

How Grief, Funerals, and Poverty Affect Bereaved Health, Productivity, and Medical Dependence in Japan

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Carl B. Becker¹ , Yoizo Taniyama²,
Megumi Kondo-Arita³,
Shinya Yamada⁴, and
Kayoko Yamamoto⁵

Abstract

Grief has been shown to weaken bereaved persons' health, but measurements of their lost time and medical expense remain rare. Funerals traditionally managed and assuaged grief through ritual expression, approval, and social support. Research suggests that satisfying funeral participation reduces grief, while poverty exacerbates it. We hypothesized that: (1) psycho-physical symptoms of grief, (2) abbreviation/dissatisfaction in the funeral, and (3) poverty, correlate with decreased productivity and increased medical and social services use. We collected data from 165 mourning families about their grief, funerals, and subsequent medical conditions. (1) Deeper grief after bereavement in Japan correlated with more physical problems, more down time, and more medical dependency. (2) Low satisfaction with funerals correlated with higher hospital, pharmacy, and counseling costs. (3) Low income families lost

¹Policy Science Unit, Kyoto University, Japan

²Department of Religious Studies, Tohoku University, Sendai, Japan

³Nakayama International Center for Medical Cooperation, Osaka Medical College, Japan

⁴Department of Folklore and Folk Culture, National Museum of Japanese History, Sakura City, Japan

⁵Department of Medicine, Tenri Health Care University, Japan

Corresponding Author:

Carl B. Becker, Policy Science Unit, Kyoto University, Yoshida Konoe-cho, Sakyo-ku, Kyoto 606-8501, Japan.

Email: becker.carlbradley.5e@kyoto-u.ac.jp

more time, while declining incomes showed increased pharmaceutical costs. This suggests that satisfying funerals and income safeguards may reduce costs of low productivity and increased public services dependency.

Keywords

grief, bereavement, funerals, productivity, health, cost, Japan, social services, medical care

As populations age, elderly deaths raise the numbers of bereaved. If bereaved grief leads to lowered productivity or health problems, this imposes costs on the national tax base. Funerals may ameliorate grief or provide social support for the bereaved, but “funeral poverty” (Walter, 2017) –as well as the Covid pandemic– obstruct the congregating of extended family and friends for traditional funeral services. These factors affect not only Europe and the Americas, but ostensibly more traditional societies in Asia as well. Although completed before the Covid pandemic, the Japanese pilot survey reported here offers insights both on the aftereffects of bereavement and also on some potential effects of funerals.

Recent months have welcomed two important studies examining the effects of funerals in Dutch and British populations. The Dutch study, reported in Boelen et al. (2019) and in Mitima-Verloop et al. (2019) polled 1307 bereaved, receiving a usable response from 476 recently bereaved, with a valuable 3-year followup from 251 bereaved. The UK study, reported in *OMEGA* by Birrell et al (2020), also reached 263 recent bereaved and 233 a year later. These statistical studies of the effects of funerals and cremation are landmarks in the history of funeral/commemoration research. Of particular interest is their tentative conclusion that funeral commemoration has insignificant effect on the grief of Dutch and British bereaved. On the heels of these studies, a research team is conducting analogous research in Japan, where commemoration and continuing bonds have long been thought important. This article reports the recently completed pilot phase of that research, which gleaned comprehensive responses from 165 recently bereaved families, asking not only about their experience of bereavement and the funeral, but also about subsequent health and medical conditions.

Review of Studies on the Effects of Bereavement

That bereavement can be debilitating is no news to anyone in the field, much less to anyone who has lost a dear one. An oft-cited review of emotional and economic costs of bereavement (Genevro & Miller, 2010) concludes that despite

countless subjective reports, few studies were evidence-based. Governments and insurance systems, however, will not pay merely to alleviate emotional pain; they need evidence of how the emotional debilitation of bereavement affects society. People working with bereaved families also need better documentation of what practices are most helpful for what sorts of people.

The debate about whether grief itself were a type of illness predates the DSM-5's dropping of its grief exclusion clause, and we need not rehearse those debates here; the latest stance of the APA/DSM-5 is that Persistent Complex Bereavement is a Disorder deserving further research, while the ICD-11 also considers Prolonged Grief a "disorder." Similarly, there is a debate about whether open expression of grief (common in America) is emotionally healthy, or whether a tendency to suppress expression of grief (as in Samoa or Japan) is an equally effective and culturally legitimate alternative (Albon, 1971; Murata et al., 2013). Regardless of the public display permitted or discouraged by different cultures, Japanese scholars now tend to echo the American dogma that some form of sharing (vociferous or private) is important in healing the trajectory of grief, but a consensus recognizes that Japanese are less comfortable than Americans turning to professional strangers for grief care (Seto, 2016, Seto & Maeda, 2019).

