Regional Medical Professionals’ Confidence in Providing Palliative Care, Associated Difficulties and Availability of Specialized Palliative Care Services in Japan

Kayo Hirooka1,*, Mitsunori Miyashita2, Tatsuya Morita3, Takeyuki Ichikawa4, Saran Yoshida5, Nobuya Akizuki6, Miki Akiyama7, Yutaka Shirahige8 and Kenji Eguchi9

1Department of System Management in Nursing, Graduate School of Health Care Sciences, Tokyo Medical and Dental University, Tokyo, 2Department of Palliative Nursing, Health Sciences, Graduate School of Tohoku University, Miyagi, 3Department of Palliative and Supportive Care, Seirei Mikatahara General Hospital, Hamamatsu, Shizuoka, 4Department of Architecture, Graduate School of Engineering, The University of Tokyo, Tokyo, 5Center for Cancer Control and Information Services, National Cancer Center, Tokyo, 6Psycho-Oncology Division, Chiba Cancer Center, Chiba, 7Faculty of Policy Management, Keio University, Tokyo, 8Shirahige Clinic, Nagasaki and 9Department of Internal Medicine and Medical Oncology, Teikyo University School of Medicine, Tokyo, Japan

*For reprints and all correspondence: Kayo Hirooka, Department of System Management in Nursing, Graduate School of Health Care Sciences, Tokyo Medical and Dental University, 1-5-45 Yushima, Bunkyo-ku, Tokyo 113-0034, Japan. E-mail: hirkanr@tmd.ac.jp

Received October 24, 2013; accepted December 2, 2013

Background: Although confidence in providing palliative care services is an essential component of providing such care, factors relating to this have not been investigated in Japan.

Objective: This study aimed to explore confidence in the ability to provide palliative care and associated difficulties and to explore correlations between these variables.

Design: A cross-sectional mail survey of medical doctors and registered nurses in Japan was performed as part of a regional intervention trial: the Outreach Palliative Care Trial of Integrated Regional Model study.

Subjects: Questionnaires were sent to 7905 medical professionals, and 409 hospital doctors, 235 general practitioners, 2160 hospital nurses and 115 home visiting nurses completed them.

Results: Confidence in providing palliative care was low and difficulties frequent for all types of medical professionals assessed. In particular, only 8–24% of them, depending on category, agreed to ‘having adequate knowledge and skills regarding cancer pain management’. In particular, 55–80% of medical professionals acknowledged difficulty with ‘alleviation of cancer pain’. Multiple regression analysis revealed that confidence was positively correlated with the amount of relevant experience and, for medical doctors, with ‘prescriptions of opioids (per year)’. Moreover, difficulties were negatively correlated with the amount of relevant clinical experience.

Conclusions: Effective strategies for developing regional palliative care programs include basic education of medical professionals on management of cancer-related pain (especially regarding opioids) and other symptoms.

Key words: confidence – difficulties – palliative care – medical professionals

INTRODUCTION

The Cancer Control Act was enacted in 2007 in Japan and the Ministry of Health, Labor and Welfare (MHLW) particularly focused on regional palliative care and promotion of cancer research (1). The Outreach Palliative Care Trial of Integrated Regional Model (OPTIM) study, supported by the MHLW,
was a strategic interventional trial over 5 years that aimed to develop procedures and systems of regional palliative care. This study was conducted in four regions of Japan with different palliative care system areas (2,3). Potentially effective strategies for developing regional palliative care programs should include basic education of medical professionals. Because general practitioners (GPs) and home visiting nurses (HVNs) have key roles in the community (4,5), educational programs targeting these medical professionals are particularly necessary.

Confidence can be defined as a medical professional’s belief that he/she is acting appropriately or effectively when providing health care to patients and their families (6). Difficulty can be defined as a medical professional needing much effort or skill to deal with certain clinical situations. A lack of knowledge about palliative care and confidence in oneself may create hesitation in providing patients with timely and appropriate care, thus creating difficulty in providing palliative care.

