

St. Luke's International University Graduate School of Public Health

Capstone Project for MPH

Longer Life or Better Life?

Requirements to Live as Being Oneself Toward the End of Life:

An exploratory cross-sectional study of Japanese 20-49 years old

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Abstract

Background: With the declining birthrate and aging population, a super-aging society has arrived in Japan. At the same time, we are entering the "100 year-of-life" with the progress of medicine and science. Increasing social security costs is a particular issue in aiming for healthy longevity, and special consideration is required for mental health care and welfare associated with longevity. However, not many studies focus on "how you want to live" until the end of your life.

Method: In June 2020, we conducted an exploratory cross-sectional online survey of people aged 20-49 to understand what people thought it takes to live as "being oneself" to the end of their lives. We analyzed the relevance of what is needed to live as "being oneself" in terms of age/gender, socioeconomic status, and the presence or absence of death-related experience.

Result: Questionnaire results for a total of 486 people were obtained. Fisher's exact test, multivariate logistic regression analysis, and CART model analysis showed that household income, age/gender, working status, and health status influence the requirements for living as "being oneself." Especially for women in their thirties, there was a statistical significance for the high need for "surrounding support" and "administrative support" for specific household income and working status.

Conclusion: Additional focus and consideration for women in their thirties must be included by policymakers responsible for building a sustainable society. For more specific proposals, additional analysis with larger sample size and association analysis to verify the strength of relevance are desirable.

Keywords: quality of life, end of life, better life, live your way, being yourself, longevity,

Abbreviations

ACP	Advanced Care Planning
AD	Advance Directives
CART	Classification and Regression Trees
EOL	End of Life
[MA]	Multiple Answer questions
NA	Not Applicable
QOD	Quality of Death
QODD	Quality of Death and Dying
QOL	Quality of Life
SDGs	Sustainable Development Goals

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Introduction

Background

Although there is a cultural tendency to avoid death-related topics in Japan, we see and hear about death-related terms and reports, such as *Jinsei-kaigi*, *Shu-katsu*, and solitary death and ending -note^a, and many others. Death is always a part of our life (Kishimi, 2017); yet, it is no longer as familiar as it used to be (Hioki, Tanaka, & Wada, 2005) with extended life expectancy and healthy life expectancy. Death is scary and fearful (Nagasaki, Matsuoka, & Yamashita, 2006), and people seem to recognize death as an event only for the elderly and sick people but not for others in society (Tomimatsu & Inatani, 2012). With the tremendous speed of evolution in science, technology, and healthcare, death may no longer be a part of the life cycle in the same way as it once was. Moreover, it may also become a sporadic experience for the younger generation to be present at their grandparents' final moment in the near future.

Speaking of Japan, as noted before, we are entering a super-aging society before the world, facing a declining birthrate and population decline at the same time. Japan's population pyramid has been changing from a triangular to a so-called 'coffin shape.' Population over 80 years old is expected to almost double that of newborn babies by 2055 (National Institute of Population & Social Security Research (IPSS), 2017). The estimated elderly^b population in Japan is to peak in the early 2040s (Ministry of Health, Labor and Welfare Insurance Bureau, 2019). With an over-aging society, it is unavoidable that social security-related costs will soon increase. Various matters such as Japan's 2025 problem and

^a *Jinsei-kaigi* means "life meeting" nicknamed after ACP in Japan.

Shu-katsu is inclusive activity for end-of-life planning, pre-departure decluttering and cleaning.

Solitary death means a death of a person, especially elderly, die quietly all alone, without being noticed. It may not be a special case in other countries, but it is one of a recognized issue in Japan.

An ending note is a document similar to "living will", but it is more of personal hope and wishes at end-of-life stage rather than official document.

^b Nowadays, it seemed to be common to use the term "older people" instead of "elderly," but for this report, the term "elderly" is used.

2040 problem^c are becoming apparent, and solutions to those problems will become critical to maintaining our social infrastructure. Now it is an inevitable phase for Japan to seriously deal with to lessen the possible impact.

The Council on Economic and Fiscal Policy and the Council of Social Security have started discussing “future social security reforms with a view to 2040” and beyond (Cabinet Secretariat., 2020). They are also promoting the public to discuss social security sustainability and the overall picture of new social security reforms, the social security for all generations. One of the leading four initiatives to achieve in new reforms is the "extension of healthy life expectancy” (Ministry Health Labor & Welfare, 2019). A healthy lifespan extension plan^d has been set as a countermeasure against expected population decline and labor force decrease (Horie, 2017).

According to the Annual Report on the Ageing Society (Cabinet office Japan, 2019), the gap between healthy life expectancy and life expectancy at birth in 2016 was not narrowed down compared with 2001. The problems of a super-aging society may not be solved unless closing the gap between two life expectancies. Suppose the average life expectancy increases as the healthy life expectancy increases; Japan may have to prepare for a super-super-aging society that is not suitable for the current or new social security reforms.

To achieve a sustainable society, lengthening healthy life expectancy seems to be essential. At the same time, it is also necessary to consider how people live in a society with well-being and have a calm end of life in peace with satisfaction when the time comes.

Extending healthy life expectancy is not a bad thing, and the public will probably take it favorably. Many older people may be able to contribute longer to society. It may also be

^c The 2025 problem is the so-called “baby boomer generation (born between 1947 and 1949)” becomes over 75 years in 2025. A rapid increase in social security costs for example of medical care and long-term care are concerned. The 2040 problem is the year when Japan's elderly population (65 years old and over) peaks. The baby boomer junior generation (born 1971-74) will become elderly, and Japan’s workforce will be 20% smaller by 2040 (IPSS, 2017).

^d This plan is set as short-term goals for 2025 (MHLW, 2019).

possible to save on social security costs.

A human's genetic lifespan is about 38 years old (Mayne, Berry, Davies, Farley, & Jarman, 2019). Our average life expectancy is over 84 years old now in Japan. We have acquired a much longer life expectancy through various developments and evolution than initially designed to be. Now the question is, do we really wish to have a longer life? Or do we want a healthier life or a more fulfilling life? Maybe we can have both; yet, what are the conditions for people to live as themselves? Are policymakers aware of how the public thinks or expects their future and future social security reforms? Most importantly, can we improve or keep a satisfactory quality of life until the end of life?