Effects on Health

20 years ago, pioneers like Prigerson et al. (2000) found that bereaved had significantly more physician visits and nursing home stays than a similar non-bereaved cohort. Prigerson et al. (1997) early identified that people showing complicated grief are significantly more likely to face high blood pressure, heart attack, and cancer than non-grieving cohorts. Among bereaved carers, 10% of healthcare care staff reported intense emotional and physical responses to patients' death. (e.g., Redinbaugh et al., 2003); similarly, 10% of neonatal nurses indicated that the emotional toll of caring for a *mother* with a stillbirth led them to consider giving up their obstetric practice entirely (Gold, 2008).

Bereavement's adverse effects on health and medical reliance are mediated by detrimental life-style changes, ranging from alcoholism and sleeplessness to over- or under- eating and cessation of regular exercise and social life (Monk et al., 2008; Worden, 2003). Conversely, Stroebe et al. (2007) voiced the concern that many bereaved fail to reach out for needed medical help, so the figures of people using medical services underestimate the real need. In their first year after bereavement, Japanese exhibit a 25-30% higher decline in health than non-bereaved, and 10 to 20% continue to rely on antidepressants more than a year after their losses (Tateno et al., 2011). This is of particular concern after sudden unexpected death from disasters (Seto & Maeda, 2019) and by extension Covid-19.

Effects of Good Funerals

Funeral rituals and directors have long striven to alleviate the intensity of grief. More than 35 years ago, Ken Doka suggested that follow-up services after a funeral were salutary (cf. Doka, 1984), after which Rando (1993) observed that funeral directors' interactions significantly affected the grief of survivors. Bosley and Cook (1993) showed that the memory, faith, social support, and integration or continuity expressed in funeral services improved bereavement outcomes.

In America, Gamino's (2000) study has shown that bereaved who were closely involved in planning funerals, or felt the funeral "comforting," had significantly fewer grief symptoms; this work was subsequently reinforced (Hayslip, 2007). The value of funeral rituals in reducing grief symptoms has been reiterated by Norton and Gino (2014), Long and Lynch (2013), and Deatherage (2014). Aoun et al (2015) found that male long-term caregivers and those grieving for lost children or a younger spouse were likeliest to have the highest risk for grief. Funeral directors' involvement mediated this high risk, but it remains unclear whether this means that funeral directors' interactions immediately after death long remain significant, or rather that they actively provide support long after the death. Still there are virtually no quantitative documentations of the effects of funeral rituals on reducing the costs of bereavement.

Effects on Economic Productivity and Medical Dependence

Some of the best work in recent years has been done in Australia and Scotland. Comans et al. (2013) suggests that the typical death bereaves six family and friends with a minimal cost estimated at over \$14,000 Australian. Also in Australia, Kinchin and Doran (2017) estimated that in 2014 alone, 900 suicides, 2300 incapacitations, and 11,242 short-term self-harm cases led to an economic loss of \$6.73 billion Australian; if translatable to Japan, this would imply losses of over \$200 billion per year for Japan. Melanie Fox et al. (2014) documented huge productivity losses among the bereaved: functioning dropping to 30% at one month after bereavement and only reaching 60% at six months. In 2015, Scotland estimated 55000 spousal bereavements alone to add a cost of around 20 million pounds sterling for additional inpatient stays, with a conservative estimate of 2 million pounds for additional GP medical consultations due to bereavement issues. While the evidence of fiscal losses is gradually accumulating, further work is needed to pre-identify vulnerable people, and to find the best methods to protect them or help them through their bereavement.

Bereavement in Japan

In view of Japan's aging society, the Japanese government predicts that by the year 2030, one in six Japanese now alive will have died. (2015) Since each death

is expected to affect at least six others in society, and considering that most of these elders have more than six descendants, by 2030, few Japanese will remain who have not been bereaved by an elder relative or close friend. If even a fraction of the entire bereaved population increasingly relies on medical and social welfare services, this may strain Japan's already bankrupt treasury to the breaking point. So study of measures that may reduce the medical side-effects of serious grieving becomes an urgent necessity. Japanese funerals too initiate and facilitate sharing of grief, without which depressive symptoms may persist for 5 years or more (Miyabayashi, 2005). However, the breakdown of multi-generational families, the increasing anonymity of metropolitan life, and the modernist/deconstructionist tendencies to dispense with ritual are leading increasing numbers of Japanese to abandon large traditional funerals in favor of private procedures involving only immediate family members (Kotani, 2019; Yamada, 2007). As this parallels European and American trends, in some respects, Japan may serve as a test case precursor for other societies that are also abbreviating funeral practices and are soon to follow Japan's aging population trends.

American national surveys suggest that belief in life after death buffers symptom severity in bereaved people even more than other religious indicators like church attendance (Flannelly et al., 2006). However, we lack clear data about the ostensibly less-religious Japanese population; Japanese do not attend weekly religious services, and the vast majority claim no clear belief in afterlife, while virtually everyone asks Buddhist priests to preside at the funerals of their loved ones. Strong faith in an afterlife and communication with the deceased through home altars are reputed to buffer such grief and depression, yet despite the supposedly salutary effects of such "continuing bonds," little unambiguous research has documented this (see Fong & Chow, 2017). Like their Anglo-American counterparts, modern Japanese are rapidly secularizing; most families lack the home altars and monthly memorial services that were common a generation ago, contributing to the continuing bonds literature.

