ORIGINAL ARTICLE

# Emergency nurses' perceptions of the changes in the quality of death and distress during the COVID-19 pandemic in Japan: A cross-sectional study

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**Abstract**

**Aim:** This study aimed to determine the perceptions of emergency nurses regarding the changes in the quality of death and distress associated with care due to the COVID-19 pandemic.

**Methods:** We conducted a cross-sectional survey among the emergency nurses working in emergency departments in Japan. To recruit the participants, we sent a letter requesting participation to 1,048 nurses in the emergency departments (EDs) of 40 of the 290 hospitals nationwide. We evaluated the perceptions of the emergency nurses of the changes in the quality of death and distress during the COVID-19 pandemic.

**Results:** A total of 284 nurses out of 1,047 participated in the study and completed the questionnaire. The most commonly perceived change in the quality of death during the pandemic was related to the absence of a loved one at the time of death. The emergency nurses strongly agreed that the patients did not receive the best possible care, patients could not maintain their dignity as individuals, and families of the patients regretted that they could not do more to save their relationship. The ED nurses perceived that their capacity to provide appropriate end-of-life care had changed considerably during the pandemic, about which the nurses felt distressed.

**Conclusions:** The COVID-19 pandemic is an unprecedented situation facing emergency nurses. Health authorities must assist emergency nurses in providing their patients with the desired end-of-life care services. At the same time, consideration should be given to the mental health of the emergency nurses, and psychological support should be provided.

**Keywords:** COVID-19, distress, emergency department, emergency nurse, quality of death

## INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) pandemic began in Wuhan, China, in December 2019 and has spread rapidly worldwide since then (Huang et al., 2020). On September 18, 2022, a total of 608,328,548 confirmed cases and 6,501,469 deaths were reported worldwide (World Health Organization, 2022). In Japan, 20,677,479 cases and 43,664 deaths have been reported since the first case was identified in January 2020 (Ministry of Health, Labour and Welfare, date for September 18, 2022.).

The COVID-19 pandemic has affected the quality of health care in many ways. In palliative care, for example, healthcare professionals feel that they cannot provice optimal end-of-life care to terminally ill patients, regard-

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less of whether or not they have the disease (Onwuteaka-Philipsen et al., 2021; Strang et al., 2020). Healthcare teams have also experienced practical challenges due to the pandemic, such as increased workload and reduced staffing within the clinical teams. In the end-of-life care, symptom management has taken precedence over psychosocial issues, limiting the provision of practical and spiritual services (Hanna et al., 2021). Limitations in the end-of-life care practices lead to the isolation of the patients, restricted farewells, lack of attentiveness of the staff, and reduced communication between the carers and patients. Moreover, the dignity of patients and their families was jeopardized (Becqué et al., 2021).

Providing end-of-life care in the emergency department (ED) is extremely difficult for healthcare professionals working as COVID-19 frontline medical staff (Pegg et al., 2020). EDs receive a wide variety of patients, including those with COVID-19. The majority of EDs have triage systems, first-aid treatments, and observation wards to identify and treat the patients with COVID-19 (Alquézar-Arbé et al., 2020). Emergency nurses experience a considerable burden from the increased workload and difficulties of working during a pandemic (González-Gil et al., 2021; Kandemir et al., 2021). Moreover, the scarcity of medical resources during this pandemic and the implementation of no-visit policies made it difficult for medical staff to provide the desired level of end-of-life care to the dying patients, resulting in the staff experiencing emotional distress (Virani et al., 2021). The increased workload and reallocation of resources to lifesaving care during disasters are particularly pronounced in the ED. The medical department is primarily responsible for the lifesaving care, and the pandemic has reduced the quality of end-of-life care being provided to the patients in the ED (Hendin et al., 2020).

The quality of death of patients who die in the ED consists of the "transition to the end-of-life phase after receiving the best treatment," "dying without suffering", "respecting the wishes of the patient", "having a loved one nearby", "maintaining human dignity", "having no change in appearance", and "not making the family feel guilty" (Ito et al., 2020). However, this quality of death has not been evaluated, and the perceptions of the nurses of the quality of death of patients are unknown. In addition, although the distress experienced by the nurses associated with caring for patients during the COVID-19 pandemic has been assessed in the past (Kishi et al., 2022; Tsubono & Ikeda, 2022), the distress associated with the end-of-life care and the relationship between the perceptions of the nurses about the quality of death and distress have not been examined.