Literature Review

With the evolution of science, the values of life and death can change dramatically. However, to achieve a sustainable, healthy, and long-lived society, it may be necessary to face, accept, and think about death, which may eventually lead us to think of life and living. There are many previous studies on the view of life and death and the fear of death. Small changes in values have been reported with the times, and there are slight movements to reconsider life and living by facing "death." More opportunities to see the words Quality of Death (QOD) and Quality of Dying and Death (QODD) as pairs to Quality of Life (QOL). In social networking services (SNS), an activity called "Death Cafe" is also gradually spreading.

Hioki et al. (2005) conducted an interview survey in Gifu Prefecture on the views about life and death from 1,200 participants in the working generation (ages 30s - 50s). There was no argument about regional differences, but they assumed that the percentage of people who had not thought deeply about their own death would be even higher, given that their interest in death was not necessarily high unless death became familiar. Among those who had experienced someone's death care, the results showed that the response to death differed

according to gender and age group. To accept death, 60% of those who required medical care also requested "support for family and friends," followed by "palliative medicine," "consultation agencies," and "hospice." In particular, they discussed that death is becoming less familiar because there are fewer opportunities to think about death even from a religious and educational perspective and to come into contact with death in daily life (Hioki et al., 2005).

Various scales and questionnaires have been developed to maximize the dignity of dying people and evaluate palliative care practices and end-of-life (EOL) care. However, most of the study participants are cancer patients, the elderly, and other end-of-life patients. Caregivers, family members, medical staff, or students studying in the field were also targeted. There were also a small number of studies targeting healthy people in general. Most studies ask questions at the point of "present" or "near-death" or "final stage of life."

Hirai (2000) pointed out that there were cultural aspects hugely affecting people's perspective, and thus there should be a death scale unique to the Japanese. They have developed and validated the Death Attitude Inventory (DAI). This scale comprises 27 reliable items to measure death attitude and death-related issues (Hirai, Sakaguchi, Abe, Morikawa, & Kashiwagi, 2000).

Ebine (2008) summarized previous studies classifying a psychiatric perspective about death, a structural view of life, death as an aggregate, and an educational view of life and death. She also discussed future issues and prospects for research on the view of life and death. She emphasizes the importance of an approach to the younger generation that encourages changes in emotions and behaviors by recognizing their own death. Ebine emphasized that empirical research on life and death was still often regarded as taboo in society. However, mental health support is based on fostering the view of life and death and understanding the structural view of life and death. It could be a significant contribution to

society as a guide for us to live a better life.

Moreover, to the best of our knowledge, there were no or very few reports targeting generations who were expected to be conscious of death at the time in a specific future. Furthermore, many surveys have been conducted on "what kind of end of life you want to have" rather than focusing on "how you want to live" until the end (even though it may be just two sides of the same coin).

Objectives

This research was an exploratory cross-sectional study focusing on the people's perspectives of death and well-being towards the end of life. The primary objective was to understand what people would require in their lives and living as oneself towards the end of life 20 years from now and further. Also, we examined the support that may be needed most when the participants' required environment is not available.

The reason for targeting 20 years from now is that the elderly population will reach its peak in the 2040s. It takes time to construct the social system required 20 years from now, including legislation and dissemination to society.

This study attempts to understand the values of life and death in their 20's to the 40's. It can be used as a primary material in an aging society with a declining birthrate, which is expected to accelerate.

Methods

An online survey was conducted in June 2020. A total of 486 target participants were recruited by a commercial research survey company. Participants of this study are adults aged 20 to 49 years old in Japan, and sex^e and age have been adjusted to be in a one-to-one ratio by the recruiter.

The author created the questionnaire for this research, referring to the existing research and census questions. We compared the differences by three generations in sex, socioeconomic variables, and other variables about experiences. The survey contained 33 questions, including their current view of life and death, demands and expectations to government and policymakers, and requirements to live as being oneself to the end.

Study Design

Study design and data sources

This research was an exploratory cross-sectional study of the 20 to 49 years old Japanese population matched sex and group in a one-to-one ratio by applying a quota sampling method^f. As the target population was in the younger age groups of the general population, we decided to conduct an online survey using the Internet to collect data.

Traditional home-visit interview surveys and random digit dialing for telephone surveys had low recovery rates, especially among young people (biased due to low at-home rate among young people) (Deguchi, 2008).

To ensure anonymity and randomness, we outsourced participant recruitment and data collection to an external research survey company, Cross Marketing Inc. (established in April 2003, <https://www.cross-m.co.jp/en/>). This study's participants were the registered panels of

^e The term “sex” is used in this report instead of “gender” because we did not include other gender categories such as LGBT and others.

^f Method that allocates the number of samplings by generation and age and recruit only required number of participants.

Cross Marketing Inc. (CM Inc.). The backgrounds of the Internet usage rate and smartphone ownership rate^g in Japan support online surveys' feasibility and usefulness; we had considered a questionnaire using Social Networking Service (SNS). However, there would be a bias in the survey on friends' and acquaintances' networks. Therefore, we chose a research survey company that has registered panels. CM Inc. was selected because of the cost and response speed of outsourced work and experience conducting related surveys^h. Also, we considered platforms such as Google Forms or SurveyMonkey[®], in which we build the questionnaire screen. However, from the viewpoint of research time-frame and efficiency, we decided to outsource the data collection.

The study period was from the Institutional Review Board (IRB) approval date to March 31, 2021. The data collection period was scheduled to be 12 weeks from the IRB approval date or until the target sample size was fulfilled, whichever was shorter. Informed consent was considered to be obtained by answering the questionnaire. Although most questions in this survey were mandatory, all participants could stop or restart answering questions at any point.

Target population and sample size

Inclusion criteria for this study were Japanese males and females between 20 to 49 years old with Internet access and responded to the survey. There were no exclusion criteria. We determined six strata by sex (male and female) and age (20-29, 30-39, and 40-49 years) while constructing a survey questionnaire. Age group 40-49 years was the leading target group of this study as they would be “elderly” in the year 2040 (WHO definition of elderly starts from 65 (World Health Organization. Dept. of Noncommunicable Disease Prevention and Health Promotion, 2001)). Age group 20-29 were included as the nursing care premiums

^g Individual Internet usage rate in 2019 is 89.8%. Attribute-base 20-49 years old is over 98.0%. Smartphone usage in total is 83.4% (Figure 3).

^h CM Inc. has conducted several surveys on palliative care, disaster support, SDGs, and COVID-19.

payment start at 40 years old in Japan's current system. This group was the second target of the study. Age group 30-39 were included since their view of life changes most likely by having many life events such as marriage and childbirth, and their careers are established in many casesⁱ.