We consider confidence one indicator of a health care professional’s ability. Although confidence in itself does not ensure provision of best care for patients, it does reflect knowledge and previous success. Low confidence in a medical professional would likely be an indicator that they lacked competence. Several studies regarding confidence in providing palliative care have been performed in Western countries (6–10); however, no studies have investigated such confidence in medical professionals in Japan. Previous research has investigated difficulties or barriers encountered by medical doctors (MDs) and registered nurses (RNs) in providing palliative care in Japan (11,12). In those studies, the medical professionals lacked knowledge and communication skills relevant to terminally ill cancer patients and their families. Another study also pointed to a lack of medical professionals specializing in palliative care (13). However, these studies were small, involved few institutions and did not include multiple categories of medical professionals. They recruited only subjects from metropolitan hospitals and no home care professionals were included. In addition, the response rates were low or mean age of subjects younger than the national average for medical professionals in Japan. To obtain further information through the OPTIM study, a large regional study was performed. The aims of this study were (i) to explore confidence in the ability to provide palliative care and associated difficulties and (ii) to explore correlations between these two variables.

PATIENTS AND METHODS

This study, a cross-sectional mail survey of MDs and RNs in Japan, was part of a regional intervention trial, the OPTIM study. It was performed during the initial phase of the OPTIM study and aimed to identify what intervention protocols were likely to be effective in each region (2). The OPTIM study involved four intervention regions across Japan that had developed different palliative care systems: Kashiwa, Chiba Prefecture; Hamamatsu, Shizuoka Prefecture; Nagasaki, Nagasaki Prefecture and Tsuruoka, Yamagata Prefecture. Chiba, Shizuoka and Nagasaki had growing organized systems for providing palliative care led by a national cancer center, a general hospital and a regional GP association, respectively. Yamagata had an unorganized system of palliative care. Questionnaires were sent to all MDs and RNs who met the inclusion criteria. Inclusion criteria for this survey were: (i) hospital doctors and nurses who had been working at cancer-related branches for at least 3 years; (ii) representative GPs and (iii) all HVNs. The questionnaires were sent to all hospitals, general practice clinics and home-visiting nursing stations that met the study criteria in four regions. Before sending out the questionnaires, the number of medical professionals in each hospital and home-visiting nursing station was ascertained. One questionnaire was sent to each general practice clinic. On this basis, it was estimated that there were 750 eligible MDs and 1500 nurses in the entire region. No reminders or incentives were used. The ethical and scientific validity of this study was confirmed by the institutional review board and the OPTIM study review board.

OBJECTIVES

The survey was performed in the four regions in which the OPTIM study was conducted: Tsuruoka (population 170,000, Yamagata Prefecture); Kashiwa (population 670,000, Chiba Prefecture); Hamamatsu (population 820,000, Shizuoka Prefecture) and Nagasaki (population 450,000, Nagasaki Prefecture). Kashiwa and Hamamatsu have specialized hospital palliative care teams in a cancer center and general hospitals, respectively; Nagasaki has a coordinated palliative care system for patients in their homes in addition to hospital palliative care teams and Tsuruoka had no formal specialized palliative care service at the time of the survey. For this survey, four groups of study subjects were identified: hospital doctors, GPs, hospital nurses and HVNs. Because medical professionals were sampled throughout the region, the study sample would have been fairly representative.

MEASUREMENTS AND QUESTIONNAIRE

Because of a lack of validated tools and the exploratory nature of this study, the questionnaire for this survey was developed through literature review and discussions among the authors (11–19).

SCALE OF CONFIDENCE IN PALLIATIVE CARE

Participants were asked to rate the frequency of each of five items concerning confidence in providing palliative care on a five-point Likert scale (i) no difficulties, (ii) occasionally, (iii) sometimes, (iv) often, (v) always. The items chosen were as follows: confidence in ‘having adequate knowledge and skills regarding cancer pain management’, ‘having adequate knowledge and skills regarding symptom management, except for cancer pain’, ‘having adequate training regarding cancer symptom management’, ‘being able to roughly evaluate confidence in providing palliative care among medical professionals in Japan. To obtain further information through the OPTIM study, a large regional study was performed. The aims of this study were (i) to explore confidence in the ability to provide palliative care and associated difficulties and (ii) to explore correlations between these two variables.

