

conceptual model of the responder, the respondents' value judgments, and their practical response. Answers are marked on a 100-mm visual analogue scale (VAS) ranging from "strongly disagree" (0 mm) to "strongly agree" (100 mm). In addition to investigating the attitudes toward depression [7], the DAQ has also been used to assess the effectiveness of teaching GPs skills in brief cognitive behavior therapy [14], and to explore how family physicians perceive recognition, diagnosis, and depression management [11].

The DAQ was translated into Japanese by two psychiatrists, a psychiatric social worker, and an internist. As stated in the Background section, most doctors have specialties and treat specific illness in Japan. Therefore, we added a following explanation to the Japanese version of the DAQ: *In the following statements, whenever the term "general practice" is used, substitute it with your own specialized field of medicine when answering.*

We administered the preliminary Japanese version of the DAQ to 10 non-psychiatric doctors and 5 psychiatrists. According to their recommendations, we revised the terms "comfortable" in Item 9 and "working with" in Item 13.

The revised Japanese version was then back-translated into English by independent native English translators who were fluent in Japanese. Discrepancies emerging between this back-translated version and the original version were discussed with the developer of the original version, and the Japanese version was revised again. After this process, the Japanese DAQ was finalized (Additional file 1).

#### Analysis

##### Summary of attitudes

As our primary outcomes, participants' DAQ responses were classified into one of three categories based on previous studies [9,15]: "disagree" (0-33.3), "neutral" (33.4-66.6), and "agree" (66.7-100). In addition, we calculated the mean score of each item in accordance with previous studies, which enabled us to compare these with findings from other samples and settings [7,8].

We supplementarily performed an exploratory factor analysis of all 20 DAQ items. The factor solution was determined on the basis of an eigenvalue in excess of 1.0 and a scree plot, and a varimax rotation was applied to the extracted factors. We excluded items with a weak loading on any factor (< 0.35) and repeated analyses under the same conditions until all item loadings exceeded 0.35. Reliability coefficients were calculated using Cronbach's alpha values for the factors derived from exploratory factor analysis. We excluded items with low corrected item-total correlation and repeated the analysis under the same conditions.

To show distributions of agreement in each factor, we calculated the mean score of items constructing each factor derived from the factor analysis in accordance with previous studies [8,15]. We defined this as the "factor score." If item loadings had negative values, subtracted values from 100 were used in the calculation. Each factor score was divided into three levels of agreement, similar to the item score categories.

##### Comparison to the GP factor models in the UK

As subanalyses, we performed confirmatory factor analyses to assess the degree of fit to models previously reported. We calculated several fit indices, including chi-square, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and the Akaike information criterion (AIC) by maximum likelihood estimation method for comparison with the four-factor model [7] and the three-factor model [9] derived from GP surveys.

##### Data analysis

We performed statistical analyses using SPSS version 17.0 and Amos version 17.0 (SPSS Japan Inc.). We did not correct for multiple comparisons because the primary outcome of this study was descriptive data regarding attitudes, and comparisons were secondary analyses to add explanatory information regarding the main result.

## Results

### Participant characteristics

We received questionnaires from 230 subjects (62.7 %) out of 367. Of these 230 respondents, we excluded six doctors whose specialties were unknown. Of the remaining 224 doctors, 21 psychiatrists were excluded. Sixteen non-psychiatric doctors had deficits in some items of the DAQ. As a result, we used DAQ data from 187 non-psychiatric doctors.

The median age of all non-psychiatric doctors was 53 (range 32-82) years and 78.1 % were male (Table 1). The majority of non-psychiatric doctors specialized in internal medicine (68.1 %).

### Attitudes toward depression

Non-response rate of each item was listed in Table 2. Categorized results in non-psychiatric doctors and the mean scores for each item were listed in Table 3. Items with "agree" scores from more than 50 % of the non-psychiatric doctors were: "During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms" (Item 1), "The practice nurse could be a useful person to support depressed patients" (Item 12), "Working with depressed patients is heavy

**Table 1 Participant characteristics (n = 187)**

Participant group	n	%
G-P network group members	57	30.5 %
Workshop attendees	130	69.5 %
Sex <sup>a</sup>		
Male	143	78.1 %
Female	40	21.9 %
Median age (range) (years) <sup>a</sup>	53.0 (32-82)	
Specialty <sup>a,b</sup>		
Internal medicine	124	68.1 %
Surgery	26	14.3 %
Both internal medicine and surgery	6	3.3 %
Other	26	14.3 %

<sup>a</sup> Several participants did not provide responses.

<sup>b</sup> The internal medicine group included general internal medicine, cardiovascular internal medicine, gastroenterological medicine, respiratory medicine, and neurology. The surgery group included general surgery, orthopedic surgery, gastroenterological surgery, and neurosurgery. Other specialties included pediatrics, obstetrics and gynecology, radiology, anesthesiology, otolaryngology, dermatology, urology, proctology, dialysis, industrial physicians, and administrative posts in local governments.

going" (Item 13), "If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner" (Item 17), and "Psychotherapy for depressed patients should be left to a specialist" (Item 19).

None of the non-psychiatric doctors agreed with "I feel comfortable in dealing with depressed patients' needs" (Item 9). Similarly, items with "disagree" scores from more than 50 % of the non-psychiatric doctors were the following: "Most depressive disorders seen in general practice improve without medication" (Item 3), "Becoming depressed is a way that people with poor stamina deal with life difficulties" (Item 7), and "There is little to be offered to those depressed patients who do not respond to what GPs do" (Item 14).

**Table 2 Non-response rate of each item**

Item No.	non-response n (%)	Item No.	non-response n (%)
1	5 (2.5)	11	8 (3.9)
2	5 (2.5)	12	7 (3.4)
3	7 (3.4)	13	7 (3.4)
4	8 (3.9)	14	14 (6.9)
5	7 (3.4)	15	6 (3.0)
6	6 (3.0)	16	10 (4.9)
7	7 (3.4)	17	5 (2.5)
8	6 (3.0)	18	9 (4.4)
9	8 (3.9)	19	6 (3.0)
10	9 (4.4)	20	7 (3.4)

### Exploratory analysis of factor structure

We supplementarily performed an exploratory factor analysis to extract major factors of the attitude. Eigenvalues (>1) from our exploratory factor analysis suggested an eight-factor solution. The scree plot from our exploratory factor analysis limited the number of major factors to three (Figure 1). Eight items (Items 2, 3, 4, 5, 11, 12, 18, and 20) that had a weak loading (<0.35) and one item (Item 9) with a low corrected item-total correlation value were excluded. The remaining 11 items had optimal loadings for one of three factors (see Table 4). The factor solution produced using an oblique rotation (promax) was similar to the three-factor structure (data not shown). Based on the content of included items, Factor I (Items 13, 17, and 19) was labeled "Depression should be treated by psychiatrists," Factor II (Items 1, 14, 15, and 16) was labeled "Pessimism regarding depression treatments," and Factor III (Items 6, 7, 8, and 10) was labeled "Prejudice regarding depression etiology and pathology."

Mean scores of items included in each factor were also categorized into disagree, neutral, or agree. Fifty-four percent of non-psychiatric doctors agreed with items included in Factor I. More than half of non-psychiatric doctors were neutral on items in Factors II and III (54.5 % and 77.0 %, respectively; Table 3).

### Fitness of Japanese non-psychiatric doctors' attitudes to the GPs' factor models in the UK

As subanalysis, we determined the degree of fit between the present data for Japanese non-psychiatric doctors and two models derived from two independent surveys of GPs in the UK [7,9] using confirmatory factor analysis. Confirmatory factor analysis using a three-factor model of GPs in Glasgow which had been reported by Ross et al. [9], was unable to estimate the parameters, because the minimization was unsuccessful. Meanwhile, each fit index of a four-factor model reported by Botega et al. [7] was following: chi-square = 329.0, GFI = 0.824, AGFI = 0.761, CFI = 0.446, RMSEA = 0.101, and AIC = 409.0, which were worse than in the confirmatory factor analysis to examine the degree of fit to the Japanese three-factor model described above (chi-square = 110.3, GFI = 0.911, AGFI = 0.856, CFI = 0.754, RMSEA = 0.095, and AIC = 160.3).

## Discussion

This is the first report in Japan to present the attitudes of non-psychiatric doctors towards depression using the DAQ. Most non-psychiatric doctors agreed with Factor I, "Depression should be treated by psychiatrists," which contained the items "Working with depressed patients is heavy going" (Item 13), "If depressed patients need antidepressants, they are better off with a psychiatrist than

**Table 3 Percentage of responses in each agreement category and mean score for individual items**

	Agreement (%)			Mean score (SD)
	Agree	Neutral	Disagree	
<b>Factor I: Depression should be treated by psychiatrists</b>	54.0	43.3	2.7	68.1 (17.2)
13 Working with depressed patients is heavy going.	59.9	33.7	6.4	67.1 (20.8)
17 If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner.	57.2	34.2	8.6	68.1 (22.3)
19 Psychotherapy for depressed patients should be left to a specialist.	62.0	27.8	10.2	69.1 (24.1)
<b>Factor II: Pessimism regarding depression treatments</b>	2.1	54.5	43.3	35.5 (13.4)
1 During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms.	56.7	39.6	3.7	68.9 (20.1)
14 There is little to be offered to those depressed patients who do not respond to what GPs do.	4.8	35.8	59.4	30.4 (20.1)
15 It is rewarding to spend time looking after depressed patients.	44.4	47.1	8.6	62.4 (19.3)
16 Psychotherapy tends to be unsuccessful with depressed patients.	11.2	55.6	33.2	42.8 (19.9)
<b>Factor III: Prejudice regarding depression etiology and pathology</b>	5.9	77.0	17.1	46.9 (14.6)
6 It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms.	29.4	57.2	13.4	55.7 (21.4)
7 Becoming depressed is a way that people with poor stamina deal with life difficulties.	12.3	34.2	53.5	35.1 (24.3)
8 Depressed patients are more likely to have experienced deprivation in early life than other people.	17.6	55.1	27.3	45.5 (20.8)
10 Depression reflects a characteristic response in patients which is not amenable to change.	27.3	48.1	24.6	51.3 (23.6)
<b>Items not included in any factor</b>				
2 The majority of depression seen in general practice originates from patients' recent misfortunes.	27.8	56.1	16.0	54.6 (20.1)
3 Most depressive disorders seen in general practice improve without medication.	6.4	39.6	54.0	35.1 (19.9)
4 An underlying biochemical abnormality is at the basis of severe cases of depression.	38.5	42.2	19.3	56.2 (24.1)
5 It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment.	43.9	40.1	16.0	59.0 (22.8)
9 I feel comfortable in dealing with depressed patients' needs.	0	16.0	84.0	19.4 (14.0)
11 Becoming depressed is a natural part of being old.	10.2	40.1	49.7	36.0 (23.3)
12 The practice nurse could be a useful person to support depressed patients.	67.4	28.3	4.3	72.7 (19.2)
18 Antidepressants usually produce a satisfactory result in the treatment of depressed patients in general practice.	41.7	45.5	12.8	59.1 (20.5)
20 If psychotherapy were freely available, this would be more beneficial than antidepressants for most depressed patients.	27.3	56.7	16.0	53.3 (21.6)

Each item score and factor score was divided for summary presentation: disagree (0-33.3), neutral (33.4-66.6), agree (66.7-100). We calculated the mean score of items included in each factor derived from the factor analysis and defined this as the "factor score." If item loadings were negative values, the subtracted values from 100 were used in the calculation.

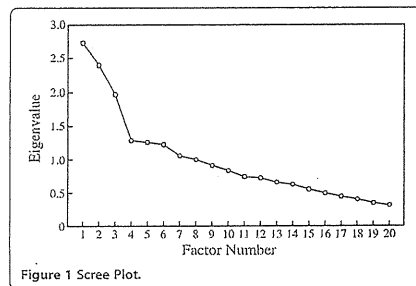


Figure 1 Scree Plot.

with a general practitioner" (Item 17), and "Psychotherapy for depressed patients should be left to a specialist" (Item 19). This suggests that most non-psychiatric doctors considered depression care to be beyond the scope of their duties.

In Japan, doctors have specialties and their role is to treat illnesses within their specialty. Given that depression is prevalent even in specialty clinics for physical illness [6], non-psychiatric doctors need to appropriately manage depressed patients. However, there is no model for depression care in Japan, such as the stepped-care model in the UK National Institute for Clinical Excellence (NICE) guidelines, which recommends that GPs and other members of the primary care team identify depressed patients and are actively involved in depression

**Table 4 Factor loadings by varimax rotation**

Item No.	Factor		
	I	II	III
19	0.882	0.082	0.036
17	0.601	0.038	0.074
13	0.394	0.147	0.082
15	-0.153	-0.611	0.155
14	0.137	0.538	0.261
16	-0.024	0.477	0.117
1	-0.091	-0.461	0.019
7	-0.131	0.218	0.653
8	0.033	0.055	0.484
10	0.158	0.024	0.432
6	0.163	-0.211	0.398

Three factors accounted for 34.3 % of the total variance (Factor I: 12.9 %, Factor II: 11.2 %, and Factor III: 10.2 %). The Cronbach's alpha value was 0.61 for the 11-item as a whole, and 0.65, 0.60, and 0.54 for Factors I, II, and III, respectively.

management [16]. Non-psychiatric doctors in Japan may think that depression should be treated by psychiatrists because there is no clear definition of their role in depression care in the Japanese medical system.

