

## Development and Validation of the Unfinished Business Scale for Families: A Tool for Assessing Bereaved Family Members of Terminally Ill Cancer Patients in Japan

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### Abstract

Even though unresolved matters left behind are known to influence the mental and emotional health of families grieving the loss of a cancer patient, Japan still has no dedicated instrument for measuring such issues in these families. The current study set out to create a new scale for assessing unfinished business in families of terminally ill cancer patients and to thoroughly investigate its validity and reliability within the Japanese context. In August 2020, researchers conducted a cross-sectional web-based survey of bereaved families of cancer patients. The questionnaire package included the newly constructed Unfinished Business Scale for Families, the Unfinished Business in Bereavement Scale (UBBS), the Brief Grief Questionnaire (BGQ), and the Patient Health Questionnaire-9 (PHQ-9). A follow-up retest was administered 2 weeks later.

Answers provided by 206 bereaved families underwent factor analysis. The procedure yielded three distinct subscales, each comprising 10 items: Talk, Action, and Message. The overall Cronbach's  $\alpha$  coefficient for the Unfinished Business Scale for Families reached 0.96, and the test-retest reliability measured by the intraclass correlation coefficient stood at 0.74. Scores on the new scale showed a significant moderate correlation with the UBBS ( $r = 0.46$ ), as well as moderate correlations with the BGQ ( $r = 0.40$ ) and the PHQ-9 ( $r = 0.33$ ). Every P-value was  $< 0.001$ . These outcomes demonstrate that the Unfinished Business Scale for Families serves as an effective instrument for evaluating unfinished business among families who have lost a terminally ill cancer patient. Going forward, it will be important to apply this scale in larger surveys of bereaved families to properly identify unfinished business. Doing so should allow healthcare professionals to offer more targeted and sufficient assistance to those families still struggling with unresolved issues.

**Keywords:** Mental health, Emotional health, Business, Cancer

### Introduction

Unfinished business refers to “incomplete, unexpressed, or unresolved relationship issues with the deceased” [1, 2] or “a cognitive process that involves appraising one’s relationship with a deceased loved one as incomplete, unexpressed, or unresolved, lacking closure” [1]. Such lingering concerns can significantly shape the psychological well-being of family members supporting terminally ill cancer patients. Past research has shown that between 26% and 43% of these bereaved families are likely to carry unfinished business, while roughly 70% experience moderate to severe distress connected to it [2, 3]. Further investigations have revealed clear links between distress arising from unfinished business — including depression and complicated grief (CG)—and the broader mental health of bereaved families of cancer patients [2–4]. For this reason, systematically measuring unfinished business holds promise for helping lower depression and complicated grief levels in this population.

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An existing instrument, the Unfinished Business in Bereavement Scale (UBBS), was developed in the United States to quantify the intensity of unfinished business among families affected by cancer [5]. This scale examines two core aspects: Unfulfilled Wishes, which captures a sense of incompleteness about the deceased, and Unresolved Conflicts, which addresses lingering disputes or tensions between the family and the deceased [5]. A multidimensional tool of this kind could enable clinicians to better grasp the specific forms of unfinished business that families face and to spot those who face heightened danger of subsequent depression and complicated grief. Despite this, Japan presently lacks any specialized tool for gauging unfinished business in bereaved families of cancer patients. Moreover, no research has yet determined the actual proportion of families affected by the use of psychometrically sound instruments. Since the UBBS was created in the United States, many of its items do not align well with Japanese cultural realities due to significant differences in social norms and customs. On top of that, the UBBS overlooks several unfinished business items that Japanese studies have previously identified, particularly those related to dialogue with the loved one [3]. As Japan is characterized by high-context communication, where indirect expression is common and overt statements are often unnecessary, the very meaning and weight of unfinished business may differ considerably from the American context, potentially exerting an even stronger effect. Taking these points into account, the present study aimed to design and rigorously test the validity and reliability of a culturally appropriate tool for evaluating unfinished business among bereaved families of cancer patients in Japan.

## Materials and Methods

### *Study design*

Approval for this cross-sectional online survey was granted by the institutional review board of Seirei Mikatahara General Hospital (No. 20-23).