Emergency nurses play an essential role in providing the end-of-life care in the ED. They may be distressed by the perceived reduction in the quality of death due to the inability to provide desirable end-of-life care to the patients during a pandemic. The perceptions of the emergency nurses of the quality of death and the distress associated with their nursing practice have not been assessed before and during the pandemic. It is impossible to identify the actual changes in quality of death and distress. However, it is possible to measure the perceptions of the emergency nurses regarding the changes in the quality of death in the ED. From the association between the perceptions of the changes in the quality of death and distress, it is also possible to assess the distress experienced by the emergency nurses due to the pandemic, which is associated with the patient death. This study aimed to determine the changes in the quality of death and distress associated with care due to the COVID-19 pandemic, as perceived by the Japanese emergency nurses.

# METHODS

## Study design

We conducted a cross-sectional survey among emergency nurses working in EDs in Japan. The study was approved by the Institutional Review Board of the Research Ethics Committee, College of Nursing Art & Science and Research Institute of Nursing Care for People and Community, University of Hyogo, Japan (approval no.: 2020F36, approval date: March 11, 2021).

## Participants and procedure

After a prospective and continuous recruitment process for participants, it was possible to request participation from an estimated number of nurses to reach the required sample size at 40 hospitals. A participation request letter was sent to 1,048 nurses affiliated with the EDs of 40 of the 290 hospitals in Japan (Japanese Society of Emergency Medicine, March 1, 2021).

We conducted a web-based questionnaire survey between June 1, 2021, and July 31, 2021, using Survey Monkey (Momentive, Dublin, Ireland). The inclusion criteria were willingness to participate in this study and being currently employed as a full-time nurse working in the ED. The exclusion criteria were not being in a nursing role involving patients and their families at the time of the survey and having less than one year of experience working in the ED. We provided an explanatory document containing the URL and QR codes for the survey to the participants, and requested their written informed consent to participate.

### Measurement

We collected the demographic data of the emergency nurses, namely sex, age, highest educational level, years of clinical experience, position in the ED, presence of advanced practice nursing license, and their perceptions of the quality of death and distress in the ED during the COVID-19 pandemic.

We evaluated the perceived changes in the quality of death in the ED using a 28-item questionnaire that we developed. The 28 items were based on seven factors reported in previous studies (Ito et al., 2020): transition to the end-of-life phase after receiving the best treatment, dying without suffering, respecting the wishes of the patient, having a loved one nearby, maintaining human dignity, having no change in appearance, and not making the family feel guilty. Each questionnaire item was designed with negative question wording to clearly measure the perceptions of the nurses of the negative quality of death changes, which they perceive as a decline in the quality of death. The responses were rated on a 4-point scale, ranging from 1 (absolutely disagree) to 4 (absolutely agree), with higher scores indicating a greater decline in the perceived quality of death.

We assessed distress associated with nursing practice during the COVID-19 pandemic using the Tokyo Metropolitan Distress Scale for Pandemic (TMDP) (Shiwaku et al., 2021). The TMDP could detect depression and anxiety, and it includes a social stress component. This scale assesses the mental health and social stress experienced by healthcare workers during the COVID-19 pandemic. It consists of nine items based on concerns about infection (five items) and social stress (four items). Each question on the TMDP is rated on a 5-point Likert scale, ranging from 0 points (never) to 4 points (most of the time), with a total score range of 0–36 points. The Cronbach's alpha coefficient for the TMDP scale is 0.74, and significant correlations between the TMDP and the Patient Health Questionnaire-9, Generalized Anxiety Disorder-7, and Perceived Stress Scale range from 0.23 to 0.50, confirming its reliability and validity (Shiwaku et al., 2021). The TMDP has already been used in several studies to assess distress among nurses in Japan (Kishi et al., 2022; Tsubono & Ikeda, 2022). In addition, The TMDP also detects anxiety and depressive symptoms at a score $\geq$14, which is the cutoff score for severe distress. (Shiwaku et al., 2021).

### Statistical analysis

In this study, it was difficult to estimate the effect sizes that are necessary to calculate the sample size due to the small number of similar previous studies. Therefore, the sample size could not be established. Accordingly, it was estimated from previous studies using the same TMDP that the proportion of nurses with severe distress was about 50% (Kishi et al., 2022). In this case, the sample size necessary to estimate an interval of population proportion with a 5% error and 90% confidence level could be established. The sample size was determined to be 271 nurses.

All measurements were subjected to descriptive statistics. To examine the relationship between the perceptions of the emergency nurses of the changes in the quality of death and distress, Pearson's correlation coefficient was calculated to determine the correlation between each questionnaire item on the perceptions of changes in the quality of death and total TMDP score. Furthermore, the participants were divided into two groups using a TMDP cutoff score of 14 points: participants with scores $\leq$13 points were included in the "no severe distress" group, and those with scores $\geq$14 points were included in the "severe distress" group. In addition, differences in the perceptions of changes in the quality of death between "no severe distress" and "severe distress" groups were examined using the Mann–Whitney U test. A p-value of less than 1% was considered statistically significant. All analyses were performed using SPSS version 26 software (SPSS Inc., Chicago, IL, USA).

