Original Article

What is the appropriate communication style for family members confronting difficult surrogate decision-making in palliative care?: A randomized video vignette study in medical staff with working experiences of clinical oncology

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Abstract

Background: The family members of terminally ill patients are often requested to make difficult surrogate decisions during palliative care. This study sought to clarify the appropriate communication style for physicians as perceived by family members confronting difficult surrogate decision-making.

Methods: This experimental psychological study used scripted videos. In the videos, the physician described treatment options including continuous deep sedation to the family members of patients with cancer and terminal delirium using an autonomous or paternalistic style. Medical professionals with clinical experience in oncology were randomly assigned to either group viewing the videos. The primary outcomes were physician compassion, decisional conflict and emotion scores. We also evaluated the communication style preference.

Results: In total, 251 participants completed this study. Although participants in both groups reported high physician compassion, participants in the autonomous style group reported lower compassion scores (reflecting higher physician compassion) (mean 15.0 vs. 17.3, \( P = 0.050 \)), lower decisional conflicts scores (51.1 vs. 56.8, \( P = 0.002 \)) and comparable emotions compared with those in the paternalistic style group. Seventy-six percent of participants preferred the autonomous style.

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Conclusions: Regarding difficult surrogate decision-making, the autonomous style might be more appropriate than the paternalistic style. However, various factors, such as family members’ communication style preferences, family members’ values, physician–family relationships and ethnic cultures, should be considered.

Key words: communication, decision-making, empathy, delirium, deep sedation

Introduction

Autonomy is defined as an individual’s right to self-determination (1). During informed consent, physicians provide patients and their family members with sufficient information about medical practices (2). The informed consent concept is recognized as the gold standard in the healthcare environment, as autonomy is considered an important concept in medical ethics (3). In fact, several studies indicated that patients with active decision-making roles in their care express greater satisfaction with their care and experience better health outcomes (4,5).

However, an appropriate decision-making style is not considered universal, and the preferred style may vary according to various factors, such as age, clinical conditions and the importance of decision-making content (6–8). In palliative care, some studies indicated that patients with incurable end-stage cancer tend to prefer a passive decision-making role (9,10). Similar findings have also been reported for elderly Japanese patients with end-stage cancers (11). Thus, paternalistic decision-making has been viewed positively in palliative care (12,13).

Conversely, family members are sometimes requested to make difficult surrogate decisions (14), such as whether to accept continuous deep sedation (CDS) (15,16) during palliative care, because patients with end-stage cancer often experience consciousness disturbances, such as terminal delirium (17). Previous studies reported that family members experienced strong psychological burdens concerning surrogate decision-making (18,19). Another study suggested that caring for family members was important during palliative care (20). European guidelines for end-of-life care and the use of palliative sedation mention the importance of family participation in the decision-making process and consideration of the psychological burdens of family members (21–23). However, these guidelines do not describe the appropriate communication style for physicians when interacting with family members involved in surrogate decision-making, and this subject is not addressed in Japanese sedation guidelines (24). Thus, it is unclear which communication and decision-making styles are appropriate for family members confronting difficult surrogate decision-making situations in palliative care (25).

This study aimed to clarify the appropriate communication style for physicians when interacting with family members confronting difficult surrogate decisions in palliative care. We applied an experimental psychological study design using scripted videos because conducting a clinical trial of patients with terminal disease is difficult because of ethical and practical reasons (26). We hypothesized that the paternalistic style tends to be more appropriate than the autonomous style for family members involved in difficult surrogate decision-making situations based on our clinical experiences.

Participants and methods

This study was approved by the Institutional Review Board and Ethics Committee of Nagoya City University Graduate School of Medical Sciences and the Higashiosaka Hospital Japan, and it was conducted in accordance with the principles described in the Declaration of Helsinki. Written consent was obtained from all participants after an explanation of the purpose and methods of this study.