As of January 1, 2020, the population between 20 and 49 years in Japan was around 43,708,000 (Statistics Bureau, 2020). Based on the following general formula for cross-sectional study, we estimated the sample size as 486, where λ stands for the confidential interval of 95%, p for response rate, d as the standard error of 95%, and R for recovery rate set as 80%.

$$N = \frac{\left\{ \lambda^2 \times \frac{p(1-p)}{d^2} \right\}}{R}$$

According to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) (Eysenbach, 2004), there are no designated or recommended response rate values for online surveys; therefore, we decided to use 50% as the response rate in this study.

Survey Questionnaire

The author created the survey questionnaire referring to the questions and scales used in previous research and census. The survey contains 33 questions, including current perspectives of life and death, demands and expectations to government and policymakers, and requirements to live as being oneself to the end. The answer methods were anonymous, single answer choice, multiple answer choices, and direct input (some questions with ages and free text) answers. Baseline information of age, sex, and residential area are the preliminary questions and the pre-screening questions for CM Inc. For full survey questions and precise setting rationale, refer to Appendices 2. (Questionnaire in Japanese). Noted that

ⁱ The average age of first marriage and the average age of childbirth of the first child in Japan is around 30 years old. It does not mean that life events that change the way of life do not occur in other age groups.

this study is exploratory, and the carryover effect has not been verified for research purposes.

The online survey pages were designed after the IRB approval. A total of 34 pages were set, including a page for explaining the study and the survey. The questionnaire is grouped into six classes, as shown in Table 1; however, that view was not shown to participants.

Class 1 included independent variables for all other class questions. The questionnaire contained the participants' socioeconomic status, working status, expertise, housemates, income range, and health status. It had the essential factors regarding death; we included nursing or death care experiences and the experiences of facing death or having-prepared for one's own death.

Class 2 was a group about the current views of life and death. Questions included death and dying, personal death and dying, consideration or preparation status of living as oneself until the end of life, and to whom, when, and how to convey one's thoughts. This class was set to understand differences in perspectives of death of the current generation. It is also to confirm the similarity with previous studies and support the reliability of the obtained data.

Class 3 was the main objective of this study. It asked participants to picture themselves 20 years from now (the year 2040) and to tell us what they value most in life. It also asked about the demands and expectations for policymakers. Moreover, it asked about the personal forecasting of average life expectancy and the age to start receiving a pension in 2040.

Class 4 had one preliminary question and two questions about situation settings. In this class, participants were asked to assume they were age 70. A preliminary question was set to assist participants in imagining the future of being 70 years old. It listed options related to changes in a social structure that could be expected in the future. For two situations, setting

questions was to explore participants' behavior about medical consultations and medications and examine life and death decision-making from a health economics perspective.

Class 5 was developed to address concerns of a bias regarding COVID-19. We inserted a question for participants' possible value changes due to COVID-19. The question was if their values of "living" or "dying" have changed their answers to the questionnaire due to COVID-19.

Class Extra was the optional questions not necessarily required to achieve the objectives of this study. Questions were for participants to be ready for the following death-related sensitive questions. We prepared two preliminary questions to see the participants' awareness of several terms. The terms related to death, social problems, countermeasures, and policies are listed. We selected terms randomly somewhat reported by the media these days without using any designated methods. In addition, at the end of the questionnaire, we collected a free text answer about any expectations, requests, or suggestions regarding Japan's medical system and medical policy in 2040.

Data Management

We set the exclusion criteria for the dataset to be the surveys not fully answered. Response time cut-off^j or incomplete answers were excluded. CM Inc. performed pre-data cleaning with straight-line cut^k, excluding if participants selected the first or last item to all questions. It was CM Inc.'s role to exclude duplicate responses from the same person. CM Inc. systematically randomly assigned and sent a survey request to the registered panels.

The survey was to be completed as soon as the target number of cases was collected.

^j Response time cut-off is to exclude respondents with extremely short response times. The answer time to be excluded is at the discretion of the research survey company, and details are confidential.

^k Straight line cut-off is to exclude respondents who answered the same line answers for all questions. Although it was considered that the answers to all the questions would be the same line by chance, the detection rate in the past results was as high as 30%. With the cost and feasibility in the survey period, the same line answers for all questions were excluded for this survey.

CM Inc. agreed to respond to any inquiries during the research period regarding online settings and data collection. CM Inc. performed baseline data cleaning before delivering raw data to the author. No missing data was expected.

From the provided raw dataset, data cleaning and correction measures were conducted. The analysis dataset was created for each new statistical analysis from the copied fixed dataset file. All the files were named appropriately in a manner of date and purpose of the analysis as a record.

Statistical Analysis

The purpose of this analysis was to investigate the association or correlation tendency between socioeconomic and experience variables (Class1) and requirements of living variables (Class 3). All the data obtained were used. No interim analysis or data monitoring procedures were applied to this study.

In the first step, descriptive results were summarized. Next, Fisher's exact test was performed to evaluate intergenerational differences on nominal variables. Multivariate logistic regression analysis was conducted to adjust all potential confounders. Variables were converted into sub-categorical variables for evaluating the general relevance based on the odds ratio (OR) and 95% confidence interval (CI). Also, to visually investigate the magnitude of importance of explanatory variables to the primary outcome, the classification and regression trees (CART) model was applied (Breiman, Friedman, Olshen, & Stone, 1984).

All statistical analyses were conducted with R software version 3.6.1 (2019-07-05) using "RcdmrPlugin.EZR (ver. 1.41, Rcmdr version 2.6-1)" packages (Ihaka & Gentleman, 1996; Kanda, 2012).

Ethical and Other Consideration

This study protocol was approved by St. Luke's International University Research Ethics Committee on May 26, 2020 (20-R026: Exploratory cross-sectional study; Internet survey of 40-69 years in 2040 -What you need to be yourself until the end of your life-). The author had completed all educational requirements for conducting the research. The author personally absorbed the research expenses. No conflict of interests (COI) to declare.

Informed consent

Informed consent was given by checking the checkbox at the end of the page after confirming the opt-out clauses. When participants were to start the questionnaire, an explanation page, including opt-out clauses, was posted on the top screen. Explanation included the study purpose, subjects, number of questions, estimated time to take (15-20 minutes), the outline of questions, IRB approval, research institution, COI disclosure, incentives, secondary data use, and personal information protection. There were no contact points between the researcher and the participants, nor were there any researchers' incentives to the participants¹. Research participants were identified (ID number) by order of their response, and CM Inc. would not provide data to identify individuals. The researcher did not obtain personal information except age. Also, no sensitive data connect to pinpoint individuals were acquired.