## RESULTS

### Demographic characteristics of emergency nurses

A total of 284 nurses out of 1,047 participated in the study and completed the questionnaire (27.1% response rate). Most of the emergency nurses were females (80.9%), had a diploma (71.1%), and were employed as staff nurses (73.9%). The demographic characteristics of the emergency nurses are presented in Table 1.

### Changes in the quality of death during the COVID-19 pandemic as perceived by the emergency nurses

Table 2 shows the changes in the quality of death as perceived by the emergency nurses during the COVID-19 pandemic. According to the perceptions of the emergency nurses, there were changes in the quality of death mainly in four items related to not having loved ones nearby at the time of death: "When a patient dies, they are unable to have loved ones by their side (mean [SD], 3.44 [0.71]);" "when a patient dies, they are unable to touch or hold their loved ones (3.41 [0.71]);" "when a patient dies,

**Table 1** Demographic characteristics of emergency nurses

| Characteristics | | n | % |
|---|---|---|---|
| Sex | Female | 229 | 80.9 |
| | Male | 55 | 19.4 |
| Age, year | ≤29 | 57 | 20.1 |
| | 30-39 | 98 | 34.5 |
| | 40-49 | 109 | 38.4 |
| | ≥50 | 20 | 7.0 |
| Education | Diploma | 202 | 71.1 |
| | Associate degree | 20 | 7.0 |
| | Bachelor's degree | 55 | 19.4 |
| | Master's degree and higher | 7 | 2.5 |
| Years of clinical experience | ≤9 | 78 | 27.5 |
| | 10-19 | 117 | 41.2 |
| | 20-29 | 78 | 27.4 |
| | ≥30 | 11 | 3.9 |
| Positions in the ED | Staff nurse | 210 | 73.9 |
| | Charge nurse | 48 | 16.9 |
| | Assistant head nurse | 18 | 6.3 |
| | Head nurse | 7 | 2.5 |
| | Other | 1 | 0.4 |
| Advanced practice nurse license | Certified Nurse | 26 | 9.2 |
| | Certified Nurse Specialist | 3 | 1.1 |
| | None | 255 | 89.8 |

*Abbreviations.* ED, Emergency Department

their loved ones are unable to say goodbye (3.40 [0.71]);" and "when a patient dies, their loved ones are unable to be by their side (3.39 [0.72])."

The emergency nurses also perceived changes in the items related to the patients having their wishes respected: "medical care that respects a patient's wishes cannot be provided (2.33 [0.77]);" and "medical care that respects a patient's way of life and values cannot be provided (2.33 [0.83]),".

### Differences in the distress intensity according to the changes in the quality of death during the COVID-19 pandemic as perceived by the emergency nurses

Regarding the correlation between each question on the perception of the emergency nurses of the changes in the quality of death during the COVID-19 pandemic and total TMDP score, we observed significant correlations for all the items, with correlation coefficients ranging from 0.152 to 0.290. The mean TMDP score was 14.28 (SD, 4.80), with 52.8% of the emergency nurses experiencing severe distress, with scores above 14 points. Fifteen of the 28 items showed significant differences in the intensity of distress depending on the perception of the emergency nurses (Table 3). The emergency nurses were severely distressed by the pandemic on recognizing that the patients were unable to receive the best care possible, could not maintain their dignity as an individual, and the families of the patients also had regrets about not being able to do more to save the patients (e.g., "patients die in great pain more frequently after the pandemic as opposed to before" and "family members usually think that the patient would have survived if they had done more"). None of the items were related to not having a loved one nearby when a patient was dying or respecting the wishes of the patient. These were the most commonly perceived changes in the quality of death, showing no difference in the distress intensity.

## DISCUSSION

To our knowledge, this study is the first to clarify the perceptions of the emergency nurses of the quality of death of the patients in the ED during the COVID-19 pandemic and the related feelings of distress experienced by the nurses.

The most notable change in the quality of death perceived by the emergency nurses was that the patients could not have their loved ones nearby at the time of death during the COVID-19 pandemic. Across different communities, "good death" under normal circumstances includes allowing people to die in the company of their loved ones or others who can provide spiritual support (Simpson et al., 2021), and this is also true for patients who die in EDs (Ito et al., 2020). However, during the COVID-19 pandemic, a study reported that the relatives were present at the time of death in only 13% and 24% of the cases in nursing homes and hospitals, respectively (Strang et al., 2020). Another study reported that 75.8% of the healthcare professionals providing end-of-life care had visiting restrictions in the last two days of life and concluded that optimal care requires allowing at least some level of visits from the relatives (Onwuteaka-Philipsen et al., 2021). Our study suggested that EDs, which are in the frontline of COVID-19 care, strictly regulate visits by the families of the patients to prevent the spread of infection, thereby reducing the quality of death of the patients and causing great distress in nurses.