Participants

The study subjects were medical staff with working experience of clinical oncology. We screened potentially eligible subjects among the medical staff of Nagoya City University Hospital and Higashiosaka Hospital, recognized as regional core hospitals for palliative care in Japan. They were asked to participate via in-person meetings through the contact networks of those hospitals. Because we must recruit participants by each department or ward in order, the bias would be found in participants’ characteristics of the department or ward when the number of participants reached the prescribed numbers. Therefore, we continued to recruit participants until we finished recruiting in all target departments and wards, even if the number of participants reached the prescribed numbers on the way. Besides, we assumed that ethical problems on participants’ health and privacy were extremely small, since our study never included treatment intervention.

Eligible participants were medical doctors and nurses with more than 3 years of working experience of clinical oncology who were older than 20 years but younger than 75 years. People considered inappropriate for study participation by the authors for various reasons (e.g. possibility of acquaintance with the video performers) were excluded.

We did not include caregivers of patients with cancer or laypersons in this study because viewing the videos could cause strong psychological distress, mainly owing to the Japanese culture of avoiding straightforward communication regarding death (11,27).

Procedures

This multicenter experimental psychological study used scripted videos based on a fictional scenario. We created videos, namely, the orientation video, autonomous style video and paternalistic style video, to reflect the scenario under which the physician described treatment options including CDS to the family members of patients with cancer and terminal delirium (see Scenario and videos).

Participants were randomly assigned (1:1 allocation) to view the autonomous (the autonomous style group; control arm) or paternalistic style video (the paternalistic style group; test arm) using stratified, computer-generated block randomization. Stratified randomization was performed via occupation. Block randomization was performed with variable block sizes of 4, 6 or 8.

After viewing the orientation video, we instructed participants to view the next video and asked them to administer the Physician Compassion Scale (PCS), Decisional Conflict Scale (DCS) and a
questionnaire regarding six basic emotions, putting him/herself in a family member of the patient of the scenario’s place (Fig. 1).

Then, the participants viewed the other video and were asked to report which communication style they preferred. Finally, some participants completed a semi-structured interview test to clarify their reasons for preferring one communication style. We stopped recruiting participants into the interview portion of the study when a new comment was not obtained.

Scenario and videos
In the video, the patient was a man in his 60s who had recurrent end-stage colon cancer and multiple liver metastases. He also had terminal delirium that was not manageable using antipsychotics or intermittent sedation, and this delirium hampered his decision-making ability. His life expectancy was estimated to be days to weeks. The sex and age of the patient, family members and physician reflected typical situations in Japanese palliative care (a male patient in his 60s, a wife in her mid-50s, a daughter in her early 30s and a male physician in his 40s).

We included terminal delirium and CDS in the scenario based on two reasons. First, 30–90% of patients with end-stage cancer experience delirium, which very often affects their decision-making ability by disturbing their consciousness (21,28,29). Second, family members are often requested to decide whether to accept CDS on behalf of patients because terminal delirium is often incurable (30).

We included terminal delirium and CDS in the scenario based on two reasons. First, 30–90% of patients with end-stage cancer experience delirium, which very often affects their decision-making ability by disturbing their consciousness (21,28,29). Second, family members are often requested to decide whether to accept CDS on behalf of patients because terminal delirium is often incurable (30).

Twenty-nine palliative care specialists, including clinical oncologists, psycho-oncologists, nurses and psychologists, and 15 laypersons reviewed the scenario and scripts and confirmed that they reflected an actual medical situation.
The orientation video included explanations of autonomous and paternalistic communication styles (31,32), terminal delirium (33), the life history of the patient and his family members, and the disease status of the patient (see above). The orientation video was narrated by a woman blinded to the purpose and hypothesis of the study. We included explanations of two communication styles in the orientation video, because most of the reviewers proposed that the videos should include differences of communication styles in order to get participants to notice contents of the videos which they viewed with attention.

The exact scripts used in the autonomous and paternalistic style videos are presented in Appendix A. Briefly, in the autonomous style video, the physician described CDS and usual care as similarly suitable treatment options. In the paternalistic style video, although the physician discussed both CDS and usual care, he recommended performing CDS over usual care.