None of the non-psychiatric doctors in this study were comfortable dealing with the needs of depressed patients (Item 9). Furthermore, more than 50 % of the non-psychiatric doctors thought that the number of depressed patients has increased (Item 1). These results suggest that depression care is becoming an increasingly heavy burden for non-psychiatric doctors in Japan. It is of interest that most of the non-psychiatric doctors thought that nurse support was useful in depression care (Item 12): this suggests that cooperation between non-psychiatric doctors and other professionals, such as nurses and psychiatrists, can promote depression care. Collaborative and stepped-care models [16,17], in which various professionals cooperate with and provide support to non-psychiatric doctors, may be candidates for appropriate depression care models in Japan.

The non-psychiatric doctors in this study were likely to recognize the importance of depression care. However, they considered this to be beyond their role. This suggests that targeted educational interventions must address motivation for non-psychiatric doctors to play a role in depression care. Promoting their self-efficacy may help motivate them and facilitate their participation in caring for depressed patients. At the same time, a system that reduces the additional burden on non-psychiatric doctors may remove their implicit hesitation to perform screenings to identify depressed patients; this may be achieved by easier referral and improved

collaboration with psychiatrists, and by developing the role of nurses in this area.

Use of the DAQ enables us to discuss differences between the attitudes of non-psychiatric doctors in Japan and those of GPs in the UK [7]. In Japan, many non-psychiatric doctors agreed with "If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner" (Item 17), whereas British GPs strongly disagreed with this item. This underscores the notion that Japanese non-psychiatric doctors do not recognize depression care as their role, whilst British GPs do. This difference may be due to differences in medical systems, such as the primary care system, between Japan and the UK. Japanese non-psychiatric doctors may also lack confidence in treating depressed patients by themselves, and prefer to refer patients to professionals, such as psychiatrists.

Many non-psychiatric doctors in Japan disagreed with "Most depressive disorders seen in general practice improve without medication" (Item 3), although British GPs generally agreed with this item [7]. Japanese non-psychiatric doctors may think medication is essential for treating depressed patients, whilst British GPs may be familiar with approaches other than antidepressants, such as cognitive behavioral therapy. Differences in knowledge about clinical outcomes of depression and effective treatment modalities may explain the difference in results for Item 3.

We compared the Japanese three-factor model derived in the present study with that of the three-factor model derived from factor loading using Glasgow GPs' attitudes reported in a previous study [9]. The model derived from Glasgow study did not fit the Japanese non-psychiatric doctors' attitude. It is suggested that Japanese non-psychiatric doctors' attitude would be different from GPs in Glasgow. Similarly, we compared the Japanese three-factor model with that of the four-factor model derived from factor loading using other British GPs' attitudes reported in a previous study [7]. Factor I derived from Japanese non-psychiatric doctors (Japanese Factor I), "Depression should be treated by psychiatrists," shared two items (13 and 19) with Factor II derived from British GPs (British Factor II), "Professional unease." Likewise, Japanese Factor III, "Prejudice regarding depression etiology and pathology," shared two items (8 and 10) with British Factor III, "Inevitable course of depression," which also included Item 17, "If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner."

British Factor I, "antidepressants/psychotherapy," included variables related to the role and relative effectiveness of antidepressants and psychotherapy in depression treatment, and included Items 3, 4, 7, 16, 18, and 20. There was no similar factor in the Japanese factor model, and

items 3, 4, 18, and 20 were not included in any of the factors derived from Japanese non-psychiatric doctors. It appears that Japanese non-psychiatric doctors might not share a concept similar to that expressed by British Factor I, which may indicate that Japanese non-psychiatric doctors have limited knowledge of the roles and effectiveness of different depression treatments. Educational opportunities will be needed to promote the acquisition of knowledge on antidepressants and psychotherapy.

The present study has the following limitations. First, the sampling process, sample size, and response rate may have biased the results. Therefore, the generalizability is a major limitation. Second, we used the DAQ, which was developed in the UK where a medical system and culture are different from Japan. Third, there may be limitations with the validity of the DAQ as shown by various factor structures previously reported [15]. In addition, the three major factors obtained in this study accounted for only 34.3 % of the total variance. A questionnaire tailored to the Japanese medical system and culture may need to be developed in the future.

## Conclusion

The Japanese non-psychiatric doctors surveyed in this study believed that depression should be treated by psychiatrists. Underlying this attitude may be the lack of recognition of the necessity and motivation to participate in depression care. It is suggested that educational programs or guidelines for depression care developed in other countries such as the UK are not directly adaptable for Japanese non-psychiatric doctors. To improve depression care in Japan, it will be crucial to develop and implement focused interventions that motivate non-psychiatric doctors to play a role in depression care and to educate them about possible roles they can play.

## Additional file

Additional file 1: Depression Attitude Questionnaire (DAQ) 日本語版

### Competing interests

The authors declare that they have no competing interests.

### Authors' contributions

All authors have read and approved the final version of the manuscript. MI was the principal investigator and developed the original idea for the study. MK, RS, FI, YW, MY, MI, MH and AM designed the study. TO, MK, MY, and MI analyzed data, and all authors discussed and prepared the manuscript. AM was a supervisor.

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Exploration of factors associated with social worker attitudes toward suicide

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What is This?

Article

Exploration of factors associated with  
social worker attitudes toward suicide

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Abstract

**Background:** Social workers are expected to play important roles in suicide intervention. Caregiving behaviours of medical personnel to suicidal individuals have been reported to be influenced by their own attitudes toward suicide. In this context, only a limited number of studies have examined social workers' attitudes toward suicide.

**Aim:** The purpose of this study was to explore associations between personal or occupational factors of social workers and their attitudes toward suicide.

**Methods:** A self-administered questionnaire was mailed to 2,999 study participants registered with the Tokyo chapter of the Japanese Association of Certified Social Workers. We adopted the Attitudes Toward Suicide Scale (ATTS) to measure attitudes toward suicide. MANCOVA was used to test for the effects of demographic, personal and occupational factors on ATTS sub-scale scores.

**Results:** Participants with a history of suicidal thoughts had stronger attitudes regarding the right to suicide than those with no history; these attitudes were not affected by a history of participating in suicide-prevention training.

**Conclusions:** Our findings suggest that suicide education should incorporate programmes directed at altering permissive attitudes toward suicide.

Keywords

attitudes toward suicide, social worker, suicide-prevention training

Introduction

Suicide is a serious social problem worldwide. Since 1998, more than 30,000 individuals have died by suicide each year in Japan (Cabinet Office, 2010). Japan's annual suicide rate is approximately 25 per 100,000 people, which is the highest among the seven major industrialized nations (World Health Organization, 2010).

As the major social service providers, social workers are likely to encounter suicidal individuals across all fields of practice (Feldman & Freedenthal, 2006). In fact, more than 90% of social workers have worked with at least one client at risk for suicide (Feldman & Freedenthal, 2006) and 33% of mental health social workers have lost a client to suicide completion (Jacobson, Ting, Sanders & Harrington, 2004). Due to the high frequency of encounters with client suicidal behaviours, social workers are required to receive adequate professional training in suicide prevention.

Previous studies reported that caregiving behaviours of medical personnel to suicidal individuals could be affected by their own attitudes toward suicide (Bagley & Ramsay, 1989). Very few studies, however, aim to reveal social worker attitudes toward suicide. The belief that suicide is a

personal right has been associated with ineffective counselling of potentially suicidal clients (Neimeyer, Fortner, & Melby, 2001). Therapeutic reactions of nurses and doctors to suicidal clients are associated with the belief that people should communicate suicidal problems and have sympathy toward those who attempted suicide, while anger toward such patients emerged as a predictor of non-therapeutic reactions (Demirkiran & Eskin, 2006).

Attitudes toward suicide could be affected by various factors such as age, gender, personal or professional experience

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or contacts with suicidal individuals, as well as one's own suicidal behaviours. Among nurses, for example, older nurses tended to be more empathetic toward suicidal patients (Samuelsson, Sunbring, Winell & Åsberg, 1997), more condemnatory toward the right to suicide (Botega et al., 2005) and more accepting of the right-to-die under certain circumstances (Alston & Robinson, 1992). Among medical students, general practitioners, teachers and police officers, older participants found suicide more comprehensible than the younger participants did (Öncü, Soykan, İhan, & Sayil, 2008). Among laywomen, the oldest group expressed the least understanding toward suicide (Renberg & Jacobsson, 2003). In terms of gender, women were more likely to disapprove of one's right to suicide (Hjelmeland et al., 2008). Meanwhile, women agreed more strongly that people had a right to die (Domino & Groth, 1997). Compared to male physicians, female physicians tended to believe that rational suicide should be allowed under certain conditions (Duberstein et al., 1995). Nurses who frequently contacted suicidal patients were more empathetic toward patients who had attempted suicide than those with fewer contacts (Samuelsson et al., 1997). In contrast, nurses who had never cared for suicidal patients, or who had a family history of suicide, expressed more condemnatory attitudes (Botega et al., 2005). Several studies revealed associations between permissive attitudes toward suicide and suicidality (Renberg & Jacobsson, 2003); for instance, undergraduate students with a history of suicide crisis were more accepting of the idea of suicide than those with no history (Lester, Guerriero & Wachter, 1991; Limbacher & Domino, 1986; McAuliffe, Corcoran, Keeley, & Perry, 2003). Some studies reported significant correlations between suicide permissiveness and adolescent suicide risk (Stein, Brom, Elizur & Witzum, 1998; Stein, Witzum, Brom, DeNour & Elizur, 1992; Zemaitei & Zaborskis, 2005).

Social work researchers have contributed little to our understanding of suicide (Joe & Niedermeier, 2008), despite the fact that many social workers are in positions of possible intervention with suicidal clients (Feldman & Freedenthal, 2006; Jacobson et al., 2004). Although social worker attitudes toward voluntary euthanasia and assisted suicide have been explored (Csikai, 1999a, 1999b; Erlbaum-Zur, 2005; Ogden & Young, 2003), their attitudes toward suicide remain unknown.

To this end, the present study explores demographic, occupational and personal factors associated with attitudes of social workers toward suicide.

## Methods

### Procedure

We enrolled 2,999 individuals registered in the Tokyo chapter of the Japanese Association of Certified Social Workers (JACSWS), which had 47 local chapters and 33,793 members as of July 2011. The study protocol was

approved by the Ethics Committee of the National Centre of Neurology and Psychiatry in Japan. All participants received a self-administered questionnaire, a written explanation of the study, and a self-addressed and stamped return envelope by mail along with a monthly newsletter published by the chapter in September 2009. A reminder notice was sent out to participants along with a monthly newsletter in October 2009. The last completed questionnaire was received in December 2009. Of the 2,999 participants, 842 completed and returned the questionnaire (28% response rate). The questionnaire contained no information regarding the identity of individuals, and participants were asked to complete and return the questionnaire without indicating their names on the questionnaire or envelope to preserve anonymity.

We adopted the Attitudes Toward Suicide Scale (ATTS) originally developed in Sweden (Renberg & Jacobsson, 2003) to assess study participant attitudes toward suicide. The ATTS can be utilized in a large survey study and is considered the most feasible among other relevant scales used to assess attitudes toward suicide (Kodaka, Poštuvan, Inagaki & Yamada, 2010). The ATTS will make it possible to examine similarities and differences of attitudes among social workers in different countries in the future.

The ATTS was developed through two survey studies conducted in 1986 and 1996 (Renberg & Jacobsson, 2003). The first version of ATTS was developed in 1986 based on the Suicide Opinion Questionnaire (SOQ; Domino, Moore, Westlake & Gibson, 1982) and was expanded in the second 1996 study to reflect related attitudinal studies, especially the one introducing the theoretical concept. This concept was first presented by Diekstra and Kerkhof (1989) regarding attitudes toward suicide. Exploratory factor analysis yielded 10 interpretable factors, accounting for 60% of the total variance (Renberg & Jacobsson, 2003). Cronbach  $\alpha$  coefficients for those factors ranged from 0.38 to 0.86. The 1996 version contained a total of 40 items, 37 of which were scored on a five-point Likert scale ranging from *strongly agree* to *strongly disagree*. The remaining three items were scored by a different scoring method and were designed to assess the probability of one's own suicidality, preferable manners of one's own death and one's ideas about the extent of suicide prevention. The present study employed the former 37 attitudinal items.