From 1996 to 2015, the Japanese wake and funeral typically has moved from the family home to the funeral parlor or ceremonial hall; while ironically, the average number of attendants has plummeted from 180 to 46 (Tamaki, 2018). This average may misrepresent the polarization of funerals into "closed family funerals" with perhaps a dozen participants, and traditional funerals which still invite many dozens. Anecdotal reports suggest the salutary influences of traditional Buddhist services (Taniyama & Becker, 2014), and that inviting old friends and classmates to a funeral can reactivate a support system for the grieving survivors (Norton & Gino, 2014; Long & Lynch, 2013).

In the face of social bonds being severely weakened by family breakdown in anonymous metropolises, wakes, funerals, and memorial services uniquely facilitate the congregation of extended families and networks of friends, colleagues, and old classmates (Yamada & Suzuki, 2014), which assists many in getting

through their hardest “grief work” (Sakaguchi, 2012; Seto & Maeda, 2019). Wakes, funerals, and memorial services serve as rare opportunities permitting the public admission and expression of grief; they may constitute the only time when families can publicly announce their loss to the wider community, seek social support for the legacy of the deceased, and express their own feelings without reserve (Tamagawa, 2018). Recent experiments also suggest that listening to Buddhist Priests’ funeral chanting reduces grief among bereaved Japanese (Taniyama et al., 2019) Yet population-wide documentation of such assertions is lacking.

We hypothesized that (1) psycho-physical symptoms of grief (2) abbreviation of or dissatisfaction with the funeral, and (3) poverty or declining income would correlate with decreased productivity and with increased use of medical and social services.

The Current (Pilot) Study

Methods

The authors received a major grant from the Japanese Ministry of Education and Science to test these hypotheses by surveying bereavement trajectories in Japan. In consultation with a team of professional Japanese researchers, we created a pilot questionnaire for Japan. Unlike Europe, where some hospitals remain in contact with bereaved families, Japanese hospitals maintain no contact with families after patients die, so we had to recruit bereaved families through the network of Buddhist temple priests who preside at virtually all Japanese funerals and maintain contact thereafter. In the Fall of 2018, priests distributed 240 pilot questionnaires to mourners who had been bereaved in the previous 2-8 months, from which respondents who gave informed consent mailed back 165 complete responses, for a response rate of nearly 70%.

Questionnaires

Our first 16 questions were standard demographic items about the age, gender, and socio-economic status of the respondent and their relation to the deceased. We then asked who chose and paid for the funeral, followed by details describing the funeral itself, evaluating each procedure typical of a Japanese funeral using four choices of “very well done, better to have done than not to, better left undone, and not done.”

To measure psychological responses to bereavement, we used a Japanese adaptation of Holly Prigerson et al.’s CG-13 (2008, with grateful permission), with a 5-item Likert scale ranging from never to always, where a higher score denotes higher psychological grief. To that, we added 5 non-overlapping items from the Japanese PHQ-9 (open-access translation funded by Pfizer) evaluating

physical responses like sleeplessness, appetite, alcoholism, and concentration, to evaluate physical responses to grief.

The next section of the questionnaire was designed by the cost-effectiveness committee of the International Work Group on Death, Dying, and Bereavement in London, Ontario in 2018. To measure effects of grief on post-bereavement life, we first asked how many hours of activity or productivity had been lost due to bereavement in the past month, and subjective questions about the level of this interference. Then we asked about the number of times and amount of money spent on: (1) medical/hospital consultation, (2) use of medicine; (3) psychiatric or counselor support; (4) financial and legal consultation; (5) home care assistance; (6) bereavement support groups; (7) telephone or online support; (8) friends' and relatives' support, and (9) whether these were felt to be a significant economic burden.

We also asked open-ended questions about the design and length of the pilot questionnaire itself, to guide our redesign of the full-scale survey being conducted in 2020. The entire pilot questionnaire came to a total of 107 items—far too many, according to the open-ended comments of those who did fully respond.

After the basic responses had been anonymized, tabulated, and incomplete responses excluded, we analyzed the 165 valid and complete responses using SPSS 23. In addition to analyzing individual variables, we compiled total scores for psychological and physical well-being, dissatisfaction with funerals, and upper quartiles of many variables to seek correlations, using Excel-based modified pivot-table techniques to identify greatest correlations between quartiles (cf. Bee & Bee, 2005).