PATIENTS AND METHODS

This study, a cross-sectional mail survey of MDs and RNs in Japan, was part of a regional intervention trial, the OPTIM study. It was performed during the initial phase of the OPTIM study and aimed to identify what intervention protocols were likely to be effective in each region (2). The OPTIM study involved four intervention regions across Japan that had developed different palliative care systems: Kashiwa, Chiba Prefecture; Hamamatsu, Shizuoka Prefecture; Nagasaki, Nagasaki Prefecture and Tsuruoka, Yamagata Prefecture. Chiba, Shizuoka and Nagasaki had growing organized systems for providing palliative care led by a national cancer center, a general hospital and a regional GP association, respectively. Yamagata had an unorganized system of palliative care. Questionnaires were sent to all MDs and RNs who met the inclusion criteria. Inclusion criteria for this survey were: (i) hospital doctors and nurses who had been working at cancer-related branches for at least 3 years; (ii) representative GPs and (iii) all HVNs. The questionnaires were sent to all hospitals, general practice clinics and home-visiting nursing stations that met the study criteria in four regions. Before sending out the questionnaires, the number of medical professionals in each hospital and home-visiting nursing station was ascertained. One questionnaire was sent to each general practice clinic. On this basis, it was estimated that there were 750 eligible MDs and 1500 nurses in the entire region. No reminders or incentives were used. The ethical and scientific validity of this study was confirmed by the institutional review board and the OPTIM study review board.

OBJECTIVES

The survey was performed in the four regions in which the OPTIM study was conducted: Tsuruoka (population 170,000, Yamagata Prefecture); Kashiwa (population 670,000, Chiba Prefecture); Hamamatsu (population 820,000, Shizuoka Prefecture) and Nagasaki (population 450,000, Nagasaki Prefecture). Kashiwa and Hamamatsu have specialized hospital palliative care teams in a cancer center and general hospitals, respectively; Nagasaki has a coordinated palliative care system for patients in their homes in addition to hospital palliative care teams and Tsuruoka had no formal specialized palliative care service at the time of the survey. For this survey, four groups of study subjects were identified: hospital doctors, GPs, hospital nurses and HVNs. Because medical professionals were sampled throughout the region, the study sample would have been fairly representative.

MEASUREMENTS AND QUESTIONNAIRE

Because of a lack of validated tools and the exploratory nature of this study, the questionnaire for this survey was developed through literature review and discussions among the authors (11–19).

SCALE OF CONFIDENCE IN PALLIATIVE CARE

Participants were asked to rate the frequency of each of five items concerning confidence in providing palliative care on a five-point Likert scale (i) no difficulties, (ii) occasionally, (iii) sometimes, (iv) often, (v) always. The items chosen were as follows: confidence in ‘having adequate knowledge and skills regarding cancer pain management’, ‘having adequate knowledge and skills regarding symptom management, except for cancer pain’, ‘having adequate training regarding cancer symptom management’, ‘being able to roughly evaluate
anxiety and depression in cancer patients’ and ‘having adequate knowledge and skills regarding psychotropic medication and psychotherapy (counseling)’. Factor analysis confirmed that this scale had a single common factor and Cronbach’s alpha coefficient for internal consistency was 0.84.

Palliative Care Difficulty Scale

Participants were asked to rate their agreement to difficulties in palliative care on a five-point Likert scale (i) completely disagree, (ii) disagree, (iii) unsure, (iv) agree, (v) completely agree. MD- and nurse-reported knowledge was measured with the Palliative Care Difficulty Scale (PCDS) (18), a validated tool for quantifying health professionals’ level of difficulty when providing palliative care. The PCDS consists of 15 items in five domains; the intraclass correlation was 0.61–0.69 for each domain. The validity and reliability of the scale has been established for Japanese hospital nurses (18). Based on this scale, the following five items for examining difficulties in palliative care were chosen and modified: ‘alleviation of cancer pain’, ‘alleviation of symptoms related to cancer’, ‘psychological support for cancer patients’, ‘suggesting a place to spend the remainder of life’ and ‘support for family members’.

Background

All participants were also asked about age, sex, clinical experience, experience of home medical care, the number of experiences of caring for cancer patients (per year) and the number of experiences of patients dying (per year). MDs were also asked how many prescriptions of opioids they had written (per year).

Statistical Analyses

First, the responses were collapsed into two categories, one category being ‘sometimes’, ‘often’ and ‘always’ and the other ‘agree’ and ‘completely agree’. Using descriptive statistical methods, confidence and difficulties were analyzed for the four groups (hospital doctors, GPs, hospital nurses and HVNs). To explore the factors associated with confidence and difficulties, the respondents were classified into two groups: MDs and RNs. Univariate analysis was performed using the Pearson product-moment correlation coefficient and the Kruskal–Wallis test. Multiple regression analysis was then performed on all extraneous factors as independent variables to assess multicollinearity. The level of statistical significance was set as $P < 0.05$ and two-sided test was performed. Imputation of missing data was not performed. All analyses were performed using IBM SPSS18.0 (Chicago, IL, USA).