A preliminary version of the adapted ATTS was created by translation of the original ATTS from Swedish into Japanese by a professional bilingual translator, and then through paraphrasing it by the Japanese authors of the present study. Following this, 11 mental health professionals and four lay people were asked to complete the preliminary questionnaire and give feedback on the terminology. Based on their feedback, the questionnaire was modified and back-translated from Japanese to Swedish by a professional bilingual translator (different from the one involved in the first

translation). The appropriateness of the back-translated version was evaluated by one of the original developers of the ATTS before it was finalized.

We also collected information on gender, age, practice field, number of years working as a social worker, experience with clients or someone close who had committed or attempted suicide or had suicidal ideation, history of participation in suicide-prevention training and participant history of suicidal ideation.

### Data analysis

A confirmatory factor analysis was performed to examine whether ATTS data collected in the present study would fit the original Swedish 10-factor model of the ATTS obtained in 1996 (Renberg & Jacobsson, 2003); however, our data did not converge. According to Mofidi, Ghazinour, Renberg and Richter (2008), their data did not replicate the original 10-factor structure either. Therefore, we performed exploratory factor analyses to extract factors using the principal factor method with a promax rotation, where items with loadings < 0.35 and those with loadings > 0.35 over two or more factors were discarded. Cronbach's  $\alpha$  was calculated for each factor. To obtain sub-scale scores, item scores were summed-up for each sub-scale and divided by the number of items. In this calculation, items with negative loadings were scored in reverse order.

Multivariate analysis of covariance (MANCOVA) was used to test how scores of ATTS sub-scales were affected by gender, age, number of years working as a social worker, experience with suicidal behaviour of clients or significant others, history of participation in suicide-prevention training and participant history of suicidal thoughts.

We considered  $p < .05$  as a statistically significant level for a two-tailed test. All data analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA) and M-plus version 6 (Muthen & Muthen) statistical packages.

## Results

### Demographics and other characteristics

Table 1 presents participant demographics and characteristics, and demographics of the 33,793 individuals registered in the JACSWS. We were unable to obtain information on those who failed to return the questionnaire and demographic data for the 2,999 social workers who registered in the Tokyo chapter and received the questionnaire. Regarding contacts with suicidal clients, 36.9% ( $n = 311$ ) had worked with clients who died by suicide, 47.7% ( $n = 402$ ) with those who attempted suicide and 46.0% ( $n = 387$ ) with those who had suicidal thoughts. In their private lives, 39.5% ( $n = 333$ ) of participants knew someone

Table 1. Demographics and other characteristics

	Study participants (N = 842)		JACSWS members
	%	n	%
Gender: female	70.3	592	58.4
Practice field			
Elderly	15.7	132	25.9
Health care	7.2	61	10.5
Psychiatric care	1.4	12	1.0
Disability	13.1	110	10.9
Community-general support centre	16.6	140	7.2
Children	7.6	64	3.2
Low income/homeless	3.7	31	2.4
Public administration/Council of social welfare	16.2	136	12.2
Education	3.4	29	4.6
Others	13.7	115	19.1
Missing	1.4	12	2.9
Experiences of contacts with suicidal people			
Occupationally: yes	73.8	621	
Personally: yes	60.2	507	
History of participation in suicide-prevention programmes: yes	30.8	259	
History of suicidal ideation: yes	21.7	183	
	M (SD)		M
Age (years)	44.1 (11.4)	838	42.9
Number of years working as a social worker	8.6 (7.5)	809	

JACSWS: Japanese Association of Certified Social Workers

close who had died of suicide, 24.0% ( $n = 202$ ) knew individuals who had attempted suicide and 23.6% ( $n = 199$ ) knew individuals who had had suicidal ideation.

### Factor analysis of the ATTS

Exploratory factor analyses revealed the following six interpretable factors: (1) 'Right to suicide'; (2) 'Common occurrence'; (3) 'Suicidal expression as mere threat'; (4) 'Unjustified behaviour'; (5) 'Preventability/Readiness to help'; and (6) 'Impulsiveness' (Table 2). Lower 'Right to suicide' sub-scale scores indicate a stronger agreement with the right to suicide; lower 'Common occurrence' sub-scale scores indicate a stronger view of suicide as common and

normal; lower 'Suicidal expression as mere threat' sub-scale scores indicate a firmer belief that people who talk about suicide do not actually take their lives; lower 'Unjustified behaviour' sub-scale scores indicate a stronger belief that suicide is a bad and unjustified action; lower 'Preventability/Readiness to help' sub-scale scores indicate a more positive attitude toward suicide prevention and readiness to help individuals at risk of suicide; and lower 'Impulsiveness' sub-scale scores indicate a stronger tendency to regard suicide as an impulsive act.

#### Factors associated with attitudes of social workers toward suicide

MANCOVA found that experience with suicidal behaviours of clients or significant others, history of participation in suicide-related training and participant history of suicidal ideation significantly affected the attitudes sub-scale scores (Table 3). Gender, age and number of years working as a social worker on the attitudes sub-scales scores were not significant.

Study participants who encountered client death by suicide and those who worked with clients who attempted suicide and/or had suicidal thoughts were more likely to consider suicide as a common behaviour, and disagree that suicide was an unjustified behaviour. Those who knew someone close with suicidal behaviours were more inclined to agree that suicide was rather common, and disagree that suicide was unjustified and that individuals talking about suicide would not complete suicide. Those who had participated in suicide-prevention training were more likely to consider suicide as a common and non-impulsive action. These participants were also more strongly opposed to the idea that a person who makes suicide threats does not actually take their own life and were ready to help suicidal individuals, with the belief that suicide can be prevented. Finally, those who had a history of suicidal thoughts were more inclined to perceive suicide as a common act. They also held a stronger right-to-suicide attitude compared to those without such a history.

Table 2. Factors obtained from exploratory factor analyses and internal consistency for the ATTS

Factors and items	Factor loading	Internal consistency (Cronbach's $\alpha$ )
I Right to suicide		0.75
Should get help to die if people suffer from severe, incurable disease	0.81	
Suicide is an acceptable way to end incurable disease	0.65	
Have a right to commit suicide	0.58	
Want to get help to die if I suffer from severe, incurable disease	0.55	
Situations in which the only solution is suicide	0.38	
Can understand why people suffering from severe, incurable disease take their own lives	0.35	
II Common occurrence		0.63
Most people have thought about suicide	0.64	
Anyone can commit suicide	0.58	
Could kill myself out of loneliness	0.51	
Could talk about my suicide wish without meaning it	0.50	
Do not understand others' wishes to commit suicide	-0.40	
III Suicidal expression as mere threat		0.65
People who talk about suicide do not actually take their lives	0.75	
People who make suicide threats rarely complete suicide	0.67	
IV Unjustified behaviour		0.61
Suicide is the worst thing to do to relatives	0.73	
Suicide is never justified	0.65	
V Preventability/Readiness to help		0.44
Can always help those who are suicidal	0.59	
Suicide is preventable	0.44	
I am ready to help suicidal people	0.42	
VI Impulsiveness		0.34
Suicide attempts are impulsive	0.48	
Suicide is carried out after long-term consideration	-0.41	
Suicide occurs without prior warning	0.40	

Items are abbreviated

Table 3. Main effects of demographic, occupational and personal factors on attitudes toward suicide

	Gender Pillai's trace: $F = 1.22$ ; $p = .30$				d.f.	F
	Male		Female			
	M	SD	M	SD		
Right to suicide	3.43	0.78	3.54	0.67	1	5.41
Common occurrence	2.65	0.72	2.67	0.71	1	0.71
Suicidal expression as mere threat	3.47	0.81	3.41	0.83	1	0.52
Unjustified behaviour	2.46	0.96	2.44	0.91	1	0.21
Preventability/Readiness to help	2.56	0.67	2.59	0.62	1	0.15
Impulsiveness	3.37	0.57	3.34	0.60	1	0.70
Age Pillai's trace: $F = 1.31$ ; $p = .25$						
Right to suicide					1	0.00
Common occurrence					1	3.28
Suicidal expression as mere threat					1	0.36
Unjustified behaviour					1	1.34
Preventability/Readiness to help					1	0.47
Impulsiveness					1	1.52
Number of years working as a social worker Pillai's trace: $F = 1.27$ ; $p = .27$						
Right to suicide					1	1.20
Common occurrence					1	0.82
Suicidal expression as mere threat					1	0.01
Unjustified behaviour					1	1.74
Preventability/Readiness to help					1	4.26
Impulsiveness					1	0.76
Participation in a suicide prevention programme Pillai's trace: $F = 6.56$ ; $p < .001$						
	Yes		No			
	M	SD	M	SD		
Right to suicide	3.52	0.67	3.51	0.72	1	1.19
Common occurrence	2.55	0.69	2.74	0.72	1	6.54*
Suicidal expression as mere threat	3.65	0.88	3.35	0.79	1	18.87***
Unjustified behaviour	2.55	0.93	2.40	0.92	1	1.20
Preventability/Readiness to help	2.45	0.63	2.64	0.63	1	9.68**
Impulsiveness	3.44	0.63	3.31	0.57	1	8.11**
Experiences in occupational involvement with suicidal ones Pillai's trace: $F = 2.61$ ; $p < .05$						
	Yes		No			
	M	SD	M	SD		
Right to suicide	3.49	0.71	3.60	0.68	1	1.64
Common occurrence	2.61	0.71	2.90	0.70	1	6.73*
Suicidal expression as mere threat	3.48	0.84	3.30	0.77	1	1.11
Unjustified behaviour	2.51	0.92	2.26	0.92	1	6.60*
Preventability/Readiness to help	2.56	0.65	2.67	0.57	1	2.02
Impulsiveness	3.36	0.60	3.32	0.58	1	0.12

(Continued)

Tabel 3. (Continued)

	Experiences in personal contacts with suicidal ones Pillai's trace: $F = 3.99; p < .01$					
	Yes		No			
	M	SD	M	SD		
Right to suicide	3.45	0.72	3.63	0.66		3.71
Common occurrence	2.55	0.69	2.89	0.72		16.86***
Suicidal expression as mere threat	3.51	0.84	3.31	0.79		4.78*
Unjustified behaviour	2.54	0.96	2.28	0.84		6.18*
Preventability/Readiness to help	2.57	0.65	2.60	0.59		0.01
Impulsiveness	3.37	0.61	3.32	0.56		0.06
	History of suicidal ideation Pillai's trace: $F = 21.71; p < .001$					
	Yes		No			
	M	SD	M	SD		
Right to suicide	3.25	0.69	3.59	0.69		28.69***
Common occurrence	2.16	0.57	2.83	0.68		118.24***
Suicidal expression as mere threat	3.49	0.89	3.42	0.81		0.12
Unjustified behavior	2.59	0.97	2.40	0.91		2.27
Preventability/Readiness to help	2.61	0.65	2.58	0.63		0.26
Impulsiveness	3.39	0.61	3.33	0.59		0.79

MANCOVA (Box's M test:  $p = .109$ ); \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Discussion

To the best of our knowledge, this is the first study to examine relationships between personal and professional factors and attitudes of social workers toward suicide.

Clinical practices performed by social workers that have not received adequate suicide education could have adverse effects not only on clients but also on practitioners themselves (Feldman & Freedenthal, 2006). Inappropriate caregiver attitudes toward suicide could lead to low competency in suicide intervention (Demirkiran & Eskin, 2006; Neimeyer et al., 2001). In this context, social workers should receive suicide-related training to effectively alter attitudes that could possibly be detrimental during interventions with suicidal clients.

The present study demonstrated that participation in suicide-prevention education in addition to daily job training was associated with increased awareness toward suicide, including cognitive evaluation of suicide issues, attitudes toward suicide prevention and preparedness for helping suicidal individuals. These findings suggest the importance of introducing suicide-training programmes for social workers with varying levels of expertise.

While the majority of participants in the present study had contacts with clients who had died by suicide, attempted suicide and/or had suicidal thoughts, less than one-third of the participants had received any kind of suicide-related

education in accordance with the US study (Feldman & Freedenthal, 2006). This result, combined with findings regarding positive effects of participation in suicide-prevention training on the attitudes toward suicide as mentioned above, suggests that educational and professional organizations should seriously consider introduction of suicide education to school curricula and postgraduate training.

Our finding was consistent with previous reports (Lester et al., 1991; Limbacher & Domino, 1986; McAuliffe et al., 2003; Renberg & Jacobsson, 2003; Stein et al., 1992; Stein et al., 1998; Zemaitiene & Zaborskis, 2005) in that participants who had a history of suicidal thoughts were more likely to approve the right to suicide than those without such a history. Neimeyer et al. (2001) suggested that considering suicide as one's own right may lead to poorer suicide counselling skills. We did not observe a significant effect of history of participation in a suicide-prevention training programme on the 'Right to suicide' sub-scale score, which was consistent with another study (Botega et al., 2007). Accordingly, current suicide education may not effectively change one's attitude toward viewing suicide as a personal right. Thus, future suicide education programmes may need to focus on altering permissive attitudes toward suicide, while emphasizing the necessity of knowledge and skill acquisition in suicide management within a conventional curriculum. In addition, supervision or consultation in

clinical practices would likely be helpful for social workers with a history of suicidal crisis.