### *Participants*

Bereaved family members were drawn from an internet research panel managed by a market research firm (Macromill Inc., Tokyo, Japan). Inclusion required participants to be aged  $\geq 18$  years and to have lost a family member to cancer at some point during the previous five years.

### *Procedures*

During August 2020, two separate anonymous web surveys were carried out with bereaved relatives of terminally ill cancer patients across Japan. The purpose of the initial survey was to check factor structure, internal consistency, concurrent validity, and discriminant validity. A follow-up survey was then sent to the same participants 2 weeks later, specifically to assess test–retest reliability.

For the first survey, invitations were distributed to all registered members of an online research panel operated by a market research firm. Those who responded to the screening questions were asked additional questions, and only those who met the study's eligibility requirements were allowed to continue. Bereaved family members who had given their consent proceeded to complete the full questionnaire. At the end, they were invited to indicate whether they would also take part in the second round of data collection.

The second survey followed the same invitation process as the first, targeting only those who had completed the initial one. Data collection stopped once the required number of responses was reached.

### *Measurements*

#### *Unfinished business scale for families*

Researchers first performed an extensive review of relevant publications and held discussions with other experts in the field. Informed by earlier Japanese research on unfinished business in grieving families [3, 6, 7], the team defined three core subscales: Talk, Action, and Message. This process yielded 16 candidate items describing different aspects of unfinished business. Respondents rated each item on a seven-point Likert-type scale, where 1 meant absolutely disagree, and 7 meant absolutely agree. Two additional single questions were added. One asked whether the family experienced any unfinished business at all and used the same seven-point scale, with higher numbers showing greater unfinished business. The other evaluated how much distress the unfinished business had caused during the previous month and was answered on a four-point scale ranging from 1 (not at all distressed) to 4 (extremely distressed), again with higher scores reflecting stronger distress. Face validity was examined by a panel of four people: one ordinary bereaved family member, one clinician, and two bereaved individuals who held professional medical qualifications. These steps confirmed that the questionnaire had strong content validity.

#### *Unfinished business in bereavement scale (short version)*

A shortened version of the UBBS was originally developed in the United States to measure unfinished business among families affected by cancer [5]. For the present study, eight items were selected — four from the Unfulfilled Wishes dimension and four from the Unresolved Conflicts dimension. The Japanese translation was prepared

using the standard forward-backward translation technique. Participants indicated the level of distress they felt for each item on a five-point scale from 1 (not at all distressed) to 5 (extremely distressed). Higher total scores meant more significant unfinished business.

The following instruments were included to evaluate concurrent validity.

#### *Brief grief questionnaire*

Complicated grief was measured with the Brief Grief Questionnaire (BGQ) [8]. This tool has demonstrated acceptable reliability and validity when used with Japanese samples [9]. It contains five items, each scored on a scale of 0 to 2. Higher scores correspond to more intense grief responses. The raw scores were later transformed to a 0–10-point scale. A score of 8 or higher was considered indicative of a strong likelihood of complicated grief.

#### *Patient health questionnaire-9*

Depression severity was assessed using the Patient Health Questionnaire-9 (PHQ-9) [10]. Its reliability and validity have been well established in Japan [11]. The scale includes nine items, and the total score is converted to a 0–27 point range. A cutoff score of 10 or more was used to identify moderate to severe depression.

#### *Participant characteristics*

Details were gathered about the patient's cancer diagnosis, along with the bereaved family member's age, gender, relationship to the deceased person, length of time since the bereavement, and how frequently they had provided care during the illness.

#### *Statistical analyses*

All statistical procedures were conducted with SAS version 9.4, the Japanese edition (Cary, NC; BMDP, Los Angeles, CA). During item reduction, any attributes were first removed if they had missing data in 20% or more of responses or displayed a highly skewed response pattern, defined as 80% of answers falling into either "absolutely disagree" or "absolutely agree." Explanatory factor analysis was then performed using principal component analysis with promax rotation. Items with factor loadings below 0.4 were eliminated based on the factor analysis results. Final item selection also took into account content coverage and clinical relevance through team discussion. Additionally, each remaining item was checked for strong skewness in its response distribution, such as pronounced ceiling or floor effects.