Results

Of the 7905 questionnaires that were sent to the various medical professionals, 2919 (37%) were returned: these comprised 409/1314 hospital doctors (31%), 235/1106 GPs (21%), 2160/5216 hospital nurses (41%) and 115/270 HVNs (42%).

Background of Respondents

Table 1 summarizes the backgrounds of the respondents. Average clinical experience was 17 years for hospital doctors, 29 years for GPs, 13 years for hospital nurses and 17 years for HVNs. Fifty percent of hospital doctors worked at designated regional cancer hospitals in Kashiwa, Hamamatsu and Nagasaki; there is no designated regional cancer hospital in Tsuruoka. Thirty-two percent of hospital doctors, 13% of GPs, 26% of hospital nurses and 17% of HVNs cared for more than 11 cancer patients (per year). Seventeen percent of hospital doctors, 2.6% of GPs, 13% of hospital nurses and 7% of HVNs cared for more than 11 dying cancer patients (per year).

Confidence in Providing Palliative Care and Associated Difficulties

The mean scores on the confidence scale were 12.0 (SD ± 4.0) for MDs and 10.1 (SD ± 3.5) for RNs. For hospital doctors, confidence in ‘having adequate knowledge and skills regarding psychotropic medicine and psychotherapy (counseling)’ was the lowest (6%), followed by confidence in ‘having adequate training regarding cancer symptom management’ (11%) and in ‘having adequate knowledge and skills regarding cancer pain management’ (24%). In GPs, confidence in ‘having adequate training regarding cancer symptom management’ was 10% and in ‘having adequate knowledge and skills regarding psychotropic medication and psychotherapy (counseling)’ was 12%.

As to hospital nurses, only 2% reported confidence in ‘having adequate knowledge and skills regarding psychotropic medicine and psychotherapy’ and 5% in each of ‘having adequate knowledge and skills regarding cancer pain management’, ‘having adequate knowledge and skills regarding symptom management except cancer pain’ and ‘being able to roughly evaluate anxiety and depression in cancer patients’. In HVNs, confidence in ‘having adequate knowledge and skills regarding psychotropic medication and psychotherapy’ was 7% and in ‘having adequate knowledge and skills regarding cancer pain management’ was 8% (Table 2).

The mean scores on the difficulties scale were MDs = 17.8 (SD ± 5.1) and RNs = 20.3 (SD ± 4.7). Cronbach’s alpha coefficient for internal consistency was 0.825.

Table 3 shows difficulties in palliative care for each group of medical professionals. Both hospital doctors and GPs reported difficulties in ‘suggesting a place at the end of life’ (hospital doctors = 73.5%, GPs = 70.6%) and ‘alleviation of symptoms related to cancer’ (hospital doctors = 73.1%, GPs = 73.2%). Hospital nurses and HVNs reported difficulties in ‘psychological support for cancer patients’ (hospital
nurses = 88.1%, HVNs = 79.8%) and ‘alleviation of symptoms related to cancer’ (hospital nurses = 85.1%, HVNs = 87.6%). Hospital nurses reported difficulties more frequently than other medical professionals in all domains.

**FACTORS INFLUENCING AN INDIVIDUAL’S CONFIDENCE AND DIFFICULTIES SCORES**

**CONFIDENCE IN PALLIATIVE CARE**

According to multivariate analysis, ‘experience of home medical care’ ($\beta = 0.21, P < 0.01$) and ‘the number of experiences of caring for cancer patients (per year)’ ($\beta = 0.26, P < 0.001$) were positively correlated with MDs’ confidence. However, ‘clinical experience’ ($\beta = 0.09, P < 0.19$), ‘certified home care clinic’ ($\beta = 0.02, P < 0.81$) and ‘prescriptions of opioids’ ($\beta = 0.11, P < 0.18$) were not correlated with MD’s confidence. According to multivariate analysis, ‘clinical experience’ ($\beta = 0.24, P < 0.001$), ‘experience of palliative care’ ($\beta = 0.11, P < 0.001$) and ‘the number of experiences of caring for cancer patients (per year)’ ($\beta = 0.12, P < 0.001$) were positively correlated with RN’s confidence. However, ‘sex’ ($\beta = -0.03, P < 0.18$) and ‘experience of HVN’ ($\beta = 0.009, P < 0.66$) were not correlated with RN’s confidence (Table 4).