Social workers who have had contact with suicidal individuals, both professionally and personally, tended to disagree that suicide is an unjustified choice. This result was somewhat consistent with that of a Brazilian study (Botega et al., 2005). According to this study, nursing professionals who had provided care for patients in suicidal crisis were less condemnatory toward suicide than those who had never provided care for such patients. Within the same study, however, was the finding that those with a family history of suicide were more condemnatory, which contrasted with our findings. The present study asked participants if they had a significant other or personal acquaintances, which included not only family members but also partners, friends or co-workers, who had completed suicide, attempted suicide and/or had suicidal ideation. In contrast, Botega et al. (2005) focused only on a family history of suicide. Professional background may have also contributed to the variability in attitude, judging by study results showing that social workers expressed stronger suicide acceptability compared with other mental health professionals (Swain & Domino, 1985).

We did not find significant correlations between demographic factors and attitudes toward suicide. As described above, previous studies (Alston & Robinson, 1992; Botega et al., 2005; Domino & Groth, 1997; Duberstein et al., 1995; Hjelmeland et al., 2008; Öncü et al., 2008; Renberg & Jacobsson, 2003; Samuelsson et al., 1997) reported mixed results regarding the influence of age and gender on attitudes toward suicide. One reason for the inconsistencies might be differences in both professional and sociocultural backgrounds, as these could play important roles in defining the relationship between demographic factors and attitudes.

## Limitations

The low response rate is one notable limitation of this study. This may reflect the possibility that only those who were interested in the study theme completed and returned the questionnaire. There was essentially no difference in the demographic data of participants compared to that of the JACSW regarding gender, age and practice field. In this study, 21.7% of participants reported a history of suicidal ideation, which is similar to the 19.1% reported among lay people in the Japanese national survey (Cabinet Office, 2008). Given the relatively low response rate, the results should be interpreted with caution.

This study adopted the ATTS originally developed in Sweden to measure attitudes toward suicide in order to allow for future cross-cultural studies. Yet, given the low Cronbach's  $\alpha$  for some ATTS sub-scales, further studies will be needed to examine their psychometric properties. Moreover, we examined only a limited set of variables to explore their associations with attitudes toward suicide.

Future studies will be needed to identify other factors relevant to such attitudes. Finally, intervention studies will be needed to explore the cause-and-effect relationships between attitudes and their relevant factors, which a cross-sectional study does not address.

## Conclusions

The present study identified personal and occupational factors associated with attitudes of social workers toward suicide. Our findings imply that suicide-prevention education in addition to daily clinical training should aim to alter attitudes toward approving the right to suicide.

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## Note

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## Patients' perception of the usefulness of a question prompt sheet for advanced cancer patients when deciding the initial treatment: a randomized, controlled trial

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### Abstract

**Objective:** The objective of this study was to evaluate the patients' perception of the usefulness of a question prompt sheet (QPS) in facilitating the involvement of advanced cancer patients during consultation.

**Methods:** Advanced cancer patients attending their first consultation after diagnosis were randomly assigned to the intervention group (received QPS and a hospital introduction sheet (HIS)) or the control group (received HIS only). Analysis was conducted on an intention-to-treat basis. The primary outcome measure was patient rating of the usefulness of the material(s) (numerical rating scale of 0–10).

**Results:** Sixty-three advanced cancer patients (72.4% response rate) were enrolled and analyzed. Nearly three-quarters of patients in both groups read the material(s) before consultation. The rated usefulness of the material(s) for asking questions of physicians was significantly higher in the intervention group than in controls ( $4.4 \pm 3.6$  and  $2.7 \pm 2.8$ , respectively;  $p = 0.033$ ). The mean score of the usefulness of the material(s) for understanding the treatment plan tended to be higher in the intervention group than in the controls ( $4.9 \pm 3.6$  and  $3.3 \pm 2.8$ ;  $p = 0.051$ ). The mean score of willingness to use the material(s) in the future was significantly higher in the intervention group than in the controls ( $5.3 \pm 3.8$  and  $2.8 \pm 2.8$ ;  $p = 0.006$ ). There were no significant differences between the groups in the average total number of questions asked by patients (median, 1.0; interquartile range in both groups, 2.0).

**Conclusions:** QPS provided before oncology consultation may be useful for advanced cancer patients, on the other hand, it did not directly promote patient confidence to ask questions. Copyright © 2011 John Wiley & Sons, Ltd.

**Keywords:** cancer; oncology; communication; patient participation; question prompt sheet

### Introduction

In cancer care, good communication is essential for building patient–physician relationship. Patient-centered approaches have been proposed for improving communication between patients and physicians, including the use of a question prompt sheet (QPS) [1–5].

A QPS is a structured list of questions covering the items a patient may want to ask their physicians regarding their illness and treatment. Patients are given the QPS before consultation for them to read and to determine which questions they would like to ask. In cancer setting, randomized controlled

trials have been performed to evaluate the effectiveness of QPS in encouraging cancer patients regardless of the cancer stage to obtain more information about their illness and its treatment. Patients who received QPS asked more questions [6,7] and rated the QPS as significantly more useful for the family [6] as well as more helpful in aiding communication with their physician compared with a control group [8]. However, the patients in the previous randomized studies were commonly at an early disease stage as opposed to the metastatic stage, and their prognosis was typically in the order of years (i.e., 1–5 years), except in one study examining palliative care patients [7,9].

Decision making in patients at the time of initial diagnosis of advanced cancer is quite different than for patients with early stage cancer who are receiving treatments with curative intent or for those with advanced cancer who are already approaching the terminal phase of their illness [10]. Patients who have just been diagnosed with advanced cancer are stunned by the news of having incurable cancer and by the prospect of limited life expectancy [11]. Nevertheless, they are often obliged to make urgent decisions, and this may require an exhaustive search for information about their condition. When deciding on the initial treatment, good communication between an advanced cancer patient and a physician is very important to achieve a better understanding of the medical condition and for the patient to take a more autonomous role in medical care. Therefore, it is important to investigate whether QPS can help advanced cancer patients to ask questions and to collect information when making decisions.

Moreover, Dimoska *et al.* point out that the lack of research examining the use of a QPS by non-English-speaking cancer patients. There are no cancer-specific QPSs that have been translated to other languages [9]. Our previous studies in Japan found that some patients preferred that physicians give them a chance to ask questions, while others did not know what questions to ask and wanted to know the questions most frequently asked by other patients [12,13]. In Japan, it might prove helpful to provide cancer patients with a QPS containing sample questions commonly asked.

In previous QPS studies, the number or duration of questions asked by patients showed a poor correlation with subjective outcomes such as satisfaction [14,15]. Bruera *et al.* described that patient expectations were frequently not met and patients are often not satisfied with information needs [8]. Better communication may not depend on number or duration of questions patients ask. Therefore, in the current study, we investigated the patients' perception of the usefulness of a QPS provided to patients newly diagnosed with advanced cancer in helping them to decide on their initial treatment. Our primary goal was to specifically determine how useful patients found the QPS compared with a hospital introduction sheet (HIS) containing a space in which patients could write their questions freely.

### Patients and methods

#### Setting and participants

The study was performed in the National Cancer Center Hospital East, Japan from February to December 2008. The enrolled subjects were patients with advanced cancer (i.e., locally advanced,

metastatic, recurrent) presenting for their first consultation with an oncologist at thoracic oncology division or gastrointestinal oncology division to discuss the treatment plan. We consecutively recruited patients with advanced nature of the cancer identified from the referral note from their previous physician. Some patients were excluded after recruitment because they were diagnosed as cancer in early stage. The inclusion criteria for the potential patients were as follows: (1) informed of advanced cancer diagnosis, (2) aged 20 years or older, (3) no serious physical or psychological distress recognized by the primary physicians or researchers, (4) no cognitive disorder, (5) able to communicate in Japanese.

#### Procedure

The potential patients were invited to participate consecutively by their initial physician during the consultation. Thereafter, patients were informed of the purpose and requirements of the study by a researcher. After obtaining written consent, patients were randomly given an envelope, which assigned them to either the intervention group (received QPS and HIS) or the control group (received HIS only). Patients in both the groups were instructed to read the material(s) before their next consultation. Following the next consultation, patients in both groups were asked to complete a questionnaire that assessed the usefulness of the material(s) and their level of satisfaction with the consultation. In addition, the patients were asked about the number and content of the questions for their physician (Figure 1).

The study was approved by the ethics committees of the National Cancer Center, Japan, and registered with UMIN-CTR, number 000001047 (<https://center.umin.ac.jp/cgi-open-bin/ctr/ctr.cgi?function=brows&action=brows&recptno=R000001254&type=summary&language=E>).

#### Question prompt sheet

We prepared an initial draft of QPS that contained 63 questions based on previous QPS studies [3,8,14,15] and our previous study on the preferences of Japanese cancer patients regarding the disclosure of bad news [12]. Before the study, we performed interviews with 14 cancer patients and five oncologists and made modifications to the QPS, which included removal of 15 similar questions, addition of five extra questions and some minor changes. The final QPS was a 10-page A4 sheet containing 53 questions grouped into 10 topics and a space for new questions (see Appendix A for the questions of the final QPS).

#### Hospital introduction sheet

The HIS was designed to provide information on the various services and the faculty of the National

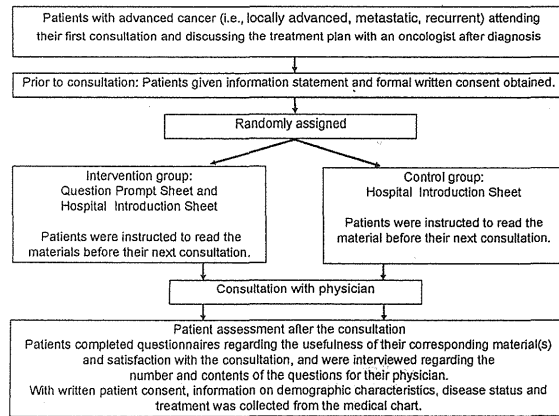


Figure 1. Study procedure

Cancer Center Hospital East, Japan. In addition, the HIS provided information on treatment and contained a space for any questions or messages the patients may have wanted to write.

#### Measures

##### Usefulness of the material(s)

Based on a previous study [8], we asked three questions regarding the usefulness of the material(s). Patients were asked to rate the following (assessed by a numerical rating scale of 0 to 10 where 10 represents completely agree and 0 represents completely disagree): (1) the material helped me to ask relevant questions of physicians; (2) the material was useful in understanding the treatment plan; and (3) I will use the material before any consultation in the future.

##### Satisfaction with the consultation

Patient satisfaction with the consultation was assessed using five items adapted from a previous study [8]. Patients were asked to rate the following (assessed by a numerical rating scale of 0 to 10): (1) the physician answered all the questions; (2) I was able to ask all the questions I wanted to ask; (3) I was able to understand the condition of my disease; (4) I was able to comprehend the treatment plan; and (5) I am satisfied with the consultation.

##### Number and contents of the questions

The number and contents of the questions were measured by interview immediately after the consultation. We did not use audiotape to record the consultation as in previous studies because audiotaping of consultations is an extremely rare practice in Japan. We feared that audiotaping may

not be acceptable to patients and physicians and may adversely affect recruitment to the study. We asked the patients the following questions and determined the estimated number of patient questions: Did you ask the physician some questions? If so, what kind of questions did you ask? For example, if patient answered that he asked the physician about the side effect and the cost of treatment, we estimated the number of patient questions at 2.

##### Patient characteristics

With written patient consent, information on demographic characteristics, disease status and treatment was collected from the medical chart.

##### Sample size calculations

The primary outcome measure was the patient rating of the usefulness of the material(s). Based on a previous study [8], we calculated sample size using the following parameters: 80% power, 0.05 level of significance, 5.70 average score of usefulness increasing to 7.90, with 3.08 as standard deviation. The sample required to detect this difference was 32 per arm. Therefore, the required total sample size was 64 patients.

##### Statistical analysis

Statistical analysis was conducted on an intention-to-treat basis. The primary outcome measure was patient rating of the usefulness of the material(s). The secondary outcome measures included satisfaction with the consultation, number of total questions and frequency of questions. Differences

in each outcome measure between the intervention group and the control group were measured using independent sample *t*-tests. Proportions in the two groups were compared using Fisher's exact test or Chi-square test. Statistical analysis was conducted using SPSS for Windows version 15 (SPSS Inc., Chicago, IL, USA), with two-tailed statistical tests.

## Results

### Participant flow, assignment and follow-up

Eighty-seven eligible patients were identified and invited to participate in the study, and 63 consented (72.4%, Figure 2). Non-consent of patients was primarily due to their being too stressed mentally or being severely ill physically. Of the 63 patients [intervention group ( $n = 32$ ); control ( $n = 31$ )], two (one in each group) had no consultation, one (control group) changed hospitals, and one (intervention

group) withdrew because of mental stress. Thus, a total of 59 patients were analyzed. Strict intention-to-treat analysis was conducted on all randomly assigned 63 patients using all available data from the patients. Dropout, partial absence of data, and failure to use the sheets were included in the analysis as score or number '0'. Patient demographics and clinical characteristics are shown in Table 1. Differences in these variables between groups were not significant.