**Table 2** Changes in the quality of death as perceived by emergency nurses during the COVID-19 pandemic

| Questionnaire items[a] | Mean (SD) | Absolutely disagree | | Disagree | | Agree | | Absolutely agree | |
|---|---|---|---|---|---|---|---|---|---|
| | | n | (%) | n | (%) | n | (%) | n | (%) |
| *When a patient dies, they are unable to have loved ones by their side* | 3.44 (0.71) | 0 | (0.0) | 36 | (12.7) | 88 | (31.1) | 160 | (56.3) |
| *When a patient dies, they are unable to touch or hold their loved ones.* | 3.41 (0.71) | 0 | (0.0) | 37 | (13.0) | 93 | (32.7) | 154 | (54.2) |
| *When a patient dies, their loved ones are unable to say goodbye.* | 3.40 (0.71) | 0 | (0.0) | 38 | (13.4) | 93 | (32.7) | 153 | (53.9) |
| *When a patient dies, their loved ones are unable to be by their side.* | 3.39 (0.72) | 1 | (0.4) | 36 | (12.7) | 99 | (34.9) | 148 | (52.1) |
| *Medical care that respects a patient's wishes cannot be provided.* | 2.33 (0.77) | 31 | (10.9) | 150 | (52.8) | 81 | (28.5) | 22 | (7.7) |
| *Medical care that respects a patient's way of life and values cannot be provided.* | 2.33 (0.83) | 39 | (13.7) | 139 | (48.9) | 80 | (28.2) | 26 | (9.2) |
| *More families feel responsible for the death of the patient.* | 2.29 (0.70) | 28 | (9.9) | 159 | (56.0) | 84 | (29.6) | 13 | (4.6) |
| *More family members think that the patient may have survived if they had done more.* | 2.27 (0.73) | 30 | (10.6) | 163 | (57.4) | 74 | (26.1) | 17 | (6.0) |
| *A patient's dignity as a person cannot be maintained.* | 2.25 (0.77) | 38 | (13.4) | 154 | (54.2) | 74 | (26.1) | 18 | (6.3) |
| *More families wonder if the patient would have died if something had been done differently.* | 2.24 (0.67) | 27 | (9.5) | 174 | (61.3) | 72 | (25.4) | 11 | (3.9) |
| *A patient cannot receive the best care possible.* | 2.24 (0.76) | 37 | (13.0) | 163 | (57.4) | 64 | (22.5) | 20 | (7.0) |
| *A patient suffers more from their treatment than before.* | 2.20 (0.74) | 38 | (13.4) | 168 | (59.2) | 62 | (21.8) | 16 | (5.6) |
| *The patient can no longer receive optimal care.* | 2.16 (0.74) | 41 | (14.4) | 173 | (60.9) | 53 | (18.7) | 17 | (6.0) |
| *The patient's appearance changes more than before.* | 2.15 (0.71) | 43 | (15.1) | 167 | (58.8) | 63 | (22.2) | 11 | (3.9) |
| *The family can no longer understand or agree with the patient's treatment.* | 2.14 (0.62) | 28 | (9.9) | 198 | (69.7) | 49 | (17.3) | 9 | (3.2) |
| *It is less likely for a patient to retain the conventional "accepted" (i.e., commonly assumed) image of a "patient."* | 2.11 (0.70) | 45 | (15.8) | 172 | (60.6) | 57 | (20.1) | 10 | (3.5) |
| *Patients die in great pain more often than before the pandemic.* | 2.11 (0.70) | 46 | (16.2) | 170 | (59.9) | 58 | (20.4) | 10 | (3.5) |
| *Healthcare professionals can no longer offer the kind of medical care the patient may desire.* | 2.11 (0.65) | 37 | (13.0) | 189 | (66.5) | 49 | (17.3) | 9 | (3.2) |
| *Healthcare professionals no longer have the leeway or leisure to consider optimal medical care for the patient.* | 2.10 (0.68) | 41 | (14.4) | 184 | (64.8) | 48 | (16.9) | 11 | (3.9) |
| *More family members are angry with themselves for not doing things differently.* | 2.08 (0.58) | 31 | (10.9) | 206 | (72.5) | 41 | (14.4) | 6 | (2.1) |
| *A patient is less likely to be neatly groomed at death.* | 2.07 (0.68) | 47 | (16.5) | 180 | (63.4) | 47 | (16.5) | 10 | (3.5) |
| *Patients die in intense pain more often than before the pandemic.* | 2.06 (0.67) | 43 | (15.1) | 193 | (68.0) | 36 | (12.7) | 12 | (4.2) |
| *A patient is harmed unnecessarily by their treatment more often.* | 2.03 (0.67) | 48 | (16.9) | 191 | (67.3) | 34 | (12.0) | 11 | (3.9) |
| *A patient is no longer treated politely and with care.* | 2.01 (0.68) | 56 | (19.7) | 176 | (62.0) | 44 | (15.5) | 8 | (2.8) |
| *The family has lost its trust in the healthcare professionals who treated the patient.* | 2.00 (0.54) | 37 | (13.0) | 214 | (75.4) | 29 | (10.2) | 4 | (1.4) |
| *A patient is now treated as a "object" rather than a human being.* | 1.98 (0.74) | 67 | (23.6) | 167 | (58.8) | 38 | (13.4) | 12 | (4.2) |
| *Patients are physically harmed as a result of treatment more often.* | 1.95 (0.58) | 51 | (18.0) | 200 | (70.4) | 29 | (10.2) | 4 | (1.4) |
| *A patient is no longer valued as a person.* | 1.91 (0.67) | 69 | (24.3) | 181 | (63.7) | 25 | (8.8) | 9 | (3.2) |