To evaluate the validity of the Unfinished Business Scale for Families, correlations among the subscales were first computed to determine construct validity. Next, Pearson's correlation coefficients were calculated between each subscale and the UBBS, BGQ, and PHQ-9 to examine concurrent validity. Since both the Unfinished Business Scale for Families and the UBBS measure unfinished business in family members, a moderate to high correlation was expected between them. In contrast, low to moderate correlations were anticipated between the Unfinished Business Scale for Families and both the PHQ-9 and BGQ, given the known links between unresolved family matters and outcomes like depression and complicated grief (CG). Correlation strength was classified as small (0–0.3), moderate (0.3–0.5), or strong (0.5–1.0).

Internal consistency across all items and subscales was assessed using Cronbach's  $\alpha$  coefficient, while test-retest reliability was evaluated with the intraclass correlation coefficient (ICC).

## Results and Discussion

The final sample consisted of 206 bereaved family members whose relative had died from cancer. Of these, 106 participated in the second survey to assess test-retest reliability.

#### *Participant characteristics*

Responses from all 206 bereaved family members of terminally ill cancer patients were included in the analysis. **Table 1** presents an overview of the demographic and clinical backgrounds of both the patients and their family members.

**Table 1.** Backgrounds of the patients and bereaved families

Patients		
	Disease, n (%)	
Lung	43	(20.9)
Stomach, esophagus, colon, and rectum	58	(28.1)
Liver, bile duct, pancreas	41	(19.9)
Breast	13	(6.3)
Prostate, kidney, bladder	10	(4.9)

Ovary, uterus	8	(3.9)
Blood	17	(8.3)
Other	16	(7.8)
Bereaved families		
Age, average (SD)	48.8	(13.2)
Sex, n (%)		
Male	98	(47.6)
Female	108	(52.4)
Relationship to the deceased, n (%)		
Spouse	6	(2.9)
Child	72	(35.1)
Son/daughter-in-law	10	(4.9)
Parent	14	(6.8)
Brother/sister	28	(13.7)
Other	75	(36.6)
Duration of bereavement, n (%)		
< 1 year	41	(19.9)
1–3 years	92	(44.7)
3–5 years	72	(34.3)
> 5 years	1	(0.5)
Frequency of caring for patients, n (%)		
Every day	41	(19.9)
4–6 days/week	21	(10.2)
3 days/week or less	50	(24.3)
Not at all	86	(41.8)

Abbreviation: SD = standard deviation.

#### Frequency distribution of responses to the unfinished business scale for families

**Table 2** displays the distribution of answers to the Unfinished Business Scale for Families. Overall, 44.8% (n = 92) of the bereaved families indicated they had unfinished business related to the final weeks with their loved one. In comparison, 64.6% reported experiencing distress connected to unfinished business in the past month.

**Table 2.** Unfinished business scale for families (frequency distribution)

Item	Absolutely agree (%)	Agree (%)	Somewhat agree (%)	Unsure (%)	Somewhat disagree (%)	Disagree (%)	Absolutely disagree (%)	Mean (SD)
1. I wish I had discussed more topics with the patient.	35 (17.0)	40 (19.4)	59 (28.6)	41 (20.0)	11 (5.3)	17 (8.3)	3 (1.5)	5.0 (0.4)
2. I wish I had talked about more things, assuming the patient would die.	23 (11.2)	33 (16.0)	47 (22.8)	62 (30.1)	15 (7.3)	22 (10.7)	4 (1.9)	4.8 (1.6)
3. I wish I had listened more to the patient's thoughts and feelings.	25 (12.1)	29 (14.1)	54 (26.2)	58 (28.2)	17 (8.3)	17 (8.3)	6 (2.9)	4.8 (1.4)
4. I wish I knew what the patient thought of me.	13 (6.3)	24 (11.7)	26 (12.6)	69 (33.5)	19 (9.2)	38 (18.5)	17 (8.3)	3.9 (1.6)
5. I wish the patient had left messages or important thoughts for me.	8 (3.9)	21 (10.2)	29 (14.1)	69 (33.5)	35 (17.0)	31 (15.1)	13 (6.3)	3.8 (1.4)
6. I wish I could have heard the patient's gratitude or farewell words.	12 (5.8)	8 (3.9)	30 (14.6)	59 (28.6)	37 (18.0)	42 (20.4)	18 (8.7)	3.6 (1.6)
7. I wish I had said more about what I wanted to express.	19 (9.2)	34 (16.5)	43 (20.9)	68 (33.0)	15 (7.3)	19 (9.2)	8 (3.9)	4.6 (1.4)