Both videos ended with a scene in which the physician told family members to discuss the options with each other and select a treatment after a few days.

A balance between medical and informal language was maintained in the videos. We created scripts according to current evidence regarding physicians’ communication skills and disclosing difficult news (34,35). Actual clinicians not employed by hospitals at which recruitment occurred played the roles of physicians in the videos. Non-healthcare workers played the roles of the family members. The actors were blinded to the purpose and hypothesis of the study. To eliminate factors that could influence the study outcomes other than differences in the communication style, we requested that performers exhibited similar characteristics, such as non-verbal communication, body positions, appropriate eye contact, voice tone and volume reflected basic supportive communication skill and average compassion level, in both communication style videos (34,36).

The lengths of the videos were 13 min for the orientation video, 4.93 min for the autonomous style video and 5.07 min for the paternalistic style video (available upon request). Fifteen palliative care specialists reviewed the design, content and structure of the videos and confirmed that they reflected actual situations. They also confirmed the absence of differences in non-verbal communication or length between the two communication style videos.

**Measurements**

**Physician Compassion Scale**

The PCS consists of five dimensions: warm–cold, pleasant–unpleasant, compassionate–distant, sensitive–insensitive and caring–uncaring. Each dimension is scored on a scale of 0–10, giving a maximum score of 0–50. Lower scores indicated greater physician compassion (0 = best, 50 = worst) (37). The validity of the Japanese version of the PCS has been confirmed (38).

We chose physician compassion as our primary outcome because of several reasons. First, previous reviews indicated that compassion is one of the important outcomes for evaluating the quality of communication between clinicians and patients in oncology (39,40). Second, compassionate attitudes and behaviors have been demonstrated to improve patients and family members’ impressions of physicians and decrease psychological burdens when receiving difficult news (34,41).

**Decisional Conflict Scale**

The DCS is a 16-item, self-administered questionnaire to assess decisional conflict, using five subscales (informed, values clarity, support, uncertainty and effective decision) and five response categories (0 = strongly agree; 4 = strongly disagree). According to the DCS user manual, we calculated the total scores by (i) summing the number of items, (ii) dividing by 16 and (iii) multiplying by 25 (range, 0 [no decisional conflict] to 100 [extremely high decisional conflict]) (42). The validity and reliability of the Japanese version of DCS have been confirmed (43).

**Emotions**

The participants reported six basic emotions (44), namely, anger, sadness, fear, disgust, joy and surprise, using a seven-point Likert scale (0 = no feelings; 6 = strong feelings). We adopted these six basic emotions to evaluate which emotions were inspired by the physician’s communication style in a difficult surrogate decision-making situation.

**Communication style preference and the reasons for the preference**

Participants specified their preferred communication style. The reasons for the communication style preference were evaluated via content analysis (45). First, the reasons supporting the preference were extracted from the interview transcripts by one of the authors (M.N.). Second, the same author conceptualized and categorized the transcript contents on the basis of similarities and differences between the communication styles. Finally, the authors reviewed and discussed each coded data set under the supervision of a palliative care and content analysis specialist (Y.I.).

**Demographic data**

Before viewing the videos, participants provided demographic information, such as age, sex, marital status, occupation, years of clinical experience and clinical oncology experience, education level and family history of cancer.

**Statistical analysis**

Participant characteristics and baseline measurements were analyzed using parametric or non-parametric statistical methods as appropriate for each variable.

Differences in continuous measures between the groups were examined using an independent t-test. Participants’ communication style preferences were analyzed using a contingency table analysis and the chi-squared test. If significantly differences were found in the baseline characteristics, multivariate analyses were conducted to adjust for baseline differences.

To calculate the sample size, we assumed an effect size of 0.5 in this study because a previous study using scripted videos to assess physicians’ communication regarding providing information about the lack of further treatments to patients with chemotherapy-resistant advanced cancer using a more or less optimistic approach reported an effect size of 0.54 for the PCS (46). A sample of 64 participants per each group would provide 80% power for an independent t-test to detect an effect size of 0.5 when the type I error rate is set at 5%. Considering participating candidates’ non-attendance and missing data, the recruitment of 140 participants was deemed sufficient in all.