Participants

Demographic Background. The Japanese pilot sample consisted of 165 respondents with a mean age of 62 (median 64), ranging from their 20's to over 80; more than 80% were between 50 and 79 years of age. 99 (60%) were female, 66 (40%) male. A total of 119 (72%) were married, 24 (15%) were widowed, 8 (5%) were separated or divorced, and 13 (8%) were single at the time they filled out the questionnaire. The mean number of people living in the household including the participant was 2.73, ranging from 1 (n living alone = 23; 14%) to more than 5 (n = 4; 2%). More than one-third (n = 61, 37%) shared a household with only their partner, while another half (n = 81; 49%) with children, parents, and/or other relatives. In other words, very few of our sample were left living alone as a result of a bereavement, a factor boding well for social and psychological support in their grief trajectory.

Respondents' level of education ranged from mid-secondary school for 16 (10%), finished secondary school for 72 (44%), junior college or professional school for 36 (21%), a college or university degree for 37 (22%), and a post-

graduate degree for only 3 (2%). This is roughly representative of the education of this age range in Japan.

Regarding work, 66 (40%) were fully employed, 69 (42%) unemployed or retired, 8% employed part time, and 10% unspecified. The majority (88, 53%) reported annual income between 2 to 5 million yen the year before the loss, typical of Japanese families. 24 (15%) had a lower income; while 36 (22%) reported 5 to 10 million, and 13 (8%) reported incomes over ten million yen annually in the year prior to their loss. For the majority (104, 64%), this income showed no significant change since the death. It improved for only 3 (2%), while finances changed slightly for the worse for 40, (25%) and dramatically worsened for 15 (9%).

The vast majority of respondents (130, 79%) report regularly practicing some Buddhist religious rituals or prayer, with an additional 28 (17%) “occasionally” practicing such—hardly surprising since they were recruited by Buddhist priests who had presided at the funerals of their relatives.

The Loss. The vast majority of the deceased were over the age of 80 (105; 64%) at the time of death, with another 49 (30%) between the ages of 60 and 79. 74 (45%) were male and 90 (55%) female. For 100 (61%), it was one of the parents of the respondent who had died. For another 31 (19%) it had been the partner who died; for 11 (7%) the deceased was a sibling. 14 (8%) reported another relationship such as of grandparent, aunt, uncle, cousin, in-law or step-family. In 7 cases (4%) a son had died, but no one reported on the death of a friend—predictable in a society where only families preside at funerals. Most participants considered themselves to have had an intimate or close relationship with the deceased (156, 96%); only 6 (4%) not very close.

As for cause of death, 51 (31%) died of cancer; 42 (26%) of “old age” or unidentified causes; 21 (13%) of heart attack or heart failure, 8 (5%) from stroke, 8 (5%) from pneumonia, and 2 (1%) from accidents. Some 24 (15%) mentioned other causes or multiple conditions causing death. Considering the elder age of the deceased, very few of the deaths were sudden and totally unexpected. 100 (61%) died in hospitals, of whom 15 (9%) were in intensive care; 35 (21%) at home, 27 (17%) in elder care facilities, and 3 (2%) in other situations. The majority had passed within the previous six months, but 41 (25%) had passed between 6 and 12 months earlier.

The Funeral Service. Only 11 (7%) of the funerals were pre-arranged by the deceased before their passing. Of the remaining 93%, the vast majority of funeral choices (123, 75%) were chosen and/or influenced by surviving children; 39 (24%) were chosen and/or influenced by their widows or widowers; 18 (11%) were chosen and/or influenced by family other than spouses or children. In at least 36 cases (22%), bereaved widows or widowers conferred with their children and shared the costs of the funeral. In other words, most bereaved spouses

report consulting with their children, but the majority of bereaved children did not report consulting with their parents about funeral arrangements.

Including the 11 pre-arranged funerals, 51 (31%) of funerals were paid for primarily by the deceased; 78 (47%) by their children, 50 (30%) by their widows or widowers, and 12 (7%) by other relatives. Since this includes 36 cases (22%) in which two or more parties contributed to the payment, few widows or widowers bore funeral costs entirely on their own; most were likely assisted by their children or relatives. It is interesting that the decision-making influence of children and other relatives outweighed their likelihood of sole payment; 6 relatives and 45 children (totaling 31%) chose funeral arrangements that were paid or pre-paid by the deceased. 72 (48%) felt expense were no burden and another 70 (43%) a mild burden; 19 (12%) felt the funeral expense to be severe or burdensome.

Slightly more than half of our sample (88; 53%) performed traditional funerals, with a wake and significant body of celebrants not restricted to immediate family; another 71 (43%) chose small funerals restricted to immediate family. Only 3 (2%) chose a very abbreviated funeral with no wake, and another 3 (2%) chose direct cremation without any further funeral ceremony. 153 (93%) chose Buddhist ceremonies, none Christian, and only 12 (7%) chose "non-religious" or "other." While the press reports a trend towards simplified funerals, our Buddhist sample continued to choose full wakes and funerals rather than abbreviating them.