**CORRELATIONS BETWEEN DIFFICULTIES IN PROVIDING PALLIATIVE CARE AND RELEVANT VARIABLES**

Table 5 shows correlations between difficulties in providing palliative care and relevant medical professional-related variables. According to multivariate analysis, ‘the number of
Table 2. Confidence in providing palliative care

<table>
<thead>
<tr>
<th>Confidence in providing palliative care</th>
<th>Hospital doctors (n = 409)</th>
<th>General practitioners (n = 235)</th>
<th>Hospital nurses (n = 2160)</th>
<th>Home visiting nurses (n = 115)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Mean ± SD</td>
<td>Percentage</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Having adequate knowledge and skills regarding cancer pain management</td>
<td>24</td>
<td>2.7 ± 1.0</td>
<td>15</td>
<td>2.5 ± 1.0</td>
</tr>
<tr>
<td>Having adequate knowledge and skills regarding symptom management, except for cancer pain</td>
<td>16</td>
<td>2.6 ± 0.9</td>
<td>16</td>
<td>2.5 ± 1.0</td>
</tr>
<tr>
<td>Having adequate training regarding cancer symptom management</td>
<td>11</td>
<td>2.1 ± 1.0</td>
<td>10</td>
<td>2.1 ± 1.0</td>
</tr>
<tr>
<td>Being able to roughly evaluate anxiety and depression in cancer patients</td>
<td>19</td>
<td>2.6 ± 1.0</td>
<td>29</td>
<td>2.8 ± 1.1</td>
</tr>
<tr>
<td>Having adequate knowledge and skills regarding psychotropic medication and psychotherapy (counseling)</td>
<td>6</td>
<td>2.1 ± 0.9</td>
<td>12</td>
<td>2.3 ± 1.0</td>
</tr>
</tbody>
</table>

Table 3. Difficulties in providing palliative care

<table>
<thead>
<tr>
<th>Difficulty in providing palliative care</th>
<th>Hospital doctors (n = 409)</th>
<th>General practitioners (n = 235)</th>
<th>Hospital nurses (n = 2160)</th>
<th>Home visiting nurses (n = 115)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Mean ± SD</td>
<td>Percentage</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Alleviation of cancer pain</td>
<td>54.5</td>
<td>2.7 ± 0.9</td>
<td>67.9</td>
<td>3.1 ± 1.2</td>
</tr>
<tr>
<td>Alleviation of symptoms related to cancer</td>
<td>73.1</td>
<td>3.1 ± 0.9</td>
<td>79.2</td>
<td>3.1 ± 1.1</td>
</tr>
<tr>
<td>Psychological support for cancer patients</td>
<td>71.8</td>
<td>3.1 ± 1.0</td>
<td>69.1</td>
<td>3.1 ± 1.2</td>
</tr>
<tr>
<td>Suggestion for a place to spend the remainder of life</td>
<td>73.5</td>
<td>3.1 ± 1.0</td>
<td>70.6</td>
<td>3.1 ± 1.2</td>
</tr>
<tr>
<td>Support for family members</td>
<td>66.6</td>
<td>2.9 ± 0.9</td>
<td>63.3</td>
<td>2.9 ± 1.2</td>
</tr>
<tr>
<td>How to react to dying cancer patients</td>
<td>54.6</td>
<td>2.8 ± 1.1</td>
<td>51.3</td>
<td>2.7 ± 1.3</td>
</tr>
</tbody>
</table>

Experiences of caring for cancer patients (per year)’ (β = −0.18, P < 0.02) was negatively correlated with MDs’ difficulties. However, no correlations were found for ‘clinical experience’ (β = −0.13, P < 0.06) or ‘experience of home medical care’ (β = −0.14, P < 0.06). According to multivariate analysis, ‘clinical experience’ (β = −0.24, P < 0.001) and ‘the number of experiences of caring for cancer patients (per year)’ (β = −0.072, P < 0.001) were negatively correlated with RNs’ difficulties in providing palliative care. However, no correlations were found for ‘experience of HVN’ (β = 0.003, P < 0.88) and ‘experience of palliative care’ (β = −0.01, P < 0.64) (Table 5).