A P value of <0.05 was adopted as the significance level in all statistical analyses, and all reported P values were two tailed. We used SPSS ver. 24 for Windows for all statistical analyses.
Results

Participants’ characteristics

Among 327 potentially eligible subjects, 287 who agreed to participate were randomly assigned to the groups (144 in the autonomous style group, 143 in the paternalistic style group). After randomization, 251 participants (123 in the autonomous style group, 128 in the paternalistic style group) actually completed the study. Thirty-six participants (21 in the autonomous style group, 15 in the paternalistic style group) were excluded, most frequently because of loss of contact (Fig. 1). The baseline characteristics of the groups were similar excluding family history of cancer (65 [53%] vs. 44 [34%], \( P = 0.003 \); Table 1).

Physician Compassion Scale

Participants in the autonomous style group reported lower compassion scores than those in the paternalistic style group (\( P = 0.05 \); Table 2).

Decisional Conflict Scale

Participants in the autonomous style group reported significantly lower decisional conflict scores than those in the paternalistic style group (Table 2).

Emotions

None of the six emotions was differed significantly between the two groups (Table 2).

Table 1. Participant characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Autonomous style group</th>
<th>Paternalistic style group</th>
<th>Total</th>
<th>( P ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N = 123 )</td>
<td>( N = 128 )</td>
<td>( N = 251 )</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>Median (IQR)</td>
<td>Median (IQR)</td>
<td>Median (IQR)</td>
<td>0.541*</td>
</tr>
<tr>
<td></td>
<td>36 (32–42)</td>
<td>36 (39–43)</td>
<td>36 (30–43)</td>
<td></td>
</tr>
<tr>
<td>Medical doctor</td>
<td>40 (36–46)</td>
<td>40 (36–46)</td>
<td>40 (36–46)</td>
<td>0.660*</td>
</tr>
<tr>
<td>Nurse</td>
<td>35 (28–40)</td>
<td>34 (27–39)</td>
<td>34 (28–40)</td>
<td>0.302*</td>
</tr>
<tr>
<td>Years of clinical experience</td>
<td>12 (7–17)</td>
<td>11 (6–18)</td>
<td>12 (7–18)</td>
<td>0.506*</td>
</tr>
<tr>
<td>Years of experience in clinical oncology</td>
<td>10 (5–15)</td>
<td>8 (5–15)</td>
<td>9 (5–15)</td>
<td>0.547*</td>
</tr>
<tr>
<td>Female</td>
<td>76 (62)</td>
<td>85 (66)</td>
<td>161 (64)</td>
<td>0.511*</td>
</tr>
<tr>
<td>Married</td>
<td>60 (49)</td>
<td>66 (52)</td>
<td>126 (50)</td>
<td>0.706*</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical doctor</td>
<td>48 (39)</td>
<td>47 (37)</td>
<td>95 (38)</td>
<td>0.928*</td>
</tr>
<tr>
<td>Physician</td>
<td>24 (50)</td>
<td>24 (51)</td>
<td>48 (51)</td>
<td></td>
</tr>
<tr>
<td>Surgeon</td>
<td>10 (21)</td>
<td>11 (23)</td>
<td>21 (22)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>14 (29)</td>
<td>12 (26)</td>
<td>26 (27)</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>75 (61)</td>
<td>81 (63)</td>
<td>156 (62)</td>
<td>0.352*</td>
</tr>
<tr>
<td>Certified nurse</td>
<td>3 (4)</td>
<td>1 (1)</td>
<td>4 (3)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>72 (96)</td>
<td>80 (99)</td>
<td>152 (97)</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
<td>0.489*</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>23 (19)</td>
<td>18 (14)</td>
<td>41 (16)</td>
<td></td>
</tr>
<tr>
<td>Any college education</td>
<td>58 (47)</td>
<td>69 (54)</td>
<td>127 (51)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>42 (34)</td>
<td>41 (32)</td>
<td>83 (33)</td>
<td></td>
</tr>
<tr>
<td>Family history of cancer</td>
<td>65 (53)</td>
<td>44 (34)</td>
<td>109 (43)</td>
<td>0.003*</td>
</tr>
</tbody>
</table>