Our survey inquired minutely about satisfaction with each stage and detail involved in the funeral, viz.: last rites, washing and dressing the deceased; interaction with the funeral director; moving the body into the coffin; placing flowers/keepsakes in coffin before cremation; the altar; the memorial photo; offering flowers and memorial items; priests' ritual prayers or chanting; speech by next of kin; the ceremonial banquet; crematorium ceremonies (dividing the ashes); the memorial display (memorabilia, photos, condolence cards); and subsequent interactions with or memorial services by the priests, such as subsequent services for the maintenance of "continuing bonds" with the deceased.

The vast majority of respondents rated these items either "highly satisfactory" or "better to have done than to have omitted." 66 (40%) of our respondents did not have any form of memorial display (memorabilia, photos, condolence cards); this was the most commonly abbreviated item. The other items most commonly omitted were: chief mourners' speeches (24 = 15%); last rites, washing and dressing the deceased (15 = 9%); ceremonial banquets (13 = 8%), placing flowers/keepsakes in the coffin (10 = 6%); and subsequent memorial services (12 = 7%). However, when we subtract the 12 (7%) who chose "non-religious" or "other" services, it becomes apparent that almost all Buddhist funerals included almost all of the above elements, with the possible exception of mourners' speeches. 3 (2%) each felt that the mourners' speeches and memorial displays that were conducted *should better have been* omitted!

Future careful reading of their open-ended free response comments may provide further insight on this.

Results

Covering over a hundred variables for 165 respondents, our data is far too extensive to present here in total; in the following, we can introduce only the more significant of the correlations relating to our hypotheses.

Psycho-physical Grief and Health

In terms of psycho-physical health, multiple symptoms clustered in 15 (9%) of the respondents.

In terms of physical effects of grief, we found:

Decline in social interaction and daily activity	15 (9%)
Significant sleep disorders	15 (9%)
Eating/digestive disorders	7 (4%)
Inability to focus or concentrate	8 (5%)
Increased alcohol or drug use	7 (4%)
Movement or speech disorders	6 (4%)

The greatest clusters of psychological grief (daily or constant) were found in :

Longing or yearning for the departed	51 (31%)
Intense emotional pain, sorrow, or pangs of grief	38 (23%)
Stunned, shocked, or dazed by the loss	12 (7%)
Trouble moving on or making new friends	10 (6%)
Emotional numbness	9 (5%)
Life feeling unfulfilling, empty, or meaningless	9 (5%)

With the exception of longing and sorrow (1 and 2), the lower four psychological symptoms clustered in those 15 respondents (9%) who reported physical problems as well. If the other 14-20% of those now reporting longing and sorrow (1 and 2) continue to feel these same emotions for another six months or year, we might expect further somatic complications; this high-risk group needs further analysis.

Hypothesis 1: Effects of Grief on Productivity and Medical/Welfare Costs

In terms of work productivity, of the 79 (49%) who reported working for income, 71 (90%) reported mild to significant drop in their work productivity in the previous month. 54 (68% of the employed) reported an average loss of 18.6 hours of work in the previous month for health reasons, and an overlapping 55 (70% of the employed) reported an average loss of 19.4 hours in the previous month for non-health reasons. (See Table 1) Including the unemployed, 125

Table 1. Regression of Bereavement Grief Items With Production and Medical Costs (Items Adapted With Permission From Early Prigerson 13-Item Japanese Version).

Item	Items of bereaved grief regressed to:	Production down n 71	p	Medical cost n90	p	Pharmacy cost n 70	p
1.	Longing or yearning for the deceased	.295*	.013				
2.	Intense emotional pain, sorrow, or pangs of grief	.356**	.002			.296*	.013
3.	Sensed the feeling, voice, or presence of the departed	.430**	.001				
4.	Avoid reminders that the person you lost is gone	.265*	.027				
5.	Stunned, shocked, or dazed	.475**	.001	0.201	.057	.516**	.001
6.	A part of you died, or you want to die	.612**	.001	.439**	.000	.849**	.001
7.	Had trouble accepting the loss	.591**	.001	.345**	.001	.542**	.001
8.	Hard for you to trust others	.614**	.001			.677**	.001
9.	Feel bitter/angry about the loss	.543**	.001	.345**	.001	.628**	.001
10.	Difficulty moving on (new friends, new interests)	.509**	.001	.212*	.045		
11.	Feeling emotionally numb	.655**	.001	.266*	.011		
12.	Life unfulfilling, empty, meaningless	.498**	.001	.284**	.007	.555**	.001

Note. *p < 0.05. **p < 0.01.

(76%) of the whole sample reported a mild influence on their health and activity outside of work.

We hypothesized that the above grief factors would most greatly influence use of medical and social services following the bereavement. Detailed regressions of bereavement grief items can be seen in Table 1. Use of medical and pharmacological services rose and fell for roughly equal numbers (15 to 19; 9 to 12%), while 67% of respondents reported no change. Increases significantly overriding decreases were found in legal/financial service use (46 = 46% of responders to this question), in conferring with other bereaved (30 = 30% of responders), and in family interaction (44 = 30% of responders). Interestingly, the greatest grief-reduction and satisfaction were derived from family interaction (96 benefited and 79 would recommend), more than from bereavement groups (57 benefited and 45 would recommend) or from legal/financial services (57 benefited and 46 would recommend).

