristics	n (%)	Total score (Mean ± SD)	t/F	P
Participants				
Grade of healthcare institution			3.69	0.026
Tertiary hospital	46 (17.6)	138.65 ± 21.04		
Secondary hospital	46 (17.6)	141.96 ± 14.79		
Community health service center	169 (64.8)	146.18 ± 17.41		
Type of the ward			3.50	0.001
Hospice ward	170 (65.1)	146.88 ± 16.73		
Non-hospice ward	91 (34.9)	138.92 ± 18.83		
Patients				
Duration of hospitalization (days)			3.86	0.005
≤ 3	12 (4.6)	131.17 ± 16.36		
4–7	39 (14.9)	139.59 ± 17.94		
8–14	68 (26.1)	144.96 ± 19.96		
≥ 15	120 (46.0)	147.35 ± 15.84		
Unclear	22 (8.4)	138.86 ± 17.66		
Communication about condition with healthcare provider			3.45	0.009
Never	51 (19.5)	138.57 ± 18.91		
A little	71 (27.3)	141.54 ± 17.01		
Some	81 (31.0)	148.06 ± 15.64		
Most	41 (15.7)	144.56 ± 20.44		
All	17 (6.5)	151.53 ± 16.46		
Communication about treatment with healthcare provider			6.86	<0.001
Never	38 (14.6)	135.53 ± 20.12		
A little	78 (29.9)	140.71 ± 15.44		
Some	78 (29.9)	148.68 ± 15.25		
Most and more	67 (25.6)	147.61 ± 19.69		
Decision-making style			5.02	0.002
Family with patient	119 (45.6)	148.15 ± 16.02		
Family without patient	78 (29.9)	138.58 ± 20.69		
Relative healthcare proxy	61 (23.4)	143.74 ± 15.64		
Other	3 (1.1)	135.00 ± 15.00		
Communication about death-related topics with healthcare provider			3.55	0.015
Never	78 (29.9)	139.63 ± 20.43		
A little	128 (49.0)	144.67 ± 16.56		
Some	46 (17.7)	148.11 ± 15.80		
Much	9 (3.4)	154.44 ± 17.86		

patients in community health service centers experienced a higher quality of dying and death compared to those in tertiary hospitals in this study because most hospice care services are located in the community health service centers in the city.

Patient outcomes can be strongly influenced by healthcare provider-patient communication. In this study, patient better participation in discussions of their treatment plan is associated with better quality of dying and death. Patients who never communicated about their condition, treatment, or death-related topics had lower GDS-PCN scores than those who had more communication with healthcare providers. We also found patients who participated in their treatment plan had higher GDS-PCN scores than those whose families completely decided on the treatment plan. This finding highlights the importance of patients' involvement in treatment-related communication at the end-of-life stage for enhancing their quality of dying and death. Disclosing information about illness, treatment, and prognosis could facilitate patient participation in treatment-related decision-making and reduce the suffering caused by unnecessary treatment [36], which finally leads to a better quality of dying and death [11]. However, some low-scoring items in this study indicate that communication between healthcare providers and patients and between patients and their family members still require further improvement.

Another noteworthy factor in the quality of dying and death is the duration of hospitalization. The patients' quality of dying and death who had been hospitalized for more than 15 days was better than those who stayed in the hospital for a shorter time, which is consistent with previous research [7]. Both studies found that a longer stay in a healthcare institution could enhance the quality of

dying and death. Long hospitalizations could provide sufficient time for healthcare providers to manage symptoms effectively and relieve discomfort. Further, the rapport between healthcare providers and patients could be established while managing physical suffering, making psychosocial and spiritual care feasible. Better psychological and spiritual care may enhance the patients' and the families' preparation for death and relieve their death anxiety and spiritual suffering.

5. Limitations

The current findings should be generalized with consideration. First, the sample size was relatively small compared to the number of cancer-related deaths in Shanghai. Second, the primary caregivers in families are important informants for patients' quality of dying and death [38]; however, recruiting family caregivers was not feasible in the current study. Previous studies identified multiple factors, such as patient age, educational background, death location, emotional support, ward type, place of death, gender, age of the caregiver, kind of health care service, staff training, etc., were associated with the quality of dying and death [5,7,8,11]; however, we observed a few factors related to the quality of dying and death of the patients with cancer. Further research using large sample sizes should evaluate the quality of dying and death of patients in Shanghai and explore additional influencing factors.

6. Conclusion

In this study, the quality of dying and death of deceased patients with cancer in Shanghai was moderate to high. Care for patients'

spiritual wellbeing requires improvement. Several solutions should be considered in the future to improve the quality of dying and death of cancer patients. Healthcare providers should be encouraged to identify dying patients early, allowing for high-quality professional care to be delivered within an adequate time. Meanwhile, they should actively communicate their treatment plans to patients. Future research from different perspectives and on a broader scale in the mainland of China is necessary.

Funding

This work was funded by the Huhang Nursing Research Fund of Shanghai Anticancer Association [SACA-HH202203] and Fudan-Fosun Nursing Research Fund [FNF202241].

Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

CRediT authorship contribution statement

Jiawei Min: Methodology, Formal analysis, Investigation, Data curation, Writing - original draft. **Peihao Liu:** Methodology, Formal analysis, Investigation, Data curation, Writing - original draft. **Kaifeng Xiao:** Methodology, Formal analysis, Investigation, Data curation, Writing - original draft. **Zhe Huang:** Conceptualization, Methodology, Validation, Investigation, Data curation, Writing - review & editing. **Xiaobin Lai:** Conceptualization, Methodology, Validation, Formal analysis, Data curation, Funding acquisition, Writing - review & editing, Supervision, Project administration.

Declaration of competing interest

The authors declare that they have no competing interests.

Acknowledgements

The authors would like to thank all of the colleagues and friends who helped to approach eligible healthcare providers. We would like to thank Editage (www.editage.cn) for English language editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijnss.2024.03.010>.

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