\( ^{a} \text{Mann–Whitney’s } U \text{ test; } ^{b} \text{Fisher’s exact test; IQR, interquartile range; other categories for medical doctor: orthopedist, otolaryngologist, dermatologist, urologist, gynecologist and anesthesiologist; certified nurse category for nurse: certified nurse specialist or certified expert nurse; other categories for nurse: not certified nurse specialist and not certified expert nurse; other categories for education level: high school and vocational school.} \)

Table 2. Comparison of physician compassion, decisional conflict and emotions scores between the groups

<table>
<thead>
<tr>
<th></th>
<th>Autonomous style group</th>
<th>Paternalistic style group</th>
<th>( P ) value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N = 123 )</td>
<td>( N = 128 )</td>
<td></td>
</tr>
<tr>
<td>Physician Compassion Scale</td>
<td>15.0 (9.6)</td>
<td>17.3 (9.3)</td>
<td>0.050</td>
</tr>
<tr>
<td>DCS</td>
<td>51.1 (13.5)</td>
<td>56.8 (15.7)</td>
<td>0.002</td>
</tr>
<tr>
<td>Anger</td>
<td>0.6 (0.9)</td>
<td>0.8 (1.1)</td>
<td>0.183</td>
</tr>
<tr>
<td>Sadness</td>
<td>3.9 (1.5)</td>
<td>3.8 (1.3)</td>
<td>0.718</td>
</tr>
<tr>
<td>Fear</td>
<td>3.0 (1.9)</td>
<td>3.1 (1.8)</td>
<td>0.641</td>
</tr>
<tr>
<td>Disgust</td>
<td>1.0 (1.3)</td>
<td>1.3 (1.5)</td>
<td>0.188</td>
</tr>
<tr>
<td>Joy</td>
<td>0.2 (0.6)</td>
<td>0.3 (0.8)</td>
<td>0.259</td>
</tr>
<tr>
<td>Surprise</td>
<td>2.1 (1.7)</td>
<td>2.5 (1.6)</td>
<td>0.111</td>
</tr>
</tbody>
</table>

\( ^{*} \text{Independent } t \text{-test; SD = standard deviation; PCS = Physician Compassion Scale; DCS = Decisional Conflict Scale; emotions = anger, sadness, fear, disgust, joy, and surprise.} \)
Table 3. Participants’ preference after viewing both communication style videos

<table>
<thead>
<tr>
<th>Preference</th>
<th>Autonomously style group</th>
<th>Paternalistic style group</th>
<th>P valuea</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 123 n (%)</td>
<td>N = 128 n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomous style</td>
<td>75 (61)</td>
<td>116 (91)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Paternalistic</td>
<td>48 (39)</td>
<td>12 (9)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Categories identified for preferring each communication style

<table>
<thead>
<tr>
<th>Reasons for preferring the autonomous style</th>
<th>N = 55 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The family members of the patient could decide the treatment that they preferred</td>
<td>47 (85)</td>
</tr>
<tr>
<td>The amount the information about each treatment option was similar</td>
<td>13 (24)</td>
</tr>
<tr>
<td>It was easy to understand the content explained by the physician</td>
<td>11 (20)</td>
</tr>
<tr>
<td>The impression of the physician was good</td>
<td>9 (16)</td>
</tr>
<tr>
<td>Others</td>
<td>3 (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons for preferring the paternalistic style</th>
<th>N = 25 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The physician’s recommendation made the decision easier</td>
<td>25 (100)</td>
</tr>
<tr>
<td>The physician’s recommendation reduced psychological burdens about selecting a treatment</td>
<td>10 (40)</td>
</tr>
<tr>
<td>Others</td>
<td>2 (8)</td>
</tr>
</tbody>
</table>

Multivariate analyses for PCS, DCS, emotions and communication style preference

Because number of participants with family history of cancer was differed significantly between the two groups, we carried out additional multivariate analyses for adjustment of family history of cancer using two-way ANOVA for scores of PCS, DCS and six emotions and multivariate logistic regression analysis for communication style preference.