8. I wish I had expressed my gratitude to the patient.	28 (13.6)	34 (16.5)	56 (27.2)	55 (26.7)	11 (5.3)	16 (7.8)	6 (2.9)	4.8 (1.5)
9. I wish I had done more activities with the patient.	35 (17.0)	29 (14.1)	51 (24.8)	56 (27.2)	16 (7.8)	14 (6.8)	5 (2.4)	5.1 (1.4)
10. I wish I had done more activities, assuming the patient would die.	28 (13.6)	25 (12.1)	48 (23.3)	63 (30.6)	20 (9.7)	17 (8.3)	5 (2.4)	4.7 (1.5)
11. I wish we had spent more time together.	32 (15.5)	33 (16.0)	53 (25.7)	55 (26.7)	14 (6.8)	16 (7.8)	3 (1.5)	4.8 (1.5)
12. I wish I had known more about the patient's post-death wishes (e.g., funeral or affairs).	9 (4.4)	17 (8.3)	36 (17.5)	88 (42.7)	21 (10.2)	25 (12.1)	10 (4.9)	4.2 (1.6)
13. I wish I could have helped the patient fulfill their desires.	26 (12.6)	30 (14.6)	54 (26.2)	62 (30.1)	13 (6.3)	16 (7.8)	5 (2.4)	4.6 (1.4)
14. I wish I could have helped the patient meet the person they wanted to see.	17 (8.3)	29 (14.1)	42 (20.4)	83 (40.3)	14 (6.8)	15 (7.3)	6 (2.9)	4.5 (1.4)
15. I wish I could have done something special for the patient.	20 (9.7)	25 (12.1)	45 (21.8)	77 (37.4)	13 (6.3)	18 (8.7)	8 (3.9)	4.5 (1.5)
16. I wish I could have been with the patient at the time of death.	38 (18.5)	27 (13.1)	40 (19.4)	64 (31.1)	11 (5.3)	17 (8.3)	9 (4.4)	4.8 (1.6)
<b>Overall unfinished business</b>	17 (8.3)	17 (8.3)	58 (28.2)	44 (21.4)	22 (10.7)	27 (13.1)	21 (10.2)	4.5 (1.6)
<b>How distressed have you been about this issue in the past month?</b>	<b>Mean (SD)</b>		<b>Not at all Distressed (%)</b>	<b>Somewhat Distressed (%)</b>	<b>Distressed (%)</b>	<b>Extremely Distressed (%)</b>		
<b>Distress level</b>	2.4 (1.0)		73 (35.4)	79 (38.4)	39 (18.9)	15 (7.3)		

Abbreviation: SD = standard deviation.

### Factor analysis

Initial item review showed no major ceiling or floor effects. Following the predefined item-reduction steps, three subscales comprising 10 items were retained. The complete factor analysis results for these subscales are presented in **Table 3**.