Participation in the survey itself was voluntary. All participants had the right to choose to participate in the survey or not. They could stop or restart the answering question at any point. By showing the outline of the question at the beginning of the questionnaire, participants were encouraged not to participate if there were any difficulty answering questions. Also, opportunities were always available to voluntarily stop answering even in the

¹ Participants might have received reward points from CM Inc. for their cooperation in the survey (CM Inc.'s usual protocol for the participants).

middle of questions. However, the answer at that time would be deleted entirely.

Withdrawal of consent

In this research, the researcher entrusted the research survey company to collect data, and the collected raw data was provided to the researcher in an anonymized state. Hence, the withdrawal of consent could not be accommodated. Since we did not have the participants' contact information, it was not easy to guarantee participants' opportunity to withdraw after the raw dataset was provided. As in the previous section, by showing at the beginning of the questionnaire, we encouraged participants to consent after careful consideration. The same applies to consent for secondary use of this research data in future research that is not planned at this time.

Ownership of data

The ownership of the data obtained from this research belongs to St. Luke's International University. However, the author has priority over the use of the data obtained in this research, and no other person will use the data without the author's consent. The author has full access to all the study data and has final responsibility for publication.

The original survey questions, online survey image, and raw dataset were available to researchers by contacting the author after January 1, 2022. Note that all information was in Japanese as our target population was Japanese. It would be desirable to have the purpose of data use and research protocol for sharing data. The deliverables of shared data will be requested.

Guidelines for quality of data

This report was finalized by referring to the Strengthening the Reporting of

Observational Studies in Epidemiology (STROBE) (von Elm et al., 2007) with an additional content check using Improving the quality of web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) (Eysenbach, 2004).

Results

CM Inc. conducted the online survey on June 5-6, 2020. CM Inc. started the survey distribution via e-mail on June 5, 2020, at 22:00 and completed collecting all required 486 data on June 6, 2020, at 17:30. The raw dataset of Microsoft Excel (338KB) was e-mailed to the researcher on June 8, 2020, at 13:46. The screening was conducted on 735 (designed to be up to 1,000 screenings) in the order of responses. After confirming all data are clear to use without missing data, the original dataset for analysis was created and fixed on August 10, 2020 (Table 2).

Study Population and Response Rates

From 1,310,400 registered panels aged 20-49, CM Inc.'s randomization protocol randomly sent out survey invitation e-mails to 8,421 eligible participants. With the pre-screening protocol of CM Inc., 735 opened the e-mail and accessed the survey site (viewed rate 8.73%), and of those, 535 thoroughly answered the questionnaire (participation rate 72.79%). The straight-line cut left 486 participants' data (completion rate of 90.84%), including 81 observations in each stratum. The flow diagram of participants' recruitment is shown in Figure 1.

Participants' Characteristics

The participants' characteristics are displayed in Table 2. Their median age was 35 years old (interquartile range of 28-43, Mean: 35.05, SD: 8.50). For socioeconomic status, the working population accounted for 61.1% of the total, and the majority (77.0%) were not in medicine or IT. The vast majority (90.8%) identified as healthy and relatively healthy. For household income in 2019, 32.5% earned 3 million yen to less than 6 million yen. The proportion of all other income ranges were similar, around 16% respectively. The majority

(73.7%) lived with someone, such as families, relatives, friends, and more. Most had neither faced nor prepared for death (73.9%) nor had the experience of nursing or death care (81.7%).

Class 3, our primary endpoint, required the participants' imagination of 20 years from now. The median of Japanese people's life expectancy in 2040 was imagined to be 85 years old (interquartile range of 83 - 90, Mean: 85.21, SD: 12.70). The pension start year's median age was 70 years old (interquartile range of 70 - 75, Mean: 71.08, SD: 7.75). The mean expected life expectancy was at 88.74 years for the highest in the female group in their 30s, and 82.68 years for the male group in their 20s, which was the lowest (Table 3). Imagining 2040, 57.0% of participants choose a sudden death, and 43.0% preferred gradual death.

The requirement to live as being themselves, the majority was healthy (67.5%). The "financial margin" was 54.9%, and "my own living environment (clothing, food, and housing)" was 46.1%. On the other hand, a minority of participants chose "financial support of the government" and "enhancement of administrative medical and welfare system," which had 13.8% and 14.4 % responses, respectively. For questions about assistance, if the required requirements are not met, 29.8% of participants responded that they need to understand family and people close to them. Financial support of the government of 23.9% comes next. The full set of demographic characteristics is listed in Table 4.

Current views of death and dying in Class 2 were that death itself is inevitable due to nature's providence (25.9%). Regarding options including feelings of being scared or afraid, 18.5% of participants are scared or do not want to think about it; 16.0% responded death itself or the process of dying, 13.4% not knowing what it would be like after death, and 6.8% not being alive any longer. Regarding personal death, 22.6% answered it is okay to accept death as long as they do not suffer from pain and 14.8% of people said it is acceptable if their

own death does not bother their families and friends. Some respondents said that farewell with their family and friends would be painful and sad (13.4%), but at the same time, the same proportion said that it was a natural providence.

For the current view of “live as being oneself” towards the end of life, multiple responses could be given; 46.9 % of participants chose that death always comes to everyone equally, and 40.5% agreed people have the right to live as well as to die in their way, as being themselves. It is also an individual’s right to choose how they want to live in their own way until the end (31.9%). 1/4 of participants wish to live with dignity until the very last day of their life (24.1%).

34.8% of the participants answered “yes” as to whether they had considered their own way of living towards the end of life. 38.1% said “no,” and 27.2% responded as no meaning to think or not wanting to think. About the timing to start thinking of the intention to “live as being yourself,” 24.5% answered that there is no need to think about it. As they get seriously ill or injured, around their parents dying had the same score of 14.8%.

About the timing to start preparing to “live as being yourself,” 23.5% answered that there is no need to think about. 21.0% of the participant would start preparation when they feel difficulty moving their body as they want and 10.9% had already implemented preparation. When children gain independence accounted for 11.1% and get seriously ill or injured (11.1%), and similarly when their parents were dying (12.3%). 101 participants (20.8%) answered that there is no need to think about the above questions.

More than half (53.7%) of the participants considered conveying their hopes and wishes to "live your way" until the end of their lives was for "family/spouse, close relatives/friends," and then 37.2% responded "do not convey/do not want to convey."

In terms of timing to convey hopes and wishes, 26.1% answered that as long as they think they can convey their exact intention. As a way of conveying your intention, 38.1%

determined they would see and speak directly or use a device such as a videophone to look at faces directly, and 39.7% and 36.0% of participants preferred not to tell anyone in terms of timing and means to convey their hopes, respectively.