Significant interactions between group and family history of cancer were found in scores of PCS, DCS and anger (F1, 247 = 4.3, P = 0.039; F1, 247 = 15.7, P < 0.001; F1, 247 = 5.5, P = 0.020, respectively). Simple main effects of the groups and family history of cancer were also found in scores of PCS (F1, 247 = 9.9, P = 0.002; F1, 247 = 10.1, P = 0.002), DCS (F1, 247 = 27.7, P < 0.001; F1, 247 = 16.8, P < 0.001) and anger (F1, 247 = 7.8, P = 0.006; F1, 247 = 6.4, P = 0.012).

These interactions and simple main effects meant that participants with family history of cancer reported significantly higher scores of PCS (Mean 21.0 [SD 9.3] vs. 15.5 [8.9]), DCS (63.9 [14.9] vs. 53.1 [14.9]) and anger (1.1 [1.3] vs. 0.6 [0.9]) than participants without the family history in the paternalistic style group. On the other hand, family history of cancer (P = 0.248) and the interaction between group and the family history (P = 0.135) were not associated with communication style preference.

Table 5. Categories identified for free comments about the communication style

<table>
<thead>
<tr>
<th>Preference</th>
<th>N = 55 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I could not decide the treatment, I wanted to know the physician’s recommendation</td>
<td>31 (56)</td>
</tr>
<tr>
<td>The appropriate communication style was decided on the basis of family members’ values</td>
<td>10 (18)</td>
</tr>
<tr>
<td>The appropriate communication style was decided on the basis of the physician–family relationship</td>
<td>4 (7)</td>
</tr>
</tbody>
</table>

Free comments regarding the communication style included in these categories were obtained from participants who preferred the autonomous style.

Discussion

To the best of our knowledge, this is the first experimental psychological study to evaluate the appropriate communication style for physicians as perceived by family members confronting difficult surrogate decision-making situations in palliative care.

Contrary to our hypothesis, our results indicated that the autonomous style was more likely to be appropriate for family members facing difficult surrogate decisions. There are several possible explanations for this finding. First, participants deemed it more appropriate for family members themselves, rather than physicians, to make medical decision on behalf of patients. This notion may be acceptable in the family-centered culture of Japan (47,48). Our finding for the most prevalent reason for preferring the autonomous style was consistent with this ethnic culture. Second, the autonomous style may have been preferred because participants did not have established trust with the physician due to the experimental setting. This possibility was supported by the results of previous studies, although they did not examine family members. Previous studies indicated that level of the trust in the physician tended to be lower in experimental settings than in actual clinical settings (34,38,49).

Another study clarified that patients with cancer who preferred autonomous decision-making had low levels of trust in physicians (50). Third, due to showing differences of two communication styles in the orientation video, participants might have considered autonomous style more ethically appropriate than paternalistic style.

Results of multivariate analyses indicated that family members or caregivers of cancer patients might have low compassions for the paternalistic style. This finding indicated that physicians should pay attention to family history of cancer when interacting with the family members or caregivers confronting difficult surrogate decision-making situations.