[a] Questionnaire items are listed in descending order, starting with the item with the highest mean score.

**Table 3** Relationship between emergency nurses' perceptions of changes in quality of death and distress intensity during the COVID-19 pandemic

| Perceptions of changes in the quality of death | Correlation coefficient with TMDP total score[a] | | No Severe distress[b] (n = 134) | Severe distress[c] (n = 150) | |
|---|---|---|---|---|---|
| | r | P-value | Mean (SD) | Mean (SD) | P-value[d] |
| *When a patient dies, they are unable to have loved ones by their side.* | .192 | .001 | 3.34 (0.76) | 3.52 (0.65) | .055 |
| *When a patient dies, they are unable to touch or hold their loved ones.* | .180 | .002 | 3.34 (0.73) | 3.48 (0.69) | .073 |
| *When a patient dies, their loved ones are unable to say goodbye.* | .191 | .001 | 3.32 (0.75) | 3.48 (0.67) | .078 |
| *When a patient dies, their loved ones are unable to be by their side.* | .187 | .002 | 3.29 (0.74) | 3.47 (0.68) | .032 |
| *Medical care that respects a patient's wishes cannot be provided.* | .191 | .001 | 2.23 (0.79) | 2.42 (0.74) | .055 |
| *Medical care that respects a patient's way of life and values cannot be provided.* | .205 | .001 | 2.21 (0.83) | 2.43 (0.81) | .029 |
| *More families feel responsible for the death of the patient.* | .239 | <.000 | 2.19 (0.70) | 2.38 (0.70) | .026 |
| *More family members think that the patient may have survived if they had done more.* | .242 | <.000 | 2.14 (0.75) | 2.39 (0.69) | .004 |
| *A patient's dignity as a person cannot be maintained.* | .216 | <.000 | 2.10 (0.75) | 2.39 (0.76) | .002 |
| *More families wonder if the patient would have died if something had been done differently.* | .210 | <.000 | 2.14 (0.70) | 2.32 (0.64) | .048 |
| *A patient cannot receive the best care possible.* | .249 | <.000 | 2.01 (0.72) | 2.43 (0.76) | <.000 |
| *A patient suffers more from their treatment than before.* | .250 | <.000 | 2.04 (0.75) | 2.34 (0.69) | <.000 |
| *The patient can no longer receive optimal care.* | .250 | <.000 | 1.93 (0.70) | 2.37 (0.71) | <.000 |
| *The patient's appearance changes more than before.* | .176 | .003 | 2.09 (0.73) | 2.20 (0.70) | .130 |
| *The family can no longer understand or agree with the patient's treatment.* | .259 | <.000 | 1.95 (0.55) | 2.31 (0.62) | <.000 |
| *It is less likely for a patient to retain the conventional "accepted" (i.e., commonly assumed) image of a "patient."* | .218 | <.000 | 2.02 (0.71) | 2.19 (0.68) | .033 |
| *Patients die in great pain more often than before the pandemic.* | .259 | <.000 | 1.95 (0.68) | 2.26 (0.70) | <.000 |
| *Healthcare professionals can no longer offer the kind of medical care the patient may desire.* | .121 | .042 | 2.05 (0.68) | 2.15 (0.62) | .168 |
| *Healthcare professionals no longer have the leeway or leisure to consider optimal medical care for the patient.* | .125 | .036 | 2.04 (0.74) | 2.16 (0.61) | .074 |
| *More family members are angry with themselves for not doing things differently.* | .176 | .003 | 2.01 (0.62) | 2.14 (0.53) | .056 |
| *A patient is less likely to be neatly groomed at death.* | .234 | <.000 | 1.98 (0.70) | 2.15 (0.66) | .023 |
| *Patients die in intense pain more often than before the pandemic.* | .290 | <.000 | 1.89 (0.65) | 2.21 (0.65) | <.000 |
| *A patient is harmed unnecessarily by their treatment more often.* | .210 | <.000 | 1.90 (0.66) | 2.14 (0.66) | .001 |
| *A patient is no longer treated politely and with care.* | .252 | <.000 | 1.87 (0.64) | 2.15 (0.70) | .001 |
| *The family has lost its trust in the healthcare professionals who treated the patient.* | .290 | <.000 | 1.83 (0.50) | 2.15 (0.53) | <.000 |
| *A patient is now treated as a "object" rather than a human being.* | .286 | <.000 | 1.79 (0.72) | 2.15 (0.71) | <.000 |
| *Patients are physically harmed as a result of treatment more often.* | .152 | .010 | 1.90 (0.62) | 1.99 (0.54) | .139 |
| *A patient is no longer valued as a person.* | .280 | <.000 | 1.75 (0.65) | 2.05 (0.66) | <.000 |