Table 1 shows correlation of grief with production losses, medical costs, and pharmaceutical costs. Of the 71 respondents reporting decreased productivity, a majority reported feeling many of the individual items in Prigerson's PG-13 Japanese scale. Of the 90 reporting medical and 70 reporting pharmacy costs following bereavement, they exhibited strong correlations with feeling "a part of me died," "trouble accepting the loss," or "bitter/angry about the loss." Since it seems more plausible that these feelings led to medical costs than that medical costs led to these feelings, this suggests *prima facie* that bereavement grief increases medical and pharmaceutical costs.

There was a significant correlation between those displaying psychological effects and those displaying physical effects of grief ($p < .001$); those in the upper quartile of psychological grief tended also to be in the upper quartile of physical grief symptoms ($p < .001$). The correlation of physical symptoms and psychological symptoms of grief with increasing medical use is detailed in Table 2.

Unsurprisingly, those who reported more physical problems (eating, sleeping, concentrating) tended to be among the quarter who took most time off work for

Table 2. Increasing Use of Medical/Social Services for Physical or Psychological Grief Symptoms.

	Odds ratio	<i>p</i>
Physical symptoms of grief correlated to:		
Increasing hospital use since bereavement	2.555	.001
Increasing pharmacy use since bereavement	14.450	.001
Increasing counseling use since bereavement	5.012	.001
Psychological symptoms of grief correlated to:		
Increasing hospital use since bereavement	2.327	.003
Increasing pharmacy use since bereavement	15.329	.001
Increasing counseling use since bereavement	6.474	.001

health reasons ($p = .049$), but even more significantly lost more time both from work ($p = .008$) and outside of work ($p = .004$) than those without physical issues. Of greater interest is that the same tendencies could be seen in those with psychological grief issues; they took most time off work for health reasons ($p = .029$), but even more significantly lost more time both from work ($p = .016$) and outside of work ($p = .005$). Within the psychological spectrum, those who felt “emotionally numb,” or “hard to trust others” showed the strongest tendencies to lose productive time ($p < .001$). So psychological as well as physical effects of bereavement clearly impact ability to concentrate on work and other activities.

Higher scores in physical grief symptoms correlated directly with medical expenses ($p = .002$), pharmaceutical expenses ($p = .031$), and counseling expenses ($P = .005$). But similarly, higher scores in psychological grief symptoms too correlated directly with medical expenses ($p = .005$), pharmaceutical expenses ($p = .041$), and counseling expenses ($P = .006$). The psychological factors of “feeling that a part of myself had died,” “feel bitter/angry about the loss,” and “had trouble accepting the loss” all had strong ($p < .001$) correlations with higher medical and pharmacy costs.

We asked respondents to compare their pre-bereavement and post-bereavement use of medical and social services. Against the doubt as to whether these people had originally been medically dependent, compared to their pre-bereavement days, physical symptoms overall correlated with a *rise* in medical costs ($p < .001$), a *rise* in drug prescriptions ($p < .001$) and a *rise* in use of counseling services ($p < .001$) after bereavement, while psychological issues also strongly correlated with a *rise* in medical costs ($p = .003$), a *rise* in drug prescriptions ($p < .001$) and a *rise* in use of counseling services ($p = .001$) after bereavement. This documents that expenses incurred after bereavement were not continuations of old patterns but expressed new tendencies of medical dependency, most likely affected by bereavement grief (see Table 2).

Our results on decreased productivity and increased medical problems and costs accord with and strengthen the previous research introduced in our literature review above.

Hypothesis 2: Effects of Funeral Dissatisfaction on Productivity and Medical/Welfare Costs

Conducting a full funeral (as opposed to an abbreviated or direct cremation) significantly correlated with overall satisfaction at the funeral. Overall dissatisfaction with funerals correlated with an increased amount of time later lost from work for health reasons. Higher dissatisfaction with funerals somewhat significantly correlated with physical symptoms of grief ($p = .038$). Those who felt most unsupported by the funeral tended to be in the group who had lost the most time from work for health reasons ($p = .038$), and similarly to be in the group who felt the worst influence or interference outside of work ($p = .046$).

Table 3 details further correlations between abbreviated funerals and medical costs, unsatisfying funerals and medical costs, and increasing medical dependence since bereavement. In economic terms, for example, those who felt the funeral unhelpful were far more likely to be in the quartile who spent more than 20000 yen on doctor and hospital appointments ($p = .020$), more than 10000 yen on pharmaceuticals ($p = .010$), and more than 10000 yen on counseling or psychiatric services ($p = .083$) than those very satisfied with funeral support services. So it appears that dissatisfaction with funerals might predict, if not cause, greater medical and counseling expenses in subsequent months.