Correlations between total scores on confidence scale and difficulties scale were r = −0.400 (P < 0.001) for MDs and r = −0.295 (P < 0.001) for RNs.

DISCUSSION

To our knowledge, this is the first nationwide survey to systematically investigate confidence in providing palliative care and associated difficulties among medical professionals in Japan. We performed this study in four intervention regions across Japan that had developed different palliative care systems. We believe our findings provide useful insights into the development of both hospital and community palliative care services. The most important finding from this study was that confidence in providing palliative care is low among all medical professionals assessed, RNs in particular. In addition, the rate of associated difficulties in palliative care was high for all medical professionals assessed, again, RNs in particular. For MDs, confidence was positively correlated with ‘experience of home medical care’ and ‘the number of experiences of caring for cancer patients (per year)’ and for RNs with ‘clinical experience’. Moreover, among MDs difficulties were negatively correlated with ‘the number of experiences of caring for cancer patients (per year)’, and ‘clinical experience’ and among RNs with ‘the number of experiences of caring for cancer patients (per year)’.

Where medical professionals lack confidence in providing palliative care, we can assume that cancer patients are unable to access good palliative care such as effective symptom...
management or anxiety reduction. According to this study, ‘experience of home medical care’ and ‘the number of experiences of caring for cancer patients (per year)’ correlated positively with MDs’ confidence and ‘clinical experience’ with RNs’ confidence. Thus, medical professionals accumulate skills in control of pain and other symptoms and in communication through clinical experience. Not only the number of experiences of caring for cancer patients (per year) or clinical experience but also professionals’ attitudes toward and interest in palliative care are important in gaining confidence. Lack of knowledge and/or of communication skills for managing patients’ existential distress are frequently identified as strong barriers to good end-of-life care (12). In addition, insufficient training can contribute to lack of professional confidence and create feelings of inadequacy in caring for dying patients (20). Education and support programs lead to improvements in nursing confidence in palliative care competencies and knowledge (8). Thus, systematic education programs and specialist palliative care teams to support medical professionals are necessary. In particular, because community palliative care consultation services are one of the services most commonly requested by GPs (5), development of specialized community palliative care teams and the continuing provision of information are both needed. Our study highlights the fact that ‘experience of home medical care’ also influences MDs’ confidence. It is likely that MDs who have worked in both hospital and home care settings are better able to manage problematic and complex situations and to suggest places for dying cancer patients to spend the remainder of their lives.

We can assume that cancer patients and families find it difficult to gain adequate relief of cancer pain or psychological support from medical professionals who have difficulties in palliative care. According to this study, for MDs difficulties were negatively correlated with ‘the number of experiences of caring for cancer patients (per year)’ and for RNs it was ‘clinical experience’.

The difficulties items of ‘the number of experiences of caring for cancer patients (per year)’ and ‘clinical experience’ resemble items in the confidence questionnaire; not surprisingly, we found a correlation between confidence and difficulties. RNs’ difficulties correlate with ‘clinical experience’. This is consistent with the findings of a study indicating that younger caregivers experience more difficulty than older caregivers in relationships with terminally ill cancer patients (11). It seems logical that RNs with more clinical experience of caring for terminally ill cancer patients report less difficulties than their less experienced colleagues. Lack of experience and sufficient support increases RNs’ difficulties.

Table 4. Correlations between confidence in providing palliative care and relevant variables