However, we still consider that the paternalistic style could be appropriate in some situations if physicians exhibit sufficient compassion during the informed consent process due to several reasons. First, participants in both groups reported high physician compassion. Scores of PCS of both videos were under 25 as half of the total
score that was assumed to be reflected high physician compassion in previous studies (46,51). Second, almost all participants who preferred the paternalistic style expressed that the physician’s recommendation helped make treatment selection easier and reduced the psychological burdens of surrogate decision-making. More than half of the participants who preferred the autonomous style reported that they might need a physician’s recommendation if they could not decide the treatment. In other words, even people who prefer the autonomous style could require guidance from the physician if they could not reach a decision on their own. Meanwhile, the finding that one-fourth of participants who preferred the autonomous style thought that family members’ values and the physician–family relationship influenced which communication style was preferred was consistent with results that patients with cancer and their family members sometimes want physicians to actively participate in the decision-making process depending on various situations (52–54). Finally, although the study was a cross-sectional web-based survey for patients with cancer receiving outpatient treatment, a recent analysis indicated that a physician’s recommendation regarding palliative sedation was more desirable rather than deciding by family members when a patient lacked decisional capacity and there was no advanced directive (55).

The present study had several limitations. First, the subjects of this study were medical professionals, and they might consider autonomous decision-making to be the gold standard in medical practice. Therefore, they could be more likely to prefer the autonomous style than laypersons. Second, our findings may not be generalizable to older family members because most of the participants were in their 30s or 40s. Last, some bias might have occurred in our findings due to the convenient sampling.

In conclusion, the present study indicated that the autonomous style may be preferred by family members confronting difficult surrogate decision-making situations in palliative care. Conversely, based on the premise of high physician compassion, both communication styles could be deemed appropriate on the basis of various factors, such as family members’ communication style preferences, family members’ values, physician–family relationships and ethnic cultures. It is important for physicians to understand patients and their family members’ preferences regarding communication and decision-making style and identify who has the main role in decision-making even in palliative care via discussions with them in advance. We hope that our findings will stimulate further discussions regarding appropriate communication and decision-making styles in difficult surrogate decision-making situations.

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Conflict of interest statement
None declared.

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Appendix A. The exact scripts used in the two different communication style videos

**Autonomous style video**

**Physician:** Thank you for coming today,
**Wife:** I should be thanking you for always taking care of my husband.
**Physician:** I called you, because I’d like to discuss next treatment options with your husband with you today.
**Wife:** Yes. Recently, he says a strange thing suddenly more than before. He seems to be confused and excited too. I think he also may have been in distress.
**Physician:** How do you feel about your husband’s condition?
**Wife:** …… I feel sorry for his condition.

**Paternalistic style video**

**Physician:** I would like to discuss next treatment options with your husband with you today.
**Physician:** I called you, because I’d like to discuss next treatment options with your husband with you today.
**Wife:** Yes. Recently, he says a strange thing suddenly more than before. He seems to be confused and excited too. I think he also may have been in distress.
**Physician:** How do you feel about your husband’s condition?
**Wife:** …… I feel sorry for his condition.