Specifically, those with greater medical costs tended to show dissatisfaction with crematorium ceremonies like dividing the ashes of the deceased ($p = .07$). There was a strong but curious correlation between those who abbreviated or disliked the washing and dressing of the deceased and those with higher pharmaceutical costs in following months ($p = .007$). Could this have been traumatic? Comparing those who conducted full funerals with those who had abbreviated one-day funerals or direct cremations, lack of a full funeral correlated with greater loss of time outside of work for health-related reasons after the funeral ($p = .031$). Those who had no funeral or an abbreviated funeral tended to place in the top quartile of time lost for medical visits ($p = .042$) and counseling visits ($p = .016$), and in the top quartile of spending for pharmaceuticals ($p = .007$) and for counseling ($p = .014$).

In terms of continuing bonds, our questions about repeated religious rituals, representative of maintaining contact with the deceased, failed to produce significant statistical correlations.

Table 3. Correlations Between Funeral Type, Dissatisfaction, and Medical Use/Costs.

	Odds ratio	<i>p</i>
Abbreviated/no funeral correlated with the top quartile of:		
Time loss for hospital use	7.000	.042
Pharmacy costs	23.000	.007
Time loss for counseling	20.500	.014
Counseling costs	19.500	.016
Unsatisfying funeral correlated with the top quartile of:		
Hospital costs	12.718	.020
Pharmacy costs	85.929	.010
Psych/counseling costs	23.403	.083
Abbreviated/no funeral	0.237	.001
Unsatisfying funeral correlated to:		
Increasing hospital use since bereavement	6.364	.021
Increasing pharmacy use since bereavement	5.437	.049
Increasing counseling use since bereavement	12.200	.023
More physical symptoms of grief	4.412	.041

One concern becomes whether these correlations are causative or merely coincidental. It might be that people who already had poor physical or psychological health happened to choose no or abbreviated funerals, so our questions also asked respondents to compare their use of services pre- and post-bereavement. Abbreviating or doing without a funeral was strongly correlated with a *rise* in medical costs ($p = .021$), a *rise* in drug prescriptions ($p = .049$) and a *rise* in use of counseling services ($p = .023$) after bereavement. This still needs further statistical analysis, but suggests *prima facie* that abbreviated funerals might have unexpected adverse effects in the subsequent months of mourning.

Previous research introduced above suggests that satisfying funerals can buffer bereavement grief, through religious rituals, faith, and social support, while Boelen (2019) and Birrell (2020) found no such correlations. We were unable to show that positive appraisals of funerals result in positive health and productivity, but we did find that negative appraisals and abbreviated funerals correlated with lower productivity and higher medical/social service costs thereafter.

Hypothesis 3: Effects of Poverty/Declining Income on Productivity and Medical/Welfare Costs

We wondered whether those who had either continually low income (less than 2 million yen per year) or those whose incomes had suddenly dropped after bereavement would correlate with those reporting funeral costs or medical costs to be burdensome, but we could find no statistical correlation whatsoever. In other words, the “felt burden” of funeral costs and/or medical costs had no measurable connection to the poverty or declining income of the bereaved in our sample. However, those in the lowest income bracket (under 2 million yen) did tend to require more time off of work ($p = .017$) and reported reduced social activity ($p = .001$) due to health-related problems thereafter (see Table 4).

Those with low incomes, or whose incomes fell suddenly after bereavement, showed no average increase in hospital or medical appointments, but did show significant *rise* in pharmacy ($p < .001$), in counseling and psychological support

Table 4. Correlations Between Low/Declining Income and Medical Use/Costs.

	Odds ratio	<i>p</i>
Low income (under 2 million yen/year) correlated with:		
Time lost from work for health reasons	3.392	.017
Time lost outside work for health reasons	4.096	.001
Increasing counseling use since bereavement	6.000	.038
Declining income correlated with:		
Increasing pharmacy use since bereavement	10.316	.001
Increasing legal/financial consultation since bereavement	2.649	.025
Increasing counseling use since bereavement	6.250	.038

services ($p = .038$), and interestingly, in banking and financial consultation ($p = .025$) compared to prior to their bereavements, as shown in Table 4. Interestingly, those in the top quartile reporting post-bereavement lost *time* (but not money) to pharmacy visits ($p = .004$), counseling ($p = .009$), and possibly banking/financial consultations ($p = .059$) tended to report the greatest financial burdens after bereavement, but *not* financial burden for the funeral.

We might imagine that poorer families might be less satisfied with funeral expenses, or might try to work harder to make up for low/lost income, or might limit their use of other medical services for financial reasons. None of these proved true of our sample. They considered funeral expenses less of a burden, but took more time off work and spent more time in counseling than some of their richer peers. This accords with and advances previous understanding (cf. Stephen et al., 2015; Walter, 2017) of funeral poverty.