*Abbreviations*. TMDP, Tokyo Metropolitan Distress Scale for Pandemic
[a] Pearson's correlation coefficient
[b] TMDP total score of 13 or less
[c] TMDP total score of 14 or more
[d] Mann-Whitney U-test

Patients in EDs are usually unconscious and unable to make decisions regarding treatment and care, and the prevalence of advance directives is particularly low in Japan (Ministry of Health. Labour and Welfare, 2018). In most cases, the wishes of the patient and course of treatment and care are deduced from discussions between

healthcare professionals and families of the patients. However, during the COVID-19 pandemic, visits between the patients and their families on one hand and the healthcare professionals and their families on the other hand were often restricted. This has led to a lack of end-of-life discussions between the healthcare professionals and families and a lack of treatment and care plans that fully respect the wishes of the patients. As perceived by the emergency nurses who participated in this study, the COVID-19 pandemic reduced the quality of death of patients in the ED, strongly suggesting the need for health policies and strategies to improve the end-of-life care nurses provide.

Another notable finding was that most emergency nurses believed that despite the restrictions on the family visits imposed by the healthcare providers, the families continued to trust the healthcare providers caring for the patients. This implies that the emergency nurses strive to maintain communication with families, even in the difficult context of a pandemic, using various communication methods to build trust with the families. During the COVID-19 pandemic, online telecommunication technologies were used for communication between healthcare providers, mainly emergency nurses, and the families of the patients (Nelson et al., 2022). Using such technologies has been reported to help care for the patients during the pandemic (Ersek et al., 2021). It may be vital to improve the quality of death by enabling end-of-life care strategies that address the restrictions of limited visits and communication due to the pandemic. However, it should be noted that the costs incurred by the emergency nurses may increase because of the need for special forms of communication, such as online technologies, and that the mental burden on the emergency nurses who attend to the patients whose families cannot visit is increasing. Thus, the emergency nurses are providing the best care to the patients and their families at the expense of their own well-being. Indeed, more than half of the emergency nurses experienced severe distress during the COVID-19 pandemic, and the perceived decline in the quality of patient death may be one of the factors contributing to the intensity of distress. The distress experienced by healthcare workers during the COVID-19 pandemic has become a severe problem. A systematic review and meta-analysis showed that more than 20% of the healthcare workers experience anxiety, depression, and insomnia symptoms (Pappa et al., 2020). In particular, the emergency nurses in the EDs are at higher risk of developing mental health problems than the nurses in other departments (Nie et al., 2020; Vizheh et al., 2020).

Moral distress is one of the factors contributing to these mental health problems. Emergency nurses experience moral distress in the absence of the family members of the patients, resulting in anxiety and depressive symptoms (Romero-García et al., 2022). Our study reported that moral distress among emergency nurses during the COVID-19 pandemic was associated with the perceived poor quality of death by their patients. The emergency nurses are likely to experience intense emotional distress during a pandemic because of their inability to provide the best care to their patients and because of witnessing the distress of the family members who regret not being there for the patients and putting in more efforts to save them. Therefore, organizations need to develop easily accessible telecommunication technologies so that critically ill or dying patients can contact their families. Moreover, emergency nurses can receive support in providing the desired care to ensure that their patients experience a good quality of death. In addition, attention should be paid to the mental health of the emergency nurses by placing mentors, psychologists, or counselors to provide psychological support to the emergency nurses working in the end-of-life care settings during the COVID-19 pandemic.

The high workload and moral distress that the emergency nurses face in the end-of-life care settings during the COVID-19 pandemic is a significant factor that increases turnover rates (Tolksdorf et al., 2022; Petrișor et al., 2021). Meanwhile, the cost of providing psychological support to the emergency nurses in distress is much lower than the cost of losing skilled emergency nurses due to such distress. Governments and hospital organizations should allocate costs to providing mental health support to the emergency nurses.