56.6% answered relatively okay to indicate their intention to live if there is a space on the back of a driver's license or health insurance card. For the best way to register/renew your manifestation of living hopes and wishes, 24.7% answered the timing of renewing an ID card such as a driver's license. The use of a databank with identification/ password that could be updated as needed accounted for 24.5%, and renewal by annual notification from a company or local government was preferred for 20.2%. However, 29.0% stated that it is better not to manifest their end wishes in the first place.

Class 4 was based on decision-making questions. Participants were asked to imagine being at the age of 70. The most common answer to the multiple-answers question was the mandatory retirement system would be gone (33.3%), and 31.7% expected that nursing care using nursing robots would be widespread. 29.8% imagined that AI and IT technology would manage a personal health condition, and 27.4% responded that new forms of long-term care and nursing of AI and IT technology would be standard.

To the first situation based decision-making question about being diagnosed with a cold, 60.5% of participants answered they would go home and stay rest following physicians' orders. 20.7% of participants answered that they would take cold medicine (prescription request and OTC medicine purchase), and 10.3% wanted antibiotics (prescription request and taking residual medicine). On the other hand, 16.8% of respondents answered that they would obtain the desired drug-seeking re-examination at another hospital and purchase OTC drugs.

The second situation based decision-making question was about medication intake and daily activities where 37.2% hoped for life without medication, gradually getting weak,

but would live until 95 years old. Some, 24.7 %, hoped for life with five types of medicines daily, some restricted activity of no more than 30 minutes a day, but live a healthy life for 10-15 years. Another group, 22.8%, hoped for a life with two types of medicines daily, some restricted activity of no more than 15 minutes a day, but live healthily for 15-20 years. Fewer still were 15.2% who hoped for life with ten medicines daily, with some restricted activity of no more than 60 minutes a day with their life span unknown.

Regarding the impact of COVID-19 on their perspectives changes (Class 5), 42.2% said the values of living or dying have changed. By gender, only the females in their 30s answered that their values had changed (45/81, 55.6%).

As preliminary questions to make participants ready for more sensitive questions, awareness of two sets of terms was presented. Combining all 29 terms, over 70% of participants recognized “euthanasia (78.8%)”, “end of life planning (*shu-katsu*) (73.7%)”, “life expectancy (71.0%)”, and “solitary death (*kodoku-shi*) (71.0%).” Participants awareness of terms less than 10 % were the following seven terms: life meeting (*jinsei-kaigi*) (9.9%), peaceful death (*heion-shi*) (8.2%), polypharmacy (5.3%), social prescription (*shakaiteki-shoho*) (4.5%), health literacy (3.7%), advanced care planning (ACP) (3.3%), advanced directives (AD) (2.1%). In the first set of 14 terms, 11.5% never heard of these terms and 13.6% for the second set of 15 terms.

Inferential Analysis of the Primary Endpoint

The primary endpoint (Class 3) includes what people value in life when thinking of 2040. In the six strata of three generations and two sex groups, comparisons for Class 3 variables were conducted using Fisher's exact test (Table 5). The average life expectancy in 2040 ($p=0.03$), the starting age of pension plan in 2040 ($p=0.02$), and the preferred way of dying ($p<0.01$) were statistically significant. Also, the requirement to live as being yourself, "suitable medical/long-term care support system" and "health maintenance/prevention support system" had a significance of $p<0.05$ and $p=0.02$, respectively. Other variables in Class 3 did not show differences in the six strata.

Table 6-1 shows the results of Fisher's exact test of Class 3 by Class 1. Both categories were sub-categorized to see the full overview. The requirement to live as being oneself in Class 3 was sub-categorized into five ([a] myself, [b] surroundings, [c] administration, [d] two of above, and [e] all of the above). For Class 1, the following socioeconomic status was divided into two groups: (a) the working status: "working," or otherwise, profession/field of expertise is "others," "medical," or "IT related," and (b) health status is "relatively healthy" and "relatively not healthy." Also, nursing or death care experiences and facing or prepared death were summarized into "yes" or "no." On the other hand, household income was kept in 5 categories. As a result, the working status by group ($p=0.04$) showed association with the requirements to live as being oneself towards the end of life overall.

Also, in Table 6-2, a relation to the support needed when the requirements are not acquired was observed. In support of reviewing their own living environment, housemates had an association of $p = 0.02$. There was an association between the "working status" by group ($p = 0.04$) and housemates ($p < 0.01$) in understandings of family. When looking at the requirement to live as being oneself, the sub-category "myself" had an association with working status ($p = 0.01$), household income ($p = 0.01$), and experience on facing or

prepared death by group ($p = 0.04$).

The sub-category “surroundings” showed a relation to household income ($p=0.04$). “Administration” group had shown an association with working status ($p<0.01$), working status by group ($p<0.01$), health status ($p=0.01$), health status by group ($p=0.03$), and experience on facing or prepared death by group ($p=0.03$).

The omitted variables that exhibited no statistical significance on any of the variables were the requirements in Class 3 (a sub-category of d and e, support needed), financial support of the government, support for reviewing how to connect with society, and enhancement of administrative medical and welfare system. Non-significant Class 1 variables included profession/field of expertise and nursing or death care.

We performed multivariate logistic regression to examine Class 3 variables' association and socioeconomic variables in Class 1 (Table 7). Except for the “Requirement: surroundings” group, the likelihood ratio test was $P < 0.05$. The generalized variance inflation factor (GVIF) was less than two in all items.

Household income in the 6-9-million-yen group showed an association with the average life expectancy in 2040 to be 84 years old or above (OR = 2.78, 95%CI: [1.19-6.34], $p = 0.02$). Female in their 30s and non-medical non IT-related profession had similar tendencies but not statistically significant (OR = 2.09, 95%CI: [0.90 - 4.86]. $p=0.09$; OR = 1.70, 95%CI: [0.92 - 3.14], $p = 0.09$) respectively. Health status of "relatively not healthy group (some impact or great influence on daily life)" had an association, but in the opposite direction (OR = 0.48, 95%CI: [0.24 - 0.98] $p = 0.04$). The non-medical non-IT profession had a high association with the starting age of pension plan in 2040 to be over 65 years old (OR = 3.23, 95%CI: [1.13 - 9.24] $p = 0.03$). People who had never experienced nursing or death care also had a relation (OR = 2.83, 95%CI: [1.00 - 7.99], $p < 0.05$). On the other hand, females in their

20s responded that their age would be less than 65 years old (OR = 0.23, 95%CI: [0.06 - 0.91], $p = 0.04$). "Relatively not a healthy group" also showed the negative association (OR = 0.21, 95%CI: [0.06 - 0.70], $p = 0.01$).