**Table 3.** Factor validity of the unfinished business scale for families

Standardized regression coefficients	Communality	Factor 3	Factor 2	Factor 1
<b>Talk subscale (ICC = 0.69, <math>\alpha</math> = 0.91)</b>				
I wish I had discussed more topics with the patient.	0.74	-0.01	0.30	0.70
I wish I had done more activities, assuming the patient would die.	0.71	0.09	-0.10	0.86
I wish I had expressed my gratitude to the patient.	0.74	-0.01	0.45	0.50
I wish I had listened more to the patient's thoughts and feelings.	0.81	0.12	0.14	0.73
<b>Action subscale (ICC = 0.7, <math>\alpha</math> = 0.98)</b>				
I wish I could have helped the patient achieve what they wanted.	0.72	-0.03	0.78	0.13
I wish I could have helped the patient meet the person they wanted to see.	0.79	0.10	0.86	-0.05
I wish I could have done something special for the patient.	0.71	0.18	0.64	0.12
<b>Message subscale (ICC = 0.63, <math>\alpha</math> = 0.87)</b>				
I wish I could have heard the patient's words of gratitude and farewell.	0.65	0.80	0.12	-0.13
I wish the patient had left me messages, thoughts, and important information.	0.82	0.79	0.08	0.11

I wish I knew what the patient thought of me.	0.67	0.74	-0.07	0.19
<b>Total score of the unfinished business scale for families (ICC = 0.71, <math>\alpha</math> = 0.96)</b>				

Abbreviation: ICC = intraclass correlation coefficient.

Boldface indicates factor loadings  $\geq 0.40$  on the designated primary factor of each subscale.

#### Internal consistency and reliability

**Table 3** further reports the internal consistency findings for the Unfinished Business Scale for Families. Cronbach's  $\alpha$  values ranged from 0.87 to 0.91 across the subscales, and ICC values ranged from 0.63 to 0.74.

#### Construct validity

**Table 4** presents the correlations among the subscales of the Unfinished Business Scale for Families. The total scale score showed strong associations with each subscale, while the subscales themselves displayed moderate to strong intercorrelations.

**Table 4.** Spearman's correlation coefficients

Subscale	Message subscale	Action subscale	Talk subscale
<b>Talk</b>	0.61*	0.75*	1.00
<b>Action</b>	0.61*	1.00	0.75*
<b>Message</b>	1.00	0.61*	0.61*
<b>Unfinished business in the last few weeks</b>	0.43*	0.51*	0.58*
<b>Distress related to unfinished business</b>	0.31*	0.31*	0.32*
<b>Total score of the unfinished business scale for families</b>	0.78*	0.88*	0.92*

\* $P < 0.001$ .

#### Concurrent validity

**Table 5** summarizes the concurrent validity results. Pearson's correlation coefficients were computed between the Unfinished Business Scale for Families and the UBBS, BGQ, and PHQ-9. The new scale demonstrated moderate correlations with the UBBS ( $r = 0.46$ ,  $P < 0.001$ ), the BGQ ( $r = 0.40$ ,  $P < 0.001$ ), and the PHQ-9 ( $r = 0.33$ ,  $P < 0.001$ ). For comparison, the UBBS correlated with the BGQ at  $r = 0.59$  ( $P < 0.001$ ) and with the PHQ-9 at  $r = 0.44$  ( $P < 0.001$ ).

**Table 5.** Concurrent validity, Spearman's correlation coefficient

Subscale	Unresolved conflict	Unfulfilled wishes	Total score of UBBS	PHQ-9	BGQ
Talk	0.19*	0.46*	0.35*	0.23**	0.28*
Action	0.29*	0.50*	0.42*	0.32*	0.38*
Message	0.40*	0.50*	0.49*	0.37*	0.38*
Total score of the unfinished Business scale for families	0.31*	0.55*	0.46*	0.33*	0.40*

\* $P < 0.001$ ; \*\* $P < 0.05$ .

Abbreviations: BGQ = Brief Grief Questionnaire; PHQ-9 = Patient Health Questionnaire-9; UBBS = Unfinished Business in Bereavement Scale.

This research introduced a new measurement tool designed to evaluate unresolved matters among family members grieving the death of a terminally ill cancer patient. The tool's construct validity was supported by the outcomes of the explanatory factor analysis. The developed Unfinished Business Scale for Families is organized into three distinct subscales named Talk, Action, and Message. The Talk and Action subscales reflect the regrets of bereaved individuals regarding conversations they believed they should have had and actions they believed they should have taken while the patient was still alive. In contrast, the Message subscale captures regrets about the kinds of communications family members wish they had shared with the dying relative. Beyond messages sent from the patient to the family, this subscale also contains an item focused on the patient's own perspective: "I wish I knew what the patient thought of me." These three subscales differ notably from the UBBS's structure, which originated in the United States. That earlier scale is built around two dimensions: Unfulfilled Wishes and Unresolved Conflicts [5]. The subscales in the new Japanese tool align closely with the Unfulfilled Wishes portion of the UBBS, suggesting a broadly shared understanding of unfinished business in both cultures.