Our study had several limitations. First, the survey response rate was 27.1%. Non-respondents may have answered differently, which could be a source of bias. Second, due to the cross-sectional study design, we could not determine the extent to which the perceived changes in the quality of death accurately reflected the different phases of the COVID-19 pandemic, such as the spread of infection and development of vaccines. Third, the 28-item questionnaire used to assess the perceptions of quality of death in the ED in our study has not been tested for reliability and validity, which limits its generalizability to other populations. Thus, a follow-up study is needed in this regard.

## CONCLUSION

The COVID-19 pandemic is an unprecedented situation

facing the emergency nurses. Health authorities need to facilitate communication technologies that allow critically ill or dying patients to contact their families via the internet and assist the emergency nurses in providing the desired end-of-life care services to their patients. Moreover, consideration should be given to the mental health of emergency nurses; and psychological support, via mentors and psychologists or other forms of counseling, should be provided to the emergency nurses who engage with the end-of-life care during the COVID-19 pandemic.

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## DISCLOSURES

None declared.

## AUTHORS' CONTRIBUTIONS

All authors contributed to the conception and design of this study; Yoshiyasu Ito performed the statistical analysis and drafted the manuscript; Michihiro Tsubaki and Yukihiro Sakaguchi critically reviewed the manuscript and supervised the whole study process. All authors contributed to and approved all drafts.

## REFERENCES

Alquézar-Arbé, A., Piñera, P., Jacob, J., Martín, A., Jiménez, S., Llorens, P., et al. (2020). Impact of the COVID-19 pandemic on hospital emergency departments: results of a survey of departments in 2020 - the Spanish ENCOVUR study. *Emergencias*, *32*(5), 320–331.

Becqué, Y. N., van der Geugten, W., van der Heide, A., Korfage, I. J., Pasman, H. R. W., Onwuteaka-Philipsen, B. D., et al. (2021). Dignity reflections based on experiences of end-of-life care during the first wave of the COVID-19 pandemic: A qualitative inquiry among bereaved relatives in the Netherlands (the CO-LIVE study). *Scandinavian Journal of Caring Sciences*, *36*(3), 769–781. doi: 10.1111/scs.13038.

Ersek, M., Smith, D., Griffin, H., Carpenter, J. G., Feder, S. L., Shreve, S. T., et al. (2021). End-of-life care in the time of COVID-19: Communication matters more than ever. *Journal of Pain and Symptom Managemen*, *62*(2), 213–222.e2. doi: 10.1016/j.jpainsymman.2020.12.024.

González-Gil, M. T., González-Blázquez, C., Parro-Moreno, A. I., Pedraz-Marcos, A., Palmar-Santos, A., Otero-García, L., et al. (2021). Nurses' perceptions and demands regarding COVID-19 care delivery in critical care units and hospital emergency services. *Intensive and Critical Care Nursing*, *62*, 102966. doi: 10.1016/j.iccn.2020.102966.

Hanna, J. R., Rapa, E., Dalton, L. J., Hughes, R., Quarmby, L. M., McGlinchey, T., et al. (2021). Health and social care professionals' experiences of providing end of life care during the COVID-19 pandemic: A qualitative study. *Palliative Medicine*, *35*(7), 1249–1257. doi: 10.1177/02692163211017808.

Hendin, A., La Rivière, C. G., Williscroft, D. M., O'Connor, E., Hughes, J., & Fischer, L. M. (2020). End-of-life care in the emergency department for the patient imminently dying of a highly transmissible acute respiratory infection (such as COVID-19). *Canadian Journal of Emergency Medical Care*, *22*(4), 414–417. doi: 10.1017/cem.2020.352.

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., et al. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, *395*(10223), 497–506. doi: 10.1016/S0140-6736(20)30183-5.

Ito, Y., Tsubaki, M., Fujimoto, M., & Sakaguchi, Y. (2020). Exploring the components of the quality of death in Japanese emergency departments: A qualitative study. *Applied Nursing Research*, *56*, 151371. doi: 10.1016/j.apnr.2020.151371.

Kandemir, D., Yılmaz, A., & Sönmez, B. (2021). Professional and psychological perceptions of emergency nurses during the COVID-19 pandemic: A qualitative study. *Japan Journal of Nursing Science*, *9*(3), e12470. doi: 10.1111/jjns.12470.

Kishi, H., Watanabe, K., Nakamura, S., Taguchi, H., & Narimatsu, H. (2022). Impact of nurses' roles and burden on burnout during the COVID-19 pandemic: Multicenter cross-sectional survey. *Journal of Nursing Management*, *30*(6), 1922–1930. doi: 10.1111/jonm.13648.