The preferred method of dying, "sudden death," was associated with all groups except females in their 20s. The highest association was shown in females in their 40s (OR = 3.29, 95%CI: [1.66 - 6.50], $p < 0.001$) compared to males in their 20s as reference.

Regarding the requirements to live as oneself for the sub-categorized requirement groups of five mentioned above, (d and e), no associations were shown in any variables, therefore omitted. Also, there was no statistical significance in age and sex differences. There was a negative association with the requirement "myself" group in the household income 6 - 9 million yen (OR = 0.40, 95%CI: [0.19 - 0.85], $p = 0.02$) and income unknown group (OR = 0.38, 95%CI: [0.19 - 0.77], $p = 0.01$). The "relatively not healthy" group also showed less relation (OR = 0.38, 95%CI: [0.18 - 0.79], $p = 0.01$). People who never had experienced Facing or prepared death also had less association (OR = 0.48, 95%CI: [0.26 - 0.87], $p = 0.02$). Household income of 6-9 million-yen group and unknown income group had a high association with the requirement "administration" compare with the reference "< 3 million yen" group (OR = 5.11, 95%CI: [1.17 - 22.30], $p = 0.03$; OR = 5.16, 95%CI: [1.35 - 19.70], $p = 0.02$, respectively). The "relatively not healthy" group also had a relation (OR = 3.61, 95%CI: [1.35 - 9.61], $p = 0.01$). People who never had experienced Facing or prepared death also had a high association (OR = 4.56, 95%CI: [1.25 - 16.70], $p = 0.02$). The "relatively not healthy" group also had an association with the requirement "surroundings" group (OR = 2.62, 95%CI: [1.03 - 6.68], $p = 0.04$) compared with the reference "relatively healthy" group. Except for the requirement "surroundings" group, the likelihood ratio test was $P < 0.05$. The GVIF was less than two in all items.

When including the question of "the support needed when the requirements are not

acquired” as an explanatory variable, the results were similar (Table 8). Moreover, the difference between the odds ratio and the p-value for each category was slightly yet clearly separated. The likelihood ratio test was $P < 0.05$, and the GVIF was less than two in all items. There were not many associations shown on the additional analysis; yet, in the “Supports of a family (understandings and supports of family, spouse, and partners),” negative association was observed with the requirement “myself” group (OR = 0.53, 95% CI: [0.28 - 1.00], $p < 0.05$). Conversely, there was a positive relation to the requirement “surroundings” group (OR = 2.57, 95% CI: [1.03 - 6.42], $p = 0.04$).

The CART model decision tree analysis was performed to visually investigate the relationship between Class 3 and the attributes of age/gender group and Class 1 (socioeconomic status). The attributes of Class 3 are used as objective variables, and the attributes of age/gender group and Class 1 are used as explanatory variables (Figure 4). Some variables were divided into two groups, in the same way as the other inferential analysis.

The age/gender group was the root node to classify the presumed average life expectancy of 2040 (Figure 4-1). The relatively healthy group of the 20s and females in their 30s responded that life expectancy would be higher than the current status. Male participants in 30s/40s and females in 40s whose household income was between 6-9 million yen also think their average life will be longer than predicted.

An intergenerational difference was shown between the 20s and 30s/40s upon the preferred method of dying (Figure 4-2). In the age 20s group, there was the second node of income, and income groups of “less than 3 million,” “3 - 6 million,” and “9 million and more ” preferred gradual death rather than sudden death. On the other hand, the income group of “6 - 9 million” and “unknown” in their 20s answered similar to the 30s/40s showing a tendency to

prefer sudden death.

Regarding the requirements to live as being oneself, a sub-category of “myself” was higher than other sub-categories regardless of the classification except for one branch. Node eight ($n = 12$) was the female age 30s with an annual household income of “3-6 million yen” categorized themselves as not working. This group required more “surroundings” and “administration” to live as being oneself (Figure 4-3). There were some variables with only the root nodes, although the parameters were adjusted to $cp = 10^{-24}$; therefore, no additional information was obtained.

Inferential Analysis of Other Categories

The analysis for Class 2 and Class 4 will be summarized, including medical policy and health economics aspects will be summarized, and a paper will be submitted to the relevant journal.

We gave an oral report of Class 5 regarding the COVID-19 question at the Japanese Classification Society annual meeting held on November 7 – 8, 2020 (Yano & Hayashi, 2020). The report focused on the COVID-19 impact on the survey results based on participants’ value change using the effective reproduction number (R_t) of COVID-19 by comparing geographical differences. Yano (2020) reported that a statistical difference was observed in the “household/childcare” group and the females in their 30s. Both groups answered that their perspectives of living and dying have changed due to the pandemic. Upon logistic regression, there was no difference in the geographical distribution of COVID-19 spread or not. With additional analysis to identify important factors and examine the strength of their relevance, Class 5 results are to be submitted to the relevant journal.

For Class Extra, a recorded oral presentation was given at the Health Humanities Conference held on October 23 - November 23 (Awareness of people in their 20s to 40s in an aging society of 2040, C000131, 10 - 19) (Yano, 2020). Male had more awareness of societal

issue related terms, whereas female recognized more terms related to terminal care. We plan to summarize the free text analysis results and the data from the “Class Extra” for submission to the relevant journal.

Discussions

This research was an exploratory cross-sectional study focusing on Japanese people ages 20 -49 to understand what they might require for living as oneself towards the end of life. Also, we examined the support that might be needed most if the participants' required environment was not available.

General Observations

The 486 participants are about 5.8% of the possible candidates who had the opportunity to respond to the e-mail. There is not a clear definition of a response rate in an online survey, especially using a research survey company. Relatedly, it is desirable to treat the response rate as a reference value only because the research companies, including CM Inc., terminates the recruiting process when the target population reaches the required number (Eysenbach, 2004). With the 'first come, first serve,' approach we cannot determine a consistent denominator and the numerator for an online survey response rate.

Observing Class 1, for the working status, participants have selected the most applicable one. For example, in the students' case, 17/31 that the income was less than 3 million yen or unknown. However, working-students are possibly included since 14/31 answered that the income is also 3 million or more. Similarly, for other working status options, part-time jobs and side jobs could apply to all of 1-5. For this reason, we consider working status as to how respondents perceive themselves, not just attributes. The profession/field of expertise was set up to distinguish between medical fields, IT / information engineering/science, engineering fields (the so-called science field in general), and other occupations. According to a basic school survey by the Ministry of Education, Culture, Sports, Science, and Technology, the ratio of science university students and

graduate students has been around 30% (e-Stat, 2017). Therefore, the survey result had a reasonable ratio.