Discussion

This pilot survey was limited in part by its asking Buddhist priests to distribute questionnaires; while Buddhist priests do preside at virtually every funeral in Japan, the parishioners who completed our surveys may have been somewhat more religious than a sample less approachable by its priests. The vast majority of respondents had conducted funerals; while this is representative of Japan, we did not have enough statistical power to further focus on the trajectories of those who deliberately avoided or abbreviated funerals. Given our respondents' relatively high satisfaction with funerals and relatively good health, we were not able to document statistically that funeral satisfaction buffers the bereaved from the adverse effects of grief. However, we did find that the minority least satisfied with their (often abbreviated) funerals were the most likely to show complications and costs of grief thereafter. In order to get a broader sampling of non-religious bereaved, we recruit respondents through funeral homes rather than temples in a larger national survey still being administered.

Ideally, we should like to statistically model and attempt to trace causal pathways through which psychological and physical symptoms of grief affect medical and social service use, modified by funeral dissatisfaction and/or poverty, but the number of respondents to this pilot survey lack sufficient power to make such calculations. Many statistical regressions remain to be conducted and analyzed; this is only the first report of what will evolve into a much more comprehensive study as we gather greater data nationally over the coming year.

Our respondents made clear that 100 questions were too many; based on their open-ended comments, we have devised a shorter, easier-to-answer form for a national survey, results of which we shall publish over coming years.

This pilot data was gathered before COVID appeared in Japan, so we cannot derive direct conclusions about funerals cancelled for epidemiological or social distancing reasons. Nonetheless, it suggests that funerals have an important role

in public health; if the potential buffering effects of socially and spiritually satisfying funeral gatherings are eliminated, it remains to be seen what might function in their place. The conclusions below have implications for the drastic abbreviation of funerals due to the COVID pandemic, which challenges not only virologists and epidemiologists but also the COVID-bereaved. COVID's combination of sudden unexpected death and loss of income due to economic downturn alone would predict more difficulty in accepting loved ones' deaths. Yet COVID also renders full-fledged funeral gatherings impossible. Is this merely a sentimental issue, or does the elimination of funeral gatherings affect the psychological and physical health of the bereaved? Our data suggest correlations between funeral abbreviation/dissatisfaction and subsequent health of the bereaved, requiring further thought and care for the wellbeing of growing numbers of bereaved who are deprived of the chance of proper funeral gatherings.

Conclusions: The Take-Home Message

This pilot survey presents good *prima facie* evidence supporting the following hypotheses, at least in Japan: (1) Deeper grief after bereavement leads not only to more physical problems but also to decreased productivity, more down time, and more medical/social service dependency. Moreover, (2) abbreviated funerals correlate with down time, pharmacy costs, and counseling costs, while unsatisfying funerals correlate with increased hospital, pharmacy, and counseling costs. (3) Respondents with low incomes lost more time in and outside of work for health reasons; those with declining incomes significantly increased their dependency on pharmacies; both of these economically challenged groups tended to depend more on counseling (rather rare in Japan) after bereavement than the average bereaved. As an unexpected insight, those who reported funerals to be economically burdensome were not those with the lowest economic status, but those dissatisfied with their abbreviated funerals, who in turn reported more health problems and lost time thereafter. This is preliminary evidence to suggest that providing satisfying funeral experiences as well as safety nets for those with plummeting incomes may reduce later public costs in terms of lost productivity and increased dependency on public services. Many implications of this study remain to be clarified, for which purpose we now seek larger data sets in subsequent surveys.

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The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

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ORCID iD

Carl B. Becker  <https://orcid.org/0000-0002-4519-8837>

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Author Biographies

Carl B. Becker is a professor of Policy Science at Kyoto University, where for 30 years he has researched and taught Japanese medical and environmental ethics, terminal care, death and dying. He leads a national Japanese project investigating the effects of bereavement on productivity and medical/welfare costs.

Yoza Taniyama is an associate professor of Clinical Thanatology (spiritual, religious, and grief care) in the Department of Religious Studies at Tohoku University, Sendai, Japan. As a Buddhist priest, he worked as a hospice chaplain and has been teaching and training chaplains in Japan following the tsunami-earthquake disaster of March 2011.

Megumi Kondo-Arita is a junior associate professor and the vice director of the Nakayama International Center for Medical Cooperation at Osaka Medical College. Her research focuses on the psychology of death and life, especially in palliative and terminal care of children in Sweden and Germany as well as Japan. She garnered the Japan Qualitative Psychology Association Field Research Award for 2012, and became a licensed clinical development psychologist in 2015.

Shinya Yamada is a professor in the Department of Folklore and Folk Culture at the National Museum of Japanese History. Japan's leading academic expert in the changing nature of funeral rituals, burial systems, monuments and embalming in modern Japan, he has served as a visiting researcher at Oxford University's Nissan Institute.

Kayoko Yamamoto is a full-time lecturer in the Department of Medicine at Tenri Health Care University in Nara, Japan, specializing in grief care and spiritual education. A licensed chaplain, she is particularly interested in researching the roles and narratives of non-religious chaplains and caregivers in secular society.