Approximately 75% of the patients in both groups read their respective material(s) prior to consultation. Forty-four percent of the patients in the intervention group and 23% of the patients in the control group decided on their questions in advance ( $p = 0.075$ ).

### Usefulness of the material(s)

The mean usefulness rate (a numerical rating scale of 0 to 10) of the material(s) in helping the patients to ask questions was significantly higher in the intervention group than in the control group ( $4.4 \pm 3.6$  and  $2.7 \pm 2.8$ , respectively;  $p = 0.033$ ). The mean score of usefulness of the material(s) in helping the patients to understand the treatment plan tended to be higher in the intervention group than in the control group ( $4.9 \pm 3.6$  and  $3.3 \pm 2.8$ , respectively;  $p = 0.051$ ). The mean score of willingness to use the material(s) in the future was significantly higher in the intervention group than in the control group ( $5.3 \pm 3.8$  and  $2.8 \pm 2.8$ , respectively;  $p = 0.006$ ; Table 2).

For reference, we conducted treatment analysis including only patients who had read the material(s)

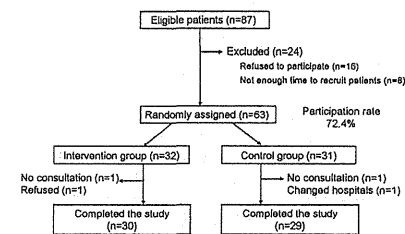


Figure 2. CONSORT diagram

Table 1. Demographics and clinical characteristics of patients ( $n = 63$ )

		Intervention ( $n = 32$ ), $n$ (%)	Control ( $n = 31$ ), $n$ (%)	Test result
Age, years	Median (range)	63.5 (52–82)	64.0 (28–82)	n.s.
Sex	Male	21 (65.6)	21 (67.7)	n.s.
Type of cancer	Lung	20 (62.5)	19 (61.3)	n.s.
	Gastric	4 (12.5)	3 (9.7)	
	Colorectal	3 (9.4)	4 (12.9)	
	Esophageal	5 (15.6)	5 (16.1)	
Stage	II (Esophageal cancer)	2 (6.3)	0 (0.0)	n.s.
	III	10 (31.3)	11 (35.5)	
	IV	19 (59.4)	18 (58.1)	
	Relapse	1 (3.1)	2 (6.5)	
Treatment	Chemotherapy	23 (71.9)	13 (41.9)	n.s.
	Chemotherapy+radiation	5 (15.6)	12 (38.7)	
	Other	4 (12.5)	6 (19.4)	
Use of the materials <sup>a</sup>				
	Read the material(s) prior to the consultation	24 (75.0)	23 (74.2)	n.s.
	Decided questions in advance	14 (43.8)	7 (22.6)	n.s.
	Wrote down questions in advance	2 (6.3)	0 (0.0)	n.s.
	Looked at the material(s) during the consultation	1 (3.1)	0 (0.0)	n.s.
	Checked physician's explanation with the material(s)	1 (3.1)	0 (0.0)	n.s.
	Asked questions included in the material(s)	6 (18.8)	1 (3.2)	n.s.

Proportions in the two groups were compared using Fisher's exact test or  $\chi^2$  test. Numerical scale was compared using the *t*-test.

<sup>a</sup>Based on intention-to-treat analysis, four drop outs (intervention ( $n = 2$ ); control group ( $n = 2$ )) were included in the analysis as 'nonuser'.

prior to consultation. The mean usefulness rate of the material(s) in helping the patients to ask questions was significantly higher in the intervention group than in the control group ( $6.4 \pm 2.3$  and  $3.4 \pm 2.7$ , respectively;  $p < 0.001$ ;  $t = 4.011$ ). The mean usefulness of the material(s) in helping the patients to understand the treatment plan was significantly higher in the intervention group than in the control group ( $6.5 \pm 2.4$  and  $4.3 \pm 2.5$ , respectively;  $p = 0.002$ ;  $t = 3.215$ ). The mean score of willingness to use the material(s) in the future was significantly higher in the intervention group than in the control group ( $7.0 \pm 2.6$  and  $3.5 \pm 2.7$ , respectively;  $p < 0.001$ ;  $t = 4.594$ ).

#### Satisfaction with the consultation

The levels of satisfaction with (1) the ability of the physician to answer the patients' questions, (2) asking questions, (3) understanding the condition of the disease, and (4) comprehending the treatment plan, as well as the overall level of satisfaction with the consultation were high in both groups, although not significantly different (Table 3).

#### Number and contents of the questions

We determined the estimated number of patient questions from patients' interview. Sixty-three percent of the patients in the intervention group and 71% of the patients in the control group asked question(s) during the consultation (no significant difference). Patients in both groups asked a median of 1.0 question (interquartile range, 2.0) (no significant difference). The majority of questions were related to information about treatment. The analysis

of the number of questions asked in each question category by the two groups showed no significant difference in any category.

#### Discussion

To our knowledge, this is the first study of evaluation of a QPS for advanced cancer patients deciding on their initial treatment. In addition, this is the first QPS study in Asia. Nearly half of the patients in the intervention group prepared questions prior to consultation (23% of the patients in the control group; no significant difference). We found that, compared with supplying the HIS only, advanced cancer patients who received both the HIS and the QPS rated the materials significantly more favorably with regards to the materials usefulness in helping them to ask questions of the physician and for future consultations. The results show similar findings to the previous study [8].

Unexpectedly, the use of the QPS did not seem to promote question-asking behavior. The total number of questions asked by the patients in the intervention group (median: 1.0) in the current study was, surprisingly, smaller than that in the intervention group in previous studies of patients seeing an oncologist for the first time (mean/median: 8.5–14.0) [6,8,15], although nearly half of the patients in the intervention group had decided on their questions in advance. Although we could not reliably compare the number of questions asked in the present study with that in previous studies (we did not audiotape the consultation as in previous studies), it appears that the patients in the current study asked fewer questions than those in the previous studies.

We assume that one of the reasons behind the fewer questions in the current study was that the unique patient–physician relationship in Asian culture. The views in Asian countries on individuality and personal rights are distinctively different from those in North America and Western countries [16,17]. Watanabe *et al.* reported that Japanese cancer patients who felt that they were compelled to make a decision even though they had no sufficient information or understanding of their medical condition and treatment options were dissatisfied with the decision-making process [18]. Nomura *et al.* described the dominant category of patient–physician relationship in Japan as follows: 'the relationship between a Japanese physician and a patient is clearly asymmetrical, since the patient seeks help and care from a medical expert whose diagnostic evaluations have to be accepted by the patient without discussion' [19].

In Taiwan, the common practice of nondisclosure of prognosis and detailed disease-related information by healthcare professionals continues, although there is a need to disclose information on the medical condition of Taiwanese cancer patients [20]. Patient–physician relationships in Asian countries have traditionally been based on a paternalistic and hierarchical culture that discourages patients from questioning doctors. For this reason, cancer patients in Asian countries might need more intervention to make them feel comfortable to ask questions of their physicians. In the current study, we did not ask the physicians to refer to or endorse the QPS, however, considering the interactive nature of communication, a combination of QPS and active endorsement of QPS by physicians and/or communication skills training for physicians might be needed to promote question-asking behavior. Indeed, results from some previous studies suggest that physician endorsement of a QPS seems to enhance its effectiveness [3,7].

Overall ratings for the usefulness of the written materials were rather low. One possible reason is that a strict intention-to-treat analysis was conducted. The other possible reason is that we assigned a value of 0 for ratings of the usefulness of the written materials when they were not read by the participants. The rating of the QPS for those who read the materials were higher (range: 6.4–7.0).

In the current study, QPS was perceived by the patients as useful for helping them to ask relevant questions of their physician and for future use without an increase in the number of questions during the consultation. There are several possible explanations for this. First, Bruera *et al.* described that communication may be better when patients are able to ask their most meaningful questions rather than just more questions [8]. In the current study, patients in the intervention group might be able to consider the information they need to know in advance from QPS and thereby ask questions that better address their main concerns rather than

simply asking more questions. Second, QPS might be helpful in collecting and organizing information. Rainbird *et al.* reported that advanced cancer patients have high levels of unmet needs, particularly in the areas of psychological and medical communication/information [21,22]. Teno *et al.* reported that more than one-third of advanced cancer patients wanted more information about their test results at the time of diagnosis [23]. These previous studies indicate that advanced cancer patients experience difficulty in obtaining sufficient information during consultation. QPS may prove useful for advanced cancer patients in collecting and organizing information related to their medical condition. Finally, during the interview, some patients emphasized their expectations for the future use of QPS, since they had decided not to ask any questions in the first consultation because they believed that they must first listen to the physician's explanation.

The level of satisfaction with the consultation was very high and there was no significant difference between the intervention group and the control group. Brown *et al.* reported that cancer patients rated their levels of satisfaction with the consultation extremely highly, even though their expectations were not met at the stated level desired [24]. Previous QPS studies also reported that the level of satisfaction showed a poor correlation with the number or duration of questions asked [14,15]. It might be difficult to evaluate the effect of QPS based on patients' satisfaction levels with the consultation. Of note, although not a significant difference, the intervention group rated their satisfaction with asking questions (mean score of 6.8) less favourably than those in the control group (mean score of 7.8). Perhaps, the QPS raised patients' expectations for being able to ask questions, and if the QPS was not endorsed or referred to by the physician then this caused the patient to be less satisfied with this aspect of the consultation.

Our study has several limitations. First, we could not get the required sample size because of dropout and research period restriction. Insufficient statistical power might lead to underestimation. Second, we performed the study in only one cancer center and focused mainly on the first consultation. Thus, we cannot apply the present results to other settings and situations. The impact of the use of QPS over time and in other settings needs to be further examined in the future. Third, we did not audiotape the consultations and therefore were unable to analyze the consultations in detail. In some cases (intervention group ( $n = 14$ ); control group ( $n = 8$ )), we timed the consultation length. For reference, the average consultation length showed no significant difference between the groups ( $31.1 \pm 14.0$  and  $26.0 \pm 12.2$ , respectively;  $p = 0.398$ ;  $t = 0.864$ ). In addition, we interviewed patients and determined the estimated number of

Table 2. Mean scores of usefulness of the material(s) ( $n = 63$ )

	Intervention ( $n = 32$ ) Mean (SD)	Control ( $n = 31$ ) Mean (SD)	p-Value
Usefulness of the material(s) in helping to ask questions	4.4 (3.6)	2.7 (2.8)	0.033
Usefulness of the material(s) in helping to understand the treatment plan	4.9 (3.6)	3.3 (2.8)	0.051
Willingness to use the material(s) in the future	5.3 (3.8)	2.8 (2.8)	0.006

SD, standard deviation. All items were rated on a 0–10 scale (e.g. 0 = completely disagree, 10 = completely agree). Scores in the two groups were compared using the t-test. Based on intention-to-treat analysis, four dropouts (intervention ( $n = 2$ ); control group ( $n = 2$ )), 10 nonusers of the materials (intervention ( $n = 6$ ); control group ( $n = 4$ )) and four partially missing (intervention ( $n = 2$ ); control group ( $n = 2$ )) were included in the analysis as score '0'.

Table 3. Mean scores according to satisfaction with the consultation ( $n = 63$ )

	Intervention ( $n = 32$ ) Mean (SD)	Control ( $n = 31$ ) Mean (SD)	p-Value
Satisfaction with the ability of the physician to answer the patients' questions	8.1 (3.0)	8.2 (2.8)	0.893
Satisfaction with asking questions	6.8 (2.9)	7.8 (2.5)	0.177
Satisfaction with understanding the condition of the disease	8.0 (2.6)	8.2 (2.7)	0.810
Satisfaction with comprehending the treatment plan	8.1 (2.5)	7.8 (2.8)	0.665
Overall level of satisfaction with the consultation	7.9 (2.6)	7.8 (2.8)	0.847

SD, standard deviation. All items were rated on a 0–10 scale (e.g. 0 = completely disagree, 10 = completely agree). Scores in the two groups were compared using the t-test. Based on intention-to-treat analysis, four dropouts (intervention ( $n = 2$ ); control group ( $n = 2$ )) were included in the analysis as score '0'.

patient questions and the contents of questions, however, there is no evidence that patients' recall is accurate.

In conclusion, for those advanced cancer patients who read the QPS it seemed to be a moderately useful tool. Compared with controls, patients rated the QPS more favourably in terms of enabling them to ask relevant questions and for future use. The QPS seemed to help patients to prepare questions and it may help patients to articulate and organize their information needs. However, the QPS did not seem to directly promote patient confidence to ask questions. In Asian countries, active endorsement of QPS by physicians and/or communication skills training for physicians might be effective for promoting question-asking behavior. In the future, research

would be needed to examine the impact of the use of QPS over time and in other settings.