We did not set an exclusion criterion regarding health status because we assumed that unhealthy participants would not respond. However, 9.3% of the respondents said that their health status affected their daily lives. The analysis was carried out without any particular exclusion with the assumption of some effect on the results. For comparison, the household income in 2019, for the median wage structure statistical survey indicated earnings of 2.4 to 4.56 million yen for people in their 20s and 50s, and 3.5 to 3.6 million yen for all salaried workers (Ministry of Health, Labor and Welfare, 2019). The Capstone survey did not include people in their 50s, so that it may be a little low, but it can be said that the results are generally reasonable. According to the census results, 34.6% were single-person households in 2015 (Statistics Bureau, 2020). In this survey, 26.4% were living alone. The question was set to understand living status with someone, not just the family but friends and partners. The result is considered to be acceptable.

Interestingly, respondents have more experience in facing death and preparing for death than in nursing or death care. However, Japan has many natural disasters, and they may face life-threatening disasters more than long-term care and death care; therefore, it is complicating and complex, but not a notable result.

From the aggregated results of Class 3, there is no notable difference when looking at each requirement side by side. However, it seems that the range of responses to each element in the female in their 30s is more extensive than other groups.

The average life expectancy in Japan in 2018 was 84.21 years in total (81.25 years for males and 87.32 years for females), and it was expected that it would not change much even after 20 years. On the other hand, the start of pension benefits is expected to be around 70

years old, up 5 points from the present. This increase may be due to the stipulation of employment obligations up to the age of 70, which is planned for April 2021. In all cases, the females, in their 30s, forecast value is the highest. It is considered that the generation and gender have a greater range of changes in values, including changes in the living environment and working conditions. Sudden death (*pin-pin korori*) and debilitating death (*nen-nen korori*) were questions set for 20 years later, but they probably reflect the current perspectives of the participants. Looking at the age and gender groups, both males and females tend to choose debilitating death in their 20s and sudden death in their 30s and 40s. This difference may be a sign of changes in values that accompany their experiences in society.

Regarding "requirements to live in their way," health, financial margin, and living environment (clothing, food, and shelter) are the top three among the items related to oneself. The results followed by 42.8% of "having fun such as hobbies," which was also the items related to oneself. The element of "obtaining correct knowledge and information" was as low as 22.8%. Although it was included in the items related to oneself in this analysis, there was no particular effect on any subgroup, so it may not have been a useful element. Exclusion may be considered for additional analysis.

At the order of the highest response rate, self-help (myself) was the most common, followed by mutual help (surroundings) and public help(administration). This way of thinking might be ingrained in Japan's disaster-prone country, or we could summarize it as Japan's unique cultural background. Interestingly, the most common answer was "understanding and supportive of family members (surroundings)" when the "requirements necessary for living as oneself" were not obtained. Next, many respondents answered, "public financial assistance/administration (administration)," followed by the support for reviewing their own living environment (myself), enhancement of the medical welfare system, and support for connection with society. In this order, there may be something in common with

the way social security has been up to now. Beginning with the family's understanding and support in the smallest unit of society, we will once review our living environment while receiving public financial support and assistance.

In addition to that, we will enhance the medical and welfare systems on a slightly larger scale and strengthen society's ties as a whole. A possible concern is how well the "family," the smallest unit of society, is maintained in 2040. According to the "Future Estimate of the Number of Japanese Households (National Estimate) 2018 Estimate", the proportion of single-family households in 2040 is projected to be about 40%. It is unclear how much the respondents to this survey could have imagined that they would become "single-family households" (National Institute (IPSS), 2018).

In Class 2, which summarizes questions about the view of life and death, 25% of the total chose the response of death itself to be unavoidable, while 54.7% of the respondents responded about feelings of fear. We do not know if death is truly fearful or not until we die, but notably, more than 50% of the respondents have some fear of death. On the other hand, regarding one's own death, 50.7% of the respondents accept death under certain conditions, such as no suffering and no inconvenience, including the answer that allows death as a natural process. We expected a more apparent difference depending on this survey participants' age, but there was no significant intergeneration difference. Surprisingly, there were many answers that it was not necessary to think about the two questions about death regarding when to convey the hopes and intentions to live as oneself until the end. The number was high in the three male and female groups in their 20s, but not wanting to think about death decreases as the age increases (the number of respondents who say that it is better to think about it increases).

To avoid later conflicts, it would be desirable to publicly document the living-will,

such as a notarial act or a will; however, over 50% preferred to convey people close to them. Only a total of eight people (1.6%) answered that they would tell their intention to public institutions or lawyers. Remarkably, 37.2% responded that they would not tell anyone (or no one to tell). It is said that in 2040, about 40% of Japanese will be single-person households. It would be interesting to compare whether they are living alone or not by people saying, "I do not want to tell, or there is no one to tell."

The manifestation of intention to live as being oneself towards the end of life was more positive than expected. In particular, more than 60% of females in their 30s and 40s answered relatively yes. Currently, the active use of "My Number Card" is being considered. It would be better to include a column that describes a living-will in case of emergency and expressing the intention to donate organs. It would be convenient to update it along with your health insurance card or driver's license. Managing all the data electromagnetically, matching of bone marrow and organ transplantation will be quicker. Emergency contact with families and friends could be smoother.

It is most acceptable to match information regarding the registration/update of information when people renew their driver's licenses and ID cards. Depending on the generation, updating information using smartphones and newer technology is preferable. From the aspect of information management, it may be possible to consider collecting information in a dedicated data bank.

On the other hand, about 30% of the respondents gave a negative answer to leaving the information about their final way of life just in case. Besides, throughout Class 2, approximately 30-40% of the participants answered that they did not need to think about it. There were no significant differences in age and gender.

Class 4 is based on projecting being at the age of 70. The 20 years old had to project

50 years later to be 70, and the 49 years old projected only 21 years later. Therefore, their future image will be different, and interesting results may be seen in comparing age groups. We prepared promising options for society changes at that time, but the results made us think it was relatively realistic. Other answers seem to be scattered; at most, it was about 33%. The impression is that everyone is not expecting much. It might have been that the question needed to be evocative to help participants image the future scenario a little more. It might have been confusing to understand whether participants were 70 years old as of 2020 or should they assume that they were 70 years old in 2040.