Nevertheless, the specific themes in the UBBS stemmed from qualitative interviews conducted within American society. At the same time, the items for the Unfinished Business Scale for Families were derived from earlier Japanese studies exploring what constitutes a good death and families' experiences during the terminal phase [12–14]. Because the foundational sources differed, the resulting scale structures also diverged. This makes the Unfinished Business Scale for Families particularly well-suited to Japanese cultural realities. One potential issue worth highlighting is that the item “I wish I had expressed the gratitude I had for the patient” in the Talk subscale might reasonably fit under either the Talk or Action dimension. Subsequent investigations should therefore revisit the construct validity while paying close attention to this possible overlap.

Concurrent validity and discriminant validity for the Unfinished Business Scale for Families were found to be satisfactory. The scale displayed a moderate association with the UBBS, an instrument that targets the same underlying idea. A stronger link between the two had originally been predicted, as both address unfinished business from the family's perspective. The more modest correlation observed could partly result from the challenges some Japanese respondents encounter when responding to the culturally specific wording in the Japanese adaptation of the UBBS. Given the compositional differences already noted between the two tools, the creation of a locally adapted scale capable of precisely capturing unfinished business within Japan represents an important advancement.

In addition, the Unfinished Business Scale for Families showed only weak associations with both the BGQ and the PHQ-9. Earlier work has likewise indicated connections between lingering unresolved issues and increased depression as well as grief reactions in bereaved populations [3, 15]. These patterns suggest that successfully addressing unfinished business may contribute to lowering the risk of depression and complicated grief (CG) among family members after a loss. Consequently, possessing a reliable and well-validated instrument to measure such unresolved issues has clear practical value for efforts to ease psychological distress among grieving families. Reliability was established for the Unfinished Business Scale for Families through robust internal consistency, with Cronbach's  $\alpha$  coefficients ranging from 0.87 to 0.98, and acceptable test–retest stability indicated by ICC values between 0.63 and 0.7. Although the overall scale score demonstrated high reliability, the separate subscales showed only moderate stability. This outcome is likely attributable to recall bias, which is difficult to avoid when data are gathered from families after the patient has already passed away. Taking this context into consideration, the obtained ICC figures remain within an acceptable range.

The present study is subject to several limitations. First, the participant group was modest in size, and the average age was lower than expected in the wider population of bereaved families of cancer patients, largely because recruitment relied solely on individuals registered with a market research firm. This may limit how well the findings represent typical Japanese bereaved families. Second, the time elapsed between the death and survey completion varied, raising the possibility that recall bias influenced responses. Third, no data were collected on bereaved family members' education levels or household incomes, factors that could shape grief experiences. Fourth, since the entire investigation took place in Japan, the conclusions may not extend to other cultural environments. More extensive research will be necessary to determine how common unfinished business is and to identify associated factors by applying the Unfinished Business Scale for Families across different healthcare settings (for example, palliative care wards or specialist palliative teams) in Japan and abroad. Beyond measurement, greater attention should be given to designing supportive interventions for terminally ill patients and their families that aim to minimize unfinished business and the emotional burden it creates. The scale developed here could prove useful as an outcome indicator in future longitudinal studies that test the impact of such interventions.

## Conclusion

In conclusion, the Unfinished Business Scale for Families offers a practical, sufficiently valid, and reliable instrument for assessing unresolved issues among bereaved families in Japan. The insights gained from this work are likely to deepen understanding of the challenges currently faced by relatives of terminally ill cancer patients. Looking ahead, wider use of this scale in surveys of bereaved families will be important for detecting unfinished business. In turn, this knowledge can help healthcare professionals deliver more tailored and effective assistance to families who continue to struggle with unresolved matters.

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