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#### Appendix A

Question Prompt Sheet is given in Table A1.

Table A1. Question prompt sheet

Diagnosis	1 What is the diagnosis? 2 What is the stage of my cancer?
Condition of a disease	3 What is wrong with me? 4 Where is my cancer located? 5 Which test showed that?
Symptom	6 What symptoms will the cancer cause? 7 What kind of treatments for the symptoms do you have?
Test	8 Do I need any more tests before my treatment? 9 If so, does it hurt? 10 What do the tests show?
Treatment	11 What treatment options are available for me? 12 What are my options aside from anticancer drugs? 13 What is the best case scenario? What is the worst case scenario? What is the most likely case scenario? How about survival length and quality of life? 14 What complications, short/long side effects and sequelae does each treatment have? 15 What is your recommendation regarding the best treatment for me? 16 Which treatment do other patients with the same condition as mine choose? 17 What is involved in administering the treatment, for example, contents, timing, frequency, duration, schedule, location, costs of treatments? 18 What is the purpose of the treatment? 19 What physical limitations will I have during the treatment? 20 What are the common side effects of the treatment? 21 Does the treatment cause pain? 22 What can be done about the side effects? 23 When will I know whether the treatment is working? 24 How will I know whether the treatment is working? 25 What are my next options if the treatment fails? 26 What costs will I incur throughout my treatment? 27 What is the percentage of success of this treatment for the other patients? 28 Can I get my treatment at my local doctor's office? 29 If I am taking alternative medicine, can I still continue? 30 Can I take folk medicine or complementary and alternative medicine during treatment?
Life	31 Will the treatment affect my ability to work or perform other activities? 32 Is there anything I have to do before and during my treatment? 33 Is there anything I should not do during my treatment, for example, diet, exercise, housekeeping, sexual life, childbirth? 34 Is it OK for me to do... during the treatment? 35 Is it OK for me to eat/ drink... during the treatment? 36 Is it OK for me to go... during the treatment? 37 Is there anything that I should prepare before my treatment? 38 What symptoms should I be alert for?
Family	39 What should I do when some symptoms occur? 40 Will my family be affected by my cancer/ treatment? 41 Will my family members have higher risk of getting cancer? 42 Who can my family members talk to if they have concern and worry?

Table A1. (Continued)

Psychological issues	43 Can I talk about my concern and worry? 44 How can I cope with sleeplessness caused by anxiety and depressed feeling? 45 Can you give me any advice on how to cope with the disease? 46 Is there someone I can talk to about my feeling?
Prognosis	47 How long am I likely to live? The reason why I want to know is... 48 Is there any chance for cure? 49 What can I expect in the future?
Other issues	50 What causes cancer? 51 How much time do I have to think about this? Do you need my decision today? 52 There are some changes about... (in my life, physical aspect, mental aspect) after the previous consultation. 53 The things that I hope to take precedence or continue doing in my life are...

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## Availability of Psychiatric Consultation-liaison Services as an Integral Component of Palliative Care Programs at Japanese Cancer Hospitals

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**Objective:** Collaboration between psychiatry and palliative medicine has the potential to enhance the quality of medical practice. The integration between palliative care and psychiatry has been attempted only in discrete medical settings and is not yet firmly established as an institution. Our objective was to determine the availability and degree of integration between psychiatric consultation-liaison services and palliative care in Japan.

**Methods:** A survey questionnaire was mailed to consultation-liaison psychiatrists at 375 government-designated cancer hospitals regarding their consultation-liaison services.

**Results:** A total of 375 survey questionnaires were sent to consultation-liaison psychiatrists, with a response rate of 64.8%. Designated cancer hospitals with approved palliative care teams were significantly more likely to have a consultation-liaison psychiatrist in the palliative care team than those in non-approved palliative care teams [80/80 (100%) versus 110/153 (73%);  $P = 0.008$ ]. Approved palliative care teams had double the number of referrals, conducted rounds more frequently and held conferences more frequently. Psychiatrists of the approved palliative care teams spent more of their time on palliative care consultations, adhered more closely to consultation processes and contributed more actively to the integration of developmental perspectives in treatment plans.

**Conclusions:** In Japan, most designated cancer hospitals with approved palliative care teams were more likely to integrate psychiatric consultation-liaison services into their palliative care programs. Systematic strategies for integration between palliative care and consultation-liaison psychiatry would contribute to the provision of appropriate psychosocial care for cancer patients and families at all stages.

**Key words:** psycho-oncology – palliative care team – consultation-liaison psychiatry – cancer – palliative medicine

## INTRODUCTION

Although remarkable progress has been made in cancer treatment, most patients with advanced cancer eventually face complex physical, psychiatric and social problems related to their disease, treatment or comorbidities (1,2). It is strongly recommended that palliative care services should be provided earlier in the cancer trajectory (3,4). General services provided by hospitals cannot always manage these problems effectively. Many international organizations support early incorporation of palliative care in oncology practice (4,5) and hospital-based palliative care programs have rapidly expanded over the past decade (6,7). Palliative care teams now play a key role in the management of symptoms, psychosocial support, assistance with decision-making and care coordination across providers (7–12).

Research shows that psychological distress in the form of depression and other mental health problems is associated with increased morbidity and mortality and decreased functional status (13,14). Approximately 29–43% of patients with cancer (all types, all stages) fulfill the diagnostic criteria for psychiatric disorder (14,15). A number of studies have suggested that psychosocial care services contribute to improving patients' quality of life (16–20). However, cancer patients report that many health-care providers still do not consider psychosocial support as an integral component of quality cancer care and may fail to recognize, adequately treat or provide a referral to the required services for depression and distress in cancer patients (9,21,22). The reasons for under-recognition are the failure of clinicians to inquire about psychosocial problems because of inadequate education and training (including inadequate clinical practice guidelines) in these issues, a lack of awareness of available services to address these needs (23) or a lack of knowledge about how to integrate the attention to psychosocial health needs into their practice (15). The program which could address cross-system problems and coordinate benefits is needed.

One of the solutions for poor coordination is to improve networking and collaboration between systems; integration between psychiatry and palliative care programs.

Integration is defined as the search to connect the health-care system with other service systems in order to improve outcomes (24).

Integration is classified into three different levels: linkage, coordination and full integration. First, 'linkage' promotes the relationships between systems that serve the whole populations without having to rely on outside systems for special relationships. Linkage begins with screening to identify emergent needs. When more serious conditions are identified, health professionals know where it is appropriate in other systems to send people and how to ensure that they get there. Second, coordination requires structures and managers to coordinate benefits and care across systems. Coordination is more structured than linkage, but systems are operated independently of one

another. Third, full integration creates new programs where resources from multiple systems are pooled. The fully integrated system gets control over several resources to define new benefits directly.

There are a number of barriers to collaboration between psychiatry and palliative care program, such as the misinterpretation that psychiatry is excessively medicalized, that psychiatric treatment is too difficult to practice in daily oncological settings and that patients refuse referral for psychiatric treatment (25–27). The previous survey noted that 45% of hospices in the UK have no access to psychological and psychiatric services and also revealed a large discrepancy in provision compared with the recommendations made in recent guidelines (28). The linkage between palliative care and psychiatry has been attempted only in discrete medical settings and is not yet firmly established as an institution.

Given the substantial prevalence rates and the management challenges presented by many of the patients, collaboration between psychiatry and palliative medicine has the potential to enhance the quality of medical practice, education and research. One of the solutions for promoting integration between the two fields in practice is to promote a full integrated care model, which involves with resources directly.

In Japan, the Cancer Control Act was approved in 2006, and prefectural and local cancer hospitals were designated by the government (29). The designated cancer hospitals were required to provide a hospital-based palliative care team, with a palliative care specialist, a consultation-liaison psychiatrist and a certified advanced nurse practitioner as core members.

In addition, national medical insurance covers the services provided by qualified palliative care teams that fulfill the necessary conditions: palliative care teams must be interdisciplinary teams composed of full-time core members with a palliative care specialist, a consultation-liaison psychiatrist, a certified advanced nurse practitioner and hospital pharmacists. The approval of palliative care teams by the insurance plan encourages the dissemination of palliative care service in practice (11).

To date, there have been few reports on the activities of consultation-liaison psychiatrists on palliative care teams. The current state of availability of psychiatric consultation-liaison services in palliative care settings and the degree of integration between psychiatry and palliative care services are not known. Many cancer hospitals state that they provide psychosocial support with palliative care; however, the structure, processes and outcomes of their support programs remain unclear. The purpose of our survey was to determine the availability and the degree of integration of psychiatric consultation-liaison services and palliative care programs in Japanese designated cancer hospitals. In addition, a comparison was made between the cancer hospitals with approved palliative care teams and those with non-approved palliative care teams.

## PATIENTS AND METHODS

## CONTENTS OF SURVEY

Survey questions were drawn up after a review of pertinent literature. A panel of experts including consultation-liaison psychiatrists, psychosomatic physicians, psychologists, nurses and palliative care specialists reviewed and revised the survey before distribution (4.19.30.31). Survey questions were generated based on the tripartite division of quality assessment and monitoring: structure, processes and outcomes to evaluate the clinical aspects of consultation-liaison psychiatry in palliative medicine (32). The questionnaire consisted of multiple-choice, Likert-scale and fill-in questions.

The questionnaire focused on six areas, which included hospital characteristics, professional backgrounds, clinical activities, availabilities, processes of practice and educational activities. Specific attention was paid to consultation processes: assessing physical and psychosocial symptoms, assessing decision-making capacities, assisting with decision-making regarding treatment, establishing the goals of care, interacting frequently with physicians and staff, coordinating care across providers and providing appropriate follow-up.

## SUBJECTS

## CANCER HOSPITALS

The designated cancer hospitals in Japan were identified from the database of the Center for Cancer Control and Information Services at the National Cancer Center and the list published by the Office for Cancer Control, Health Services Bureau, Ministry of Health, Labour and Welfare.

We obtained a list of 375 government-designated cancer hospitals, which provide services to ~25% of the cancer patients in Japan. At 90 of the designated cancer hospitals, the palliative care teams were approved for national medical insurance. We surveyed all government-designated cancer hospitals.

We identified the consultation-liaison psychiatrists (in some centers, psychosomatic physicians on behalf of psychiatrists) of 375 government-designated cancer hospitals from the database of the Center for Cancer Control and Information Services at the National Cancer Center and verified those who were core members of the palliative care teams through personal telephone contact with the cancer care support center of each institution.

## SURVEY PROCESS

Survey questionnaires were sent to the 375 government-designated cancer hospitals, asking the team psychiatrists and psychosomatic physicians about their programs and clinical activities. The initial invitation was included with the mail survey. Recipients were given 6 weeks to complete the questionnaire anonymously and return it by mail. A reminder

letter was sent to non-respondents at 6 and 12 weeks. Data collection was performed between November 2009 and February 2010.

## STATISTICAL ANALYSIS

We summarized the availability and the characteristics of psychiatric consultation-liaison services involved with the palliative care teams by using standard descriptive statistics, including medians, interquartile ranges (IQRs), proportions and frequencies, together with 95% confidence intervals where appropriate. Differences in services provided between the approved and non-approved palliative care teams were evaluated using Fisher exact tests for categorical variables. The Mann-Whitney test was used for non-parametric continuous variables.  $P < 0.05$  was considered statistically significant. SPSS version 17.0 software (SPSS Inc., Chicago, IL) was used for statistical analyses.

## RESULTS

Of the 375 questionnaires that were mailed, 243 were returned (response rate = 64.8%). Of these, 10 were excluded due to missing data for the primary end points. Thus, 233 responses were finally analyzed (effective response rate = 62.1%). Psychiatrists and psychosomatic physicians of the approved palliative care teams were more likely to respond compared with those of the non-approved palliative care teams (88.8 versus 53.7%).

## CHARACTERISTICS OF CONSULTATION-LIAISON PSYCHIATRISTS AND PSYCHOSOMATIC PHYSICIANS AT DESIGNATED CANCER HOSPITALS

Table 1 shows the background characteristics of consultation-liaison psychiatrists and psychosomatic physicians, infrastructure for psychiatry and palliative care, and structure of palliative care teams at designated cancer hospitals. The years of clinical experience of psychiatrists at cancer hospitals with approved palliative care teams was shorter than those with non-approved palliative care teams [16.3 versus 18.8 (years);  $P < 0.02$ ]. On the other hand, the rate of psychiatrists of approved palliative care teams taken part in the government-certified palliative care workshop was higher than that of non-approved palliative care teams (90 versus 77%;  $P < 0.02$ ).

Compared with the cancer hospitals with non-approved palliative care teams, those with approved palliative care teams were significantly more likely to have full-time psychiatrists and psychiatric outpatient services. All cancer hospitals with approved palliative care teams involved psychiatric consultation-liaison services. On the other hand, the rate of integration of services was only 73% at cancer hospitals with non-approved palliative care teams.