Ministry of Health, Labour and Welfare. Situation report: current situation in Japan, 2022. [Accessed 19 September 2022.] Available from URL: https://www.mhlw.go.jp/stf/covid-19/kokunainohasseijoukyou.html (in Japanese)

Ministry of Health. Labour and welfare, results of a survey on end-of-life care, 2018. [Accessed 19 September 2022.] Available from URL: https://www.mhlw.go.jp/toukei/list/dl/saisyuiryo_a_h29.pdf (in Japanese)

Nelson, S. E., Steuernagle, J., Rotello, L., Nyquist, P., Suarez, J. I., & Ziai, W. (2022). COVID-19 and telehealth in the intensive care unit setting: a survey. *BMC Health Services Research*, *22*(1), 797. doi: 10.1186/s12913-022-08197-7.

Nie, A., Su, X., Zhang, S., Guan, W., & Li, J. (2020). Psychological impact of COVID-19 outbreak on frontline nurses: A cross-sectional survey study. *Journal of Clinical Nursing*, *29*(21–22), 4217–4226. doi: 10.1111/jocn.15454.

Onwuteaka-Philipsen, B. D., Pasman, H. R. W., Korfage, I. J., Witkamp, E., Zee, M., van Lent, L. G., et al. (2021). Dying in times of the coronavirus: An online survey among healthcare professionals about end-of-life care for patients dying with and without COVID-19 (the CO-LIVE study). *Palliative Medicine*, *35*(5), 830–842. doi: 10.1177/02692163211003778.

Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsi, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain Behavior and Immunity*, *88*, 901–907. doi: 10.1016/j.bbi.2020.05.026.

Pegg, A. M., Palma, M., Roberson, C., Okonta, C., Nkokolo Massamba/Koudika, M. H., & Roberts, N. (2020). Providing end-of-life care in the emergency department: Early experience

from Médecins Sans Frontières during the Covid-19 pandemic. *African Journal of Emergency Medicine*, *10*(3), 103–104. doi: 10.1016/j.afjem.2020.05.012.

Petrișor, C., Breazu, C., Doroftei, M., Mărieș, I., & Popescu, C. (2021). Association of moral distress with anxiety, depression, and an intention to leave among nurses working in intensive care units during the COVID-19 pandemic. *Healthcare (Basel)*, *9*(10), 1377. doi: 10.3390/healthcare9101377.

Romero-García, M., Delgado-Hito, P., Gálvez-Herrer, M., Ángel-Sesmero, J. A., Velasco-Sanz, T. R., Benito-Aracil, L., et al. (2022). Moral distress, emotional impact and coping in intensive care unit staff during the outbreak of COVID-19. *Intensive and Critical Care Nursing*, *70*, 103206. doi: 10.1016/j.iccn.2022.103206.

Shiwaku, H., Doi, S., Miyajima, M., Matsumoto, Y., Fujino, J., Hirai, N., et al. (2021). Novel brief screening scale, Tokyo Metropolitan Distress Scale for Pandemic (TMDP), for assessing mental and social stress of medical personnel in COVID-19 pandemic. *Psychiatry and Clinical Neurosciences*, *75*(1), 24–25. doi: 10.1111/pcn.13168.

Simpson, N., Angland, M., Bhogal, J. K., Bowers, R. E., Cannell, F., Gardner, K., et al. (2021). 'Good' and 'Bad' deaths during the COVID-19 pandemic: insights from a rapid qualitative study. *BMJ Global Health*, *6*(6), e005509. doi: 10.1136/bmjgh-2021-005509.

Strang, P., Bergström, J., Martinsson, L., & Lundström, S. (2020). Dying from COVID-19: Loneliness, end-of-life discussions, and support for patients and their families in nursing homes and hospitals. A national register study. *Journal of Pain and Symptom Management*, *60*(4), e2–e13. doi: 10.1016/j.jpainsymman.2020.07.020.

Tolksdorf, K. H., Tischler, U., & Heinrichs, K. (2022). Correlates of turnover intention among nursing staff in the COVID-19 pandemic: a systematic review. *BMC Nursing*, *21*(1), 174. doi: 10.1186/s12912-022-00949-4.

Tsubota, K., & Ikeda, C. (2022). Depressive symptoms and stress among nurses in the COVID unit: A 7-month cohort study. *Japan Journal of Nursing Science*, *19*, e12477. doi: 10.1111/jjns.12477.

Virani, S. B. (2021). Moral distress amid COVID-19: A frontline emergency nurse's perspective. *Nursing*, *51*(12), 39–43. doi: 10.1097/01.NURSE.0000800072.35132.c1.

Vizheh, M., Qorbani, M., Arzaghi, S. M., et al. (2020). The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *Journal of Diabetes and Metabolism Disorders*, *19*(2), 1967–1978. doi: 10.1007/s40200-020-00643-9.

World Health Organization. WHO coronavirus (COVID-19) dashboard, 2022. [Accessed 19 September 2022.] Available from URL: https://covid19.who.int/