<table>
<thead>
<tr>
<th></th>
<th>MDs Univariate analysis</th>
<th>MDs Multivariate analysis</th>
<th>RNs Univariate analysis</th>
<th>RNs Multivariate analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>P value</td>
<td>β</td>
<td>SE</td>
</tr>
<tr>
<td>Age (years)</td>
<td>0.126</td>
<td>0.001</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sex</td>
<td>—0.156</td>
<td>0.001</td>
<td>0.051</td>
<td>0.972</td>
</tr>
<tr>
<td>Clinical experience</td>
<td>0.126</td>
<td>0.002</td>
<td>0.086</td>
<td>0.025</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.000</td>
<td>0.993</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Experience of home care</td>
<td>0.236</td>
<td>0.001</td>
<td>0.209</td>
<td>0.602</td>
</tr>
<tr>
<td>Certified home care clinic</td>
<td>—0.177</td>
<td>0.008</td>
<td>0.017</td>
<td>0.623</td>
</tr>
<tr>
<td>Experience of home visiting nurse</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Type of medical institutions</td>
<td>—</td>
<td>0.071a</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Medical setting</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Experience of palliative care</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>The number of experiences of caring for cancer patients (per year)</td>
<td>0.324</td>
<td>0.001</td>
<td>0.264</td>
<td>0.406</td>
</tr>
<tr>
<td>The number of experiences of caring for dying cancer patients (per year)</td>
<td>0.328</td>
<td>0.001</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Prescriptions of opioids (per year)</td>
<td>0.328</td>
<td>0.001</td>
<td>0.108</td>
<td>0.328</td>
</tr>
<tr>
<td>R²</td>
<td>—</td>
<td>—</td>
<td>0.18</td>
<td>—</td>
</tr>
<tr>
<td>Adj-R²</td>
<td>—</td>
<td>—</td>
<td>0.15</td>
<td>—</td>
</tr>
</tbody>
</table>

r, Pearson product-moment correlation coefficient, multivariate analysis, multiple regression analyses. MD, medical doctor; RN, registered nurse; SE, standard error.

*Kruskal–Wallis test.*
The number of experiences of caring for cancer patients (per year) correlated with MDs’ difficulties. In our study, half the GPs reported that they managed no dying cancer patients (per year). This is consistent with the findings of the largest survey conducted in Japan to date, which reported that 60% of GPs had no experience in caring for cancer patients who died at home (21). It is also consistent with a previous study of GPs in the Netherlands, which found a positive correlation between more numerous patients (per year) and fewer barriers to knowledge and experience (22). In addition, in our study, over 70% of GPs prescribed no opioids (per year). According to previous research in Japan, 35% of GPs reported that oral opioids were unavailable, even when expert advice was available and 50% reported that subcutaneous opioids were unavailable (23). These findings are at least partially attributable to the fact that many GPs in Japan work in hospitals and have varied backgrounds such as cardiology or neurology; thus, they rarely encounter cancer patients. In addition, in Japan, cancer patients usually receive medical treatment in hospitals and a large proportion of MDs is unfamiliar with managing cancer-related pain or using opioids. This survey suggests that basic education on how to use opioids and manage cancer-related pain or other symptoms is necessary for MDs in general and for GPs in particular.

Our results highlight the paucity of opportunities for Japanese MDs and RNs to acquire basic skills in palliative care, given that they have minimal encounters with terminally ill cancer patients. This suggests that systematic education programs should be provided for medical professionals. As an initial response to our findings, we developed a standardized clinical tool called ‘step palliative care’, which included basic information about opioids and psychiatric medications (24). In addition, on-demand educational programs are available via the website of the OPTIM study. Finally, there is a strong need for establishing specialized community palliative care services. However, because there are limited numbers of medical professionals outside hospitals, hospital palliative care teams need to be available for consultations in the community.

Although we identified no direct relationship between confidence and difficulties scales, we did find a moderate correlation for both MDs and RNs. We assume that if medical professionals gain confidence, their difficulties would decrease. Conversely, we also presume that if barriers in palliative care are reduced, medical professionals would gain confidence.

This study has several limitations. First, because the response rate to the survey was relatively low and we were...
unable to ascertain the characteristics of non-responders, there may have been a response bias. Secondly, the reliability and validity of the confidence questionnaire has not been formally assessed. Thirdly, because confidence is a self-reported belief, it may not reflect the adequacy of a medical professional’s care for patients. Fourthly, unmeasured factors such as type of education or training may be associated with confidence in providing palliative care and/or associated difficulties. Fifthly, because our study focused on cancer patients, we cannot draw conclusions about palliative care for non-cancer patients.

In conclusion, in Japan, confidence in providing palliative care was low among all types of medical professionals assessed, particularly RNs. Difficulties in providing palliative care were frequent for all types of medical professionals assessed, again, particularly for RNs. Potentially effective strategies for developing regional palliative care programs should include basic education of medical professions about management of cancer-related pain (particularly regarding prescription of opioids) and other symptoms, and consultation services from palliative care experts should be readily available.

Funding
This study was supported by a Grant-in-Aid from the Third Term Comprehensive Strategy for Cancer Control in Japan.

Conflict of interest statement
None declared.

References