The number of inpatient beds was higher at cancer hospitals with approved palliative care teams compared with those

Table 1. Characteristics of consultation-liaison psychiatrists and psychosomatic physicians at designated cancer hospitals

	Cancer hospitals with approved palliative care teams (n = 80)	Cancer hospitals with non-approved palliative care teams (n = 153)	P-value
Professional background of psychiatrists and psychosomatic physicians on palliative care team			
Clinical experience (years)	16.3 (± 6.9)	18.8 (± 8.0)	0.02
Clinical experience in cancer care (years)	7.9 (± 6.8)	7.0 (± 6.5)	0.33
Registration of government-certified palliative care workshop, n (%)	72 (90%)	117 (77%)	0.02
Psychiatrist on palliative care team, n (%)			
Involvement of psychiatric consultation service in palliative care team			
Full time	80 (100)	110 (73)	<0.001
≥50% of protected time	19 (24)	11 (7)	
30 (38)		22 (14)	
Hospital, n (%)			
Cancer center	8 (10)	20 (13)	0.49
University hospital	32 (40)	21 (14)	0.002
Number of inpatients beds	702	590	<0.001
Number of inpatients with cancer in 2007	3723	2573	<0.001
Inpatients with cancer (%) in 2008	30.1	24.7	0.043
Infrastructure of hospital, n (%)			
Palliative care units, institution-operated hospice	16 (20)	33 (22)	0.87
Psychiatric ward	44 (55)	54 (35)	0.005
Outpatient clinic	71 (89)	109 (71)	0.003
Consultation-liaison service	76 (95)	134 (88)	0.10
Psychiatrists, median	4	1	<0.001
>5	35 (44)	30 (20)	
2-4	23 (29)	43 (28)	
1	19 (24)	34 (22)	
Palliative care team			
Palliative care physician			
Full-time equivalent positions, median (IQR)	1 (1-3)	1 (0-2)	0.008
Physicians with ≥50% of protected time, median	2	2	0.23
Nurses	1	1	0.83
Pharmacists, median	1	1	0.65

with non-approved palliative care teams. Psychiatric consultation-liaison services and psychiatric outpatient clinics were common in both cancer hospitals with approved palliative care teams and those with non-approved palliative care teams. Only 20% of cancer hospitals offered palliative care units or institution-operated hospices.

## INVOLVEMENT OF PSYCHIATRIC CONSULTATION-LIAISON SERVICES IN PALLIATIVE CARE PROGRAMS

Table 2 provides an overview of the involvement of psychiatric consultation-liaison services in palliative care teams. Compared with the cancer hospitals with non-approved palliative care teams, the approved palliative care teams

provided twice as many referrals (25 versus 12;  $P < 0.001$ ), conducted rounds with all team members more frequently and held conferences more frequently. Similarly, psychiatrists of approved palliative care teams participated in team rounds and conferences more frequently. On the other hand, only half the consultation-liaison psychiatrists typically attended the rounds of the palliative care teams.

## AVAILABILITY OF PSYCHIATRIC SERVICES IN PALLIATIVE CARE PROGRAMS

Table 3 provides information about the structure and processes of psychiatric consultation-liaison services in palliative care programs. Psychiatric consultation-liaison services

Table 2. Involvement of psychiatric consultation-liaison services in palliative care programs

	Cancer hospitals with approved palliative care teams (n = 80)	Cancer hospitals with non-approved palliative care teams (n = 153)	P-value
Palliative care consultation services			
Availability days per week median (IQR)	5 (3–5)	3 (1–5)	<0.001
Number of referrals (per 2 months)	25	12	<0.001
Frequency of rounds with all team members, n (%)			
> 1/week	33 (41)	35 (23)	0.001
1/week	42 (53)	88 (59)	
1–3/month	0 (0)	2 (1)	
None	5 (6)	13 (9)	
Frequency of conferences with all team members, n (%)			
> 1/week	13 (16)	11 (7)	0.008
1/week	60 (75)	109 (73)	
1–3/month	2 (3)	22 (15)	
None	5 (6)	5 (3)	
Contributions to palliative care team, n (%)			
Participating in team rounds			
≥ 80%	42 (53)	62 (41)	0.003
≥ 40 and < 80%	21 (26)	26 (17)	
< 40%	17 (21)	64 (42)	
Participating in team conferences			
≥ 80%	61 (76)	97 (63)	0.02
≥ 40 and < 80%	7 (9)	27 (18)	
< 40%	12 (15)	28 (18)	

involved with palliative care teams provided not only inpatient consultations, but also outpatient clinics and family support. Generally, psychiatrists of approved palliative care teams served more patients, followed up more frequently and responded more readily to referrals compared with psychiatrists on non-approved palliative care teams.

Regarding the total time spent for consultations and follow-up, psychiatrists at cancer hospitals with approved palliative care teams committed more of their time to palliative care consultations compared with psychiatrists at cancer hospitals with non-approved palliative care teams. However, the time devoted to palliative care consultations remained at about 12 h/week at cancer hospitals with approved palliative care teams, which had full-time psychiatrists as core members.

#### ATTITUDES AND PRACTICES OF PSYCHIATRISTS

Table 4 reveals information about the practice of consultation-liaison psychiatric services involved with palliative care teams provided by consultation-liaison psychiatrists. Table 4 shows the number of hospitals where psychiatric consultation-liaison services adhered to the

consultation practices. In both cancer hospitals with approved palliative care teams and those with non-approved palliative care teams, the adherence rates are various by subjects. The adherence rate was high in assessing psychiatric symptoms directly (99% in cancer hospitals with approved palliative care team and 97% in those with non-approved palliative care teams) and assessing prognostic expectations. On the other hands, the adherence rate was low in educating the nursing and support staff regarding aspects of patient management and care planning (29% in cancer hospitals with approved palliative care team and 18% in those with non-approved palliative care teams). The rate of adherence between cancer hospitals with approved palliative care teams and those with non-approved palliative care teams differed in 16 of the 25 measures. For psychiatric assessment, the adherence rate was high (assessing and managing psychiatric symptoms directly, 99 versus 94%). On the other hand, the adherence rate varied for physical assessment (prognostic expectations, pain, activities of daily life), social assessment (financial, family problems, place of care) and coordination (discussing management with the physician directly, educating the staff regarding aspects of patient management).

Table 3. Availability of psychiatric services in palliative care programs

	Cancer hospitals with approved palliative care teams (n = 80)	Cancer hospitals with non-approved palliative care teams (n = 153)	P-value
Psychiatric service provided by palliative care teams, n (%)			
Inpatient	80 (100)	153 (100)	>0.99
Outpatient	67 (84)	109 (71)	0.04
Family	57 (71)	88 (58)	0.04
Bereaved family	30 (38)	38 (25)	0.043
Availability (inpatient)			
Response time to a request, n (%)			
Within 24 h	60 (75)	77 (51)	<0.001
Within 2–3 days	17 (21)	37 (24)	
Within 1 week	3 (4)	37 (24)	
Responding to an urgent request during business hours	76 (95)	118 (78)	0.001
Responding to an urgent request after office hours, n (%)			
Corresponding directly	19 (24)	33 (22)	0.043
By substitution	46 (58)	70 (46)	
Unsupported	15 (19)	47 (31)	
Emergency care			
Corresponding directly	23 (29)	32 (22)	0.31
By substitution	45 (56)	81 (54)	
Unsupported	11 (14)	34 (23)	
Number of referrals/2 weeks, median (IQR)	5.5 (4–10)	4 (2–8)	0.001
Number of rounds for follow-up/week	2 (1–3)	1 (1–2)	<0.001
Days from referral to discharge, median (IQR)			
1–7 days	20 (12–30)	20 (7–30)	0.26
> 1–4 weeks	12 (17)	36 (27)	
> 1–3 months	46 (67)	77 (58)	
> 3 months	10 (15)	17 (13)	
> 3 months	1 (1)	1 (1)	
Percentage of patients who died during intervention	30 (10–50)	50 (20–66.25)	0.040
Total time spent on consultation and follow-up (min/week)	741 (555–927)	516 (393–638)	0.002
Availability (outpatient), n (%)			
Response time to a request			
Within 24 h	26 (37)	39 (33)	0.45
Within 2–3 days	18 (26)	22 (19)	
Within 1 week	25 (36)	56 (48)	
Responding to an urgent request during business hours	64 (92)	90 (77)	0.016
Responding to an urgent request after office hours			
Corresponding directly	12 (17)	24 (21)	0.85
By substitution	33 (47)	52 (44)	
Unsupported	25 (36)	41 (35)	

#### DISCUSSION

Our survey provides information on the availability of psychiatric consultation-liaison services involved with palliative care programs in Japanese cancer hospitals. Compared with

cancer hospitals with non-approved palliative care teams, those with approved palliative care teams were more likely to integrate psychiatric consultation-liaison services for cancer patients into their palliative care programs. Psychiatrists assessed cancer patients from various

Table 4. Attitudes and practices of psychiatrists

	Cancer hospitals with approved palliative care teams, n (%) (n = 80)	Cancer hospitals with non-approved palliative care teams, n (%) (n = 153)	P-value
Asking the requesting physician directly how you can best help them			
≥80%	56 (70)	90 (59)	0.07
>40 and <80%	19 (24)	45 (29)	
<40%	5 (6)	20 (13)	
Anticipating potential problems			
≥80%	64 (80)	110 (72)	0.16
≥40 and <80%	13 (16)	31 (20)	
<40%	3 (4)	12 (8)	
Assessing and managing psychiatric symptoms directly			
≥80%	79 (99)	144 (94)	0.10
≥40 and <80%	1 (1)	8 (5)	
<40%	0 (0)	1 (1)	
Reviewing medical records			
≥80%	78 (98)	135 (88)	0.02
>40 and <80%	1 (1)	15 (10)	
<40%	1 (1)	3 (2)	
Assessing prognostic expectations			
≥80%	74 (93)	124 (81)	0.02
≥40 and <80%	6 (7)	23 (15)	
<40%	0 (0)	6 (4)	
Assessing pain			
≥80%	66 (83)	106 (69)	0.02
≥40 and <80%	10 (13)	25 (16)	
<40%	4 (5)	22 (15)	
Assessing physical symptoms			
≥80%	67 (84)	103 (67)	0.004
≥40 and <80%	9 (11)	21 (14)	
<40%	4 (5)	29 (19)	
Assessing activities of daily life			
≥80%	57 (71)	90 (59)	0.04
≥40 and <80%	14 (18)	30 (20)	
<40%	9 (11)	33 (21)	
Assisting the primary care provider in communicating bad news			
≥80%	71 (89)	129 (85)	0.33
≥40 and <80%	7 (9)	15 (10)	
<40%	2 (2)	9 (5)	
Assessing financial resources			
≥80%	37 (46)	54 (35)	0.01
≥40 and <80%	28 (35)	43 (28)	
<40%	15 (19)	56 (37)	
Referrals to hospice, home care and other placements			
≥80%	47 (59)	63 (41)	0.01
>40 and <80%	15 (19)	39 (26)	
<40%	18 (23)	51 (33)	

Continued

Table 4. Continued

	Cancer hospitals with approved palliative care teams, n (%) (n = 80)	Cancer hospitals with non-approved palliative care teams, n (%) (n = 153)	P-value
Assessing needs in term of discharge support			
≥80%	42 (53)	59 (39)	0.01
>40 and <80%	21 (26)	35 (23)	
<40%	17 (21)	59 (39)	
Assessing doctor-patient relationship			
≥80%	48 (60)	78 (51)	0.13
≥40 and <80%	17 (21)	33 (22)	
<40%	15 (19)	42 (27)	
Assessing family problems			
≥80%	56 (70)	85 (56)	0.02
≥40 and <80%	18 (23)	45 (29)	
<40%	6 (7)	23 (15)	
Eliciting the patient's understanding and opinions about the disease and its treatment			
≥80%	65 (81)	106 (69)	0.043
>40 and <80%	9 (11)	24 (16)	
<40%	6 (8)	23 (15)	
Eliciting the family's understanding and opinions about the disease and its treatment			
≥80%	50 (63)	74 (48)	0.03
≥40 and <80%	20 (25)	47 (31)	
<40%	10 (12)	32 (21)	
Making notations on medical charts			
≥80%	76 (95)	147 (96)	0.68
≥40 and <80%	2 (3)	5 (3)	
<40%	2 (3)	1 (1)	
Planning psychiatric treatment with other team members			
≥80%	64 (80)	109 (72)	0.048
≥40 and <80%	14 (18)	31 (21)	
<40%	2 (3)	11 (7)	
Discussing patient management with the physician directly			
≥80%	58 (73)	81 (53)	0.004
≥40 and <80%	16 (20)	50 (33)	
<40%	6 (7)	22 (14)	
Recommending psychiatric pharmacotherapy			
≥80%	60 (75)	114 (75)	0.85
≥40 and <80%	19 (24)	33 (22)	
<40%	1 (1)	6 (4)	
Implementing medical intervention with permission from the primary team			
≥80%	58 (73)	102 (67)	0.51
≥40 and <80%	7 (9)	22 (15)	
<40%	15 (19)	28 (18)	
Implementing psychotherapeutic intervention with permission from the primary team			
≥80%	67 (84)	109 (72)	0.03
>40 and <80%	11 (14)	30 (20)	
<40%	2 (3)	13 (9)	

Continued



Table 4. Continued

	Cancer hospitals with approved palliative care teams, n (%) (n = 80)	Cancer hospitals with non-approved palliative care teams, n (%) (n = 153)	P-value
Participating in patient care, with other team members			
>80%	72 (90)	118 (77)	0.01
>40 and <80%	8 (10)	29 (19)	
<40%	0 (0)	6 (4)	
Educating the nursing and support staff regarding aspects of patient management and care plan			
≥80%	23 (29)	27 (18)	<0.001
≥40 and <80%	32 (40)	36 (23)	
<40%	25 (31)	89 (59)	
Coordinating a family meeting to discuss further plans for care			
≥80%	23 (29)	39 (26)	0.40
≥40 and <80%	46 (58)	85 (56)	
<40%	11 (14)	28 (18)	

perspectives with physicians, provided direct patient care, educated team members on the mental health domains and had a highly interdisciplinary approach to their work. Although there remains some variability in the infrastructure and delivery of psychosocial care in cancer settings, our results suggest that the integration model as psychiatric consultation-liaison services involved in palliative care teams is gaining acceptance in palliative care settings.