**Physician:** Your feeling is natural. I feel sorry for you.
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<th>Autonomous style video</th>
<th>Paternalistic style video</th>
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| **Wife:** Yes. …… Uh, how is the current condition of my husband?  
**Physician:** Well, the condition of his body worsened and the function of his brain decreased. Therefore he has delirium. So, he has been confused and cannot have a conversation well by delirium. I told you his condition like this a few days ago. Do you remember?  
**Wife:** Yes. …… I was told that doctor used medicines for my husband to decrease agitation and become sleepy.  
**Physician:** That’s right. We used various medicines for him to make calm down at least the night and reduce his distress. As you might already know, these medicines did not have enough effects. According to his test results carrying out the other day, values indicating the liver function were worsened. Probably his symptom does not come to be better because of these results. Unfortunately, his liver is a terminal state called the liver failure, so it may be difficult to be improved from his present condition.  
**Wife:** …… Liver failure?  
**Physician:** Exactly.  
**Wife:** (In a confused state) …… Uh …… how …… he will be …… but …… what will happen from now on for him? He seems not to take a rest enough at night.  
**Physician:** …… From now, I have to tell you about very hard information of your husband. Furthermore, I’d like to discuss next treatment options of your husband with you. May I continue to discuss?  
**Wife:** …… Yes. (The screen went dark a few seconds, after which the physician and the family members reappeared.)  
**Physician:** I told you that your husband has been confused and cannot have a conversation well by delirium; medicines did not have enough effects for his symptoms a while ago.  
**Wife:** ……  
**Physician:** It’s hard to say this, but …… it is difficult that your husband recovers from delirium. In addition, …… despite our best efforts, there may be not enough time for him. His life may be around one week.  
**Wife:** …… I see. Well …… but …… what can I do?  
**Physician:** You must be worried. I feel sympathy for you.  
**Wife:** (In a confused state) Yes.  
**Physician:** Anyway, as the next treatment classifies roughly, there are two treatment options for your husband. I explain two treatment options in detail from now on. However, as I told you before, it is difficult for your husband to decide next treatment by himself. Therefore, would you decide next treatment with family members?  
**Wife:** …… I see.  
**Physician:** As I mentioned before, your husband’s symptoms, such as confusing, difficulty of conversation, and distressed face might have been continuing. As next treatment, the first option is continuation of the current treatment and watchful waiting for his symptoms. Even though it may be short time, this treatment option would create the chance to speak with him. He may be pleased if he is able to talk with family members and close friends in that time. However, there is the risk that his confusing will be worse and he is going to act more violently.  
**Wife:** I see ……  
**Physician:** The other treatment option is that he dozes off all day by continuing to use medicine that makes him feel sleepy. This is called the continuous deep sedation. If he dozes off all day, his distress may reduce and he may spend his time more calmly than now. Family members may feel a peaceful look on his face. On the other hand, his sleep time will be longer than now. Although, individual results may vary, he may become hard to answer even if you call him, and difficult to talk with others. Besides, your husband’s condition has been in a very severe state; there is a risk that his condition may change, such as his breathing becomes shallow suddenly after starting new medicine.  
**Wife:** (in silence)  
**Physician:** This is too difficult for you to decide.  
**Wife:** (After a few seconds of silence) I think so.  
**Physician:** Anyway, based on my experience of same situation, he might want to doze off all day by continuing to use medicine that makes him feel sleepy in his current condition. This treatment option will reduce his distress and make him calm down.  
**Wife:** Doze off? …… Calm down?  
**Physician:** Yes. It is difficult for your husband to recover from delirium. Your husband’s symptoms, such as confusing and distressed face might have also been continuing. It doesn’t have enough effects for his current condition to use medicine that decreases his agitation and becomes him sleepy for short time. Therefore, to reduce his distress, we make your husband doze off all day by continuing to use medicine that makes him feel sleepy. This is called the continuous deep sedation.  
**Wife:** …… Well …… but …… is new medicine different from the current one? To be honest, I don’t know what to say …… uh ……  
**Physician:** Of course, even though it may be short time, to give priority to time of talking with him, you can decide to continue the current treatment and watchful waiting for his symptoms. However, there is the risk that he is going to act more violently. Therefore, from my point of view, I cannot recommend this treatment option positively.  
**Wife:** I see ……  
**Physician:** If he dozes off all day, we think his distress can reduce and he can spend his time more calmly than now. We expect that family members can feel a peaceful look on his face. Naturally, his sleep time will be longer than now. Although, individual results may vary, he becomes hard to answer even if you call him, and difficult to talk with others. Besides, your husband’s condition has been in a very severe state, there is a risk that his condition may change, such as his breathing becomes shallow suddenly after starting new medicine. However, according to his confusing and distressed face, we think it is better for your husband to doze off all day and spend his time calmly. We think his distress can reduce too.  
**Wife:** I see ……  
**Physician:** …… Do you have any questions?  
**Wife:** Well …… I cannot decide right now. May I consult with other family members?  
**Physician:** Sure. It is very important thing. Please consult with others and decide finally. However, according to your husband’s condition, there may be a few times to think carefully. So, please listen your answer as soon as possible after the consultation. If you have any questions, please ask doctors or nurses anytime.  
**Wife:** Thank you very much. I appreciate your continued care for my husband. (The screen went dark.)