Although many institutions have developed elaborate support programs for a variety of symptoms, psychiatric symptoms and psychological problems of patients with cancer are still unrecognized, resulting in their not being offered access to the needed services (16,19,20,33). The National Comprehensive Cancer Network guidelines recommend screening for distress, which broadly defines emotional disturbances; however, only half the NCCN member institutions in the USA conducted screening to identify distressed patients (34). In palliative care programs, only half the National Cancer Institute cancer centers assessed and managed psychiatric disorders (4). Although various linkage programs, including screening programs and referrals, have been used in attempt to improve the continuity, the optimal system remains uncertain.

The full integration model aims to facilitate deinstitutionalization of dual assessment and pursues the best continuity and coordination for the complex needs (35). The full integration needs specialized types of interventions, expedited access to each other and close collaboration between professionals.

The involvement of psychiatric services in palliative care programs offers an advantage over conventional support programs in the detection and management of psychiatric disorders and psychosocial problems. First, psychiatrists provide medical care together with the palliative care teams, and a formalized mechanism for providing psychiatric services in

the usual palliative care programs prevents the failure to connect individuals with the referred providers and gain the patients' acceptance of the referral (22,36,37). Second, psychiatrists assess the mental status and evaluate the decision-making capacity of patients, which contributes to enhanced quality of life for patients and families faced with life-threatening illness. Third, palliative care teams often face difficult settings and conflicting ethical issues. Psychiatrists can recognize and mitigate staff stress and address burnout.

Our survey revealed that cancer hospitals with certified palliative care teams offered integrated services between palliative care and consultation-liaison psychiatry; psychiatrists saw cancer patients with the palliative care teams directly, assessed cancer patients in a comprehensive manner and made the coordination process more effective with other staff members.

Although all of the cancer hospitals reported the provision of psychiatric consultation services, some barriers remain at the level of interaction among different clinicians serving the same patient. In our study, 75% of consultation-liaison psychiatrists on certified palliative care teams were ready to respond to urgent requests (within 24 h). About 30% of consultations were urgent requests (20). Many programs provided inpatient services. However, on an outpatient basis, only 40% of cancer hospitals were prepared for referral to consultation on the same day. Most cancer treatment has shifted from inpatient to ambulatory care settings (38) and the structure and processes must be modified accordingly.

On the other hand, a number of barriers to collaboration remain unresolved. The primary problems with attempts to integrate are structural and financial barriers. The integration requires the palliative care teams to expand their knowledge, perspectives and interest. The integrated palliative care teams have to deal with the needs of various patients appropriately, and it takes time to learn about the capabilities of

the other systems, to decide how to work together and to communicate. They often feel 'consultation fatigue'. Also, the integration requires any of various staff to be involved at the clinical management. The cost of support staff can be overwhelming. For this reason, the approval of palliative care teams for national health insurance coverage encourages and facilitates the provision of psychiatric consultation-liaison services in palliative care programs under today's economic circumstances (25).

Most psychiatrists on palliative care teams see patients for direct consultation, assess their condition from various aspects and educate staff members regarding mental health problems. However, the quality and actual frequency of supportive care at each hospital varies. Psychiatrists are actively engaged in providing psychiatric care as well as coordination among physicians, nursing staff and the palliative care teams. On the other hand, educational activities are low in general. The key component to achieve the goal of full integration is the development of common clinical information systems. In previous studies, integrating information system is effective to facilitate communication between professionals (35). For approved palliative care teams, developing the information systems shared in the teams, such as clinical assessment tools, protocols about psychiatric treatment and education programs are needed. Also, for non-approved palliative care teams, establishment of a close contact and improving links between programs might be realistic strategies, rather than building up the full integration by constraint.

Our study had several limitations. First, the responses from our survey could be biased, because they were based on self-assessment and recalled information. Secondly, the response rate of the cancer hospitals with non-approved palliative care teams was low, possibly because low-activity institutions may be reluctant to participate in this type of survey. This may result in an overestimation of psychiatric consultation-liaison services and palliative care programs in cancer hospitals with non-approved palliative care teams. Third, the gold standard of psychosocial support has not yet been obtained. Although the questionnaire was generated based on a literature review and an expert panel, it has not been validated. The sphere of action of consultation-liaison psychiatry is complex, and it is difficult to identify new measurements for assessing the quality of the programs. It was recently suggested that the patients' subjective well-being and the medical team's difficulty in helping patients might be used to measure the effectiveness of consultation-liaison psychiatry. Further research is needed to improve the measurements applied to the consultation-liaison processes. Fourth, some results of this survey may reflect the impact from differences in country of practice and education.

In conclusion, these results suggest that the integration model between psychiatric consultation-liaison services and palliative care services holds some promise as an acceptable model for improving supportive care for patients with cancer. Although most designated cancer hospitals have a

psychiatric consultation-liaison service, significant gaps remain in the delivery of care. Additional research is needed to establish the level of synergistic effect between the psychiatric service and the palliative medicine.

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## Conflict of interest statement

None declared.

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## Clinical biopsychosocial risk factors for depression in lung cancer patients: a comprehensive analysis using data from the Lung Cancer Database Project

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**Background:** Various risk factors for depression in lung cancer patients have been suggested but have been examined separately in studies with relatively small sample sizes. The present study examined the biopsychosocial risk factors of depression in lung cancer patients, focusing on psychological factors in the largest patient sample reported to date.

**Patients and methods:** A total of 1334 consecutively recruited lung cancer patients were selected, and data on cancer-related variables, personal characteristics, health behaviors, physical characteristics, and psychological factors were obtained. The participants were divided into groups with or without depression using the Hospital Anxiety and Depression Scale.

**Results:** Among the recruited patients, 165 (12.4%) manifested depression. The results of a binary logistic regression analysis were significant (overall  $R^2$ , 36.5%), and a greater risk for depression was strongly associated with psychological factors, such as personality characteristics (neuroticism) and coping style (low fighting spirit, helplessness/noplessness, and anxious preoccupation). Although the contributions of cancer-related variables, personal characteristics, health behaviors, and clinical state were relatively low, cancer stage, cancer type, sex, and age correlated significantly with depression.

**Conclusion:** Depression was most strongly linked with personality traits and coping style, and using screening instruments to identify these factors may be useful for preventive interventions.

**Key words:** coping, depression, lung carcinoma, personality, quality of life, supportive care

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## introduction

Lung cancer is the most common form of cancer and is the most common cause of cancer-related deaths worldwide [1]. As lung cancer is a life-threatening disease, its impact on patients' psychological well-being has been widely studied. As shown by the results of many observational studies [2–14], lung cancer patients have high rates (9%–53%) of clinically significant depression. Depression in cancer patients creates great suffering, and many patients with depression develop suicidal ideation or suicidal behavior [15, 16]. Also, depression has a negative impact in terms of patient quality of life [17], patient decision making regarding cancer treatment [18], length of hospital stay [19], and caregiver distress [20] and may even affect survival [21].

Consideration of a wide range of risk factors, including biopsychosocial dimensions, and understanding which factors are strongly related to depression are critical for ongoing care and to identify patients who are at risk for depression, in addition to finding clues for effective interventions [22, 23]. Many studies have attempted to identify a set of factors that are consistently correlated, but problems regarding sampling have been encountered. Most previous studies have had a small sample size, with the exception of one study that simply combined data from three separate randomized clinical trials, creating a potential sampling bias [2].

Based on the results of previous studies, cancer-related variables such as cancer stage [11, 14], cell type [small-cell lung cancer (SCLC) or non-SCLC] [2], or performance status (PS) [2]; personal characteristics such as age [11, 24], sex [25], marital status [25], living alone [25], presence of a confidant [14, 25, 26], employment status [27], or educational status [12]; health behaviors such as alcohol intake [11], smoking [28], or body weight [29]; and physical symptoms such as pain [11], dyspnea [30], or fatigue [2, 31] have been suggested as risk factors for depression in patients with lung cancer.

Psychological factors also have been studied in lung cancer patients, and a few studies have suggested that personality traits or coping patterns [25, 32–34] are correlated with depression. Adaptation to a major illness is readily understood in terms of stress and coping theory [35, 36], and individual personality or coping style may determine whether patients achieve a good psychological appraisal or develop depression. Bardwell et al. [37] showed that in breast cancer patients, psychological factors are strongly linked with depression, while other variables such as cancer-related variables, personal characteristics, and physical symptoms have a minimal contribution. Based on these perceptions, we hypothesized that psychological factors such as personality traits or coping patterns may have a greater association with depression than other variables in lung cancer, but few studies have simultaneously examined biopsychosocial factors to decide which variables have the strongest correlations.

The purpose of this study was to obtain an understanding of the biopsychosocial risk factors associated with depression in lung cancer patients, focusing on psychological factors. Previously reported multifactorial variables were combined together into an integrated model, and we attempted to clarify

which ones have the most profound effects on depression. As this study was carried out using the largest consecutive sampling reported to date, conclusive results regarding the biopsychosocial factors that are correlated with depression in lung cancer patients were anticipated, providing clues for efficient ongoing care.

## patients and methods

### participants

The data were obtained from the Lung Cancer Database Project at the National Cancer Center, Japan; Nakaya et al. [38] previously reported the study design in detail. Between July 1999 and July 2004, a total of 1622 consecutive patients who were newly diagnosed as having lung cancer were enrolled in the study after the disclosure of their diagnosis by their attending physician. Of these, written informed consent was not obtained from 41 patients; consequently, 1581 patients were included in the present analysis. These patients were asked to complete the questionnaires by themselves at home before their admission to the hospital. However, we excluded 247 patients with missing responses for the items related to the subscales of this study. Finally, we analyzed 1334 out of 1622 patients (82.2%) in the present study.

The group of patients who were excluded ( $n = 247$ ) did not differ significantly from the group of patients who participated ( $n = 1581$ ) in terms of sex, age, PS, or cancer stages.

### measurements

#### cancer-related variables, personal characteristics, health behaviors, and clinical state

Information, including the age at diagnosis, sex, socioeconomic variables (educational level, employment, marital status, cohabitation, and presence of a confidant), smoking status, and severity of clinical symptoms (self-reported dyspnea, pain, and dullness) was obtained from the self-administered questionnaires. The alcohol variable was calculated based on the responses to a semiquantitative food frequency questionnaire created for a population-based prospective study in Japan [39].

Medical information such as the clinical stage, weight and height, PS, and cancer type was obtained from the patients' medical charts by attending physician, and the body mass index (BMI) was calculated ( $\text{kg}/\text{m}^2$ ). The clinical stage of the lung cancer was classified according to the TNM (tumour–node–metastasis) classification of the International Union Against Cancer. The PS was assessed by the attending physician of each patient using the Eastern Cooperative Oncology Group criteria [40]. Self-reported dyspnea, pain, and fatigue at the time of diagnosis were self-graded using a five-point scale: 1 (absent), 2 (little), 3 (moderate), 4 (severe), or 5 (very severe).

### psychological aspects

Eysenck personality questionnaire—revised. Personality traits were measured using the Japanese version of the Eysenck Personality Questionnaire—Revised (EPQ-R) [41, 42]. The EPQ-R measures four personality dimensions labeled as Psychoticism (P), Extraversion/Introversion (E), Neuroticism (N), and Lie (L), each containing 12 items. Each item is answered as 'yes' or 'no' and coded as 1 or 0, respectively, with the total subscale scores for the items ranging from 0 to 12. The Psychoticism scale is a measure of tough-mindedness, aggressiveness, coldness, and egocentricity. The Extraversion scale represents sociability, liveliness, and surgency, and the Neuroticism scale describes emotional instability and anxiousness. Finally, the Lie scale is a measure of dissimulation.