As polypharmacy begins to become a problem, it is set up to examine consultation and medication behavior. It is also considered useful as a question for the respondents at the time of the survey. It was higher than expected, but 60% said they would go home and stay at rest as the doctor said whereas, 20.7% of participants answered that they would take cold medicine (prescription request and OTC medicine purchase). Only 10.3% of respondents answered that they were taking antibiotics (prescription request and taking residual medicine). On the other hand, 16.8% of respondents answered that they would obtain the desired drug (revisit another hospital and purchase an OTC drug). Thorough education with these three groups may help prevent polypharmacy in the medium to long term.

The last question in Class 4 is set from a medical, economic point of view, under certain conditions, to examine how people compromise between medication intake and daily activity and consider the value of life and death situations. It was remarkable that about 40% chose the course assuming normal debilitation (although no medication was a condition). More responses were expected to have participants active for about 60 minutes, even if taking ten types of medicines daily.

About Class 5, we expected a slight change in the values related to the view of life

and death, but the result was that it did not affect much (less than 60%) of the people. However, this survey was conducted in early June 2020, shortly after the “state of emergency” was lifted (May 25, 2020) in Japan. Given the status of COVID-19 infection at the time of the survey, changes may be observed, for example, if a similar survey were to be conducted simultaneously in 2021. The impact on survey results based on COVID-19, sex (female), and working status (others) have shown statistically significant differences. Therefore, additional attention is required for the discussion.

Surprisingly, the term "euthanasia" was more recognized than life expectancy or an aging society with a declining birthrate regarding the awareness of terms in Class extra. There is no logical explanation; however, it may be recognized because recent disasters occurred in Japan, and works related to "death" have been featured in the media (Hashida, 2017; Kagan, 2019).

The result of recognition on ACP and AD were reasonable as imagined. In a sense, these are the medical terms, and the awareness of these words itself is not particularly important to the general public. ACP and AD are already implemented in society as part of the life-meeting or end-of-life planning.

Discussion on Primary Endpoints

It was expected that there would be a statistical difference in life expectancy (2.09 times for females in their 30s) and starting age of receiving pensions (0.23 times for females in their 20s). However, it was unique only to females in their 20s and 30s.

It was a surprising result that there was a difference between responses to a sudden death versus a gradual death. There seemed not much difference in the overall ratio (14%), but looking at the ratio by age group, the sudden death gradually increased, the gradual death was the most favored in the 20s age group, and the ratio gradually decreased with age. By

looking at the results of logistic regression, the result was significantly higher for all generations and genders, except for females in their 20s. Whether they live longer or not, they may want to die quickly when they die (57%).

Looking at the results of Fisher's exact test of Class 3 and Class 1 as a whole, there are significant differences in working status, household income, and health status in terms of the requirements for living in your own way. The income that supports health and life and the "working status" based on that income was extracted. By looking at the requirements subgroups, there is a significant difference in working status, household income, and facing death experience in the self-requirement group. The household income was statistically significant in the surrounding-requirement group, and the employment status, health, and experience of facing death from the administration-requirement group. Additionally, regarding the additional support required (when the requirements are not acquired), there was a significant difference between the working conditions and housemates' presence or absence. In summary, the requirements for living in your own way are related to employment status, household income, cohabitation, health condition, and experience of facing death. It can be said that the professional / field of expertise and nursing or death care experience of Class 1 is irrelevant.

In logistic regression, Household incomes of 6 - 9 million yen are expected to have an average life expectancy of over 84 years in 2040. The odds ratio exceeds 1.0 compared to the reference class in other household income groups, but only 6-9 million yen household group has a significant difference. This group answered that administrative support is the most needed requirement to live as being themselves. On the other hand, in the group whose health condition affects daily life "relatively not healthy," the association with the average life expectancy in 2040 was significantly lower. However, it is considered that the current health

condition influences the result. Since this group accounts for only about 9.3% of the total, considerations should be made to exclude it during additional analysis.

The starting age of receiving pensions was significantly lower for females in their 20s. Even when looking at the six groups of age and gender, the average value was low for males and females in their 20s. The expectation of the profession/field of expertise (other than medical and IT employees) will be 65 years old or older is 3.2 times higher when medical experts are used as references. There is no significant difference in IT jobs, but it is 2.1 times; therefore, this tends to be overall. The group with no nursing or death care experience answered the pension starting age will be 65 years or older, 2.83 times more than the group with the experience. In the "relatively not healthy" group, the answer was lower than 65 years old, which may be based on their own health condition, which was statistically significant. Overall, the respondents' overall average is around 70 years old, roughly an expected result. For the requirement to live as being oneself, there was no difference between generation or sex. No difference was observed in the profession/field of expertise. There was no association between with or without a housemate and the required categories. It is reasonable for the "relatively not healthy" population to ask for support for surroundings and administration.

In the descriptive analysis, more participants answered to the self-help (myself); yet, considering correlations among variables, a negative odds ratio is shown in the "myself" groups compared with the "administration" group in logistic regression. Not many associations are seen in the "surroundings" group, especially in connection to society. However, the "surroundings" group has a model likelihood of $p=0.11$, which is considered not applicable. This analysis's sub-category classification is by the author, and this classification does not always reflect correctly in the model. If we changed the classification items, there should be a sufficient likelihood calculated.

As there was no statistical significance shown in the professional / field of expertise and nursing or death care experience in Fisher's exact test, it is also possible to exclude those variables and re-examine with additional logistic regression analysis.

Regarding the CART analysis, due to their health condition, although the branches were subdivided, two nodes for age/gender group and two for household income are shown, indicating that these variables also function as determinants of the answer to this question. It seems reasonable for "relatively not healthy" participants to answer more on their average life expectancy to be shorter than 84 years old in 2040. Interestingly, the answers to the future life expectancy diverge depending on the presence or absence of nursing care/death care experience regardless of household income. It should also be noted that although the number of cases is small (n=8), there were responses in the medical and IT engineering fields that the average life expectancy would be the same or shorter than the current situation.

In the question of preference way of dying, although it depends on the household income, the trend in the younger generation to prefer gradual death is a little different from our expectation; it is also a convincing result. We do not know if this result is due to the difficulty imagining the process of human death or the result of calmly accepting the future of 100 years of life. It is possible to track the transition of their view of life and death overtime.

For the requirements to live as being oneself, the 30s females of node 8 (n=12) answered on "surroundings" and "administration" to live as being oneself toward the end. The sample size is too small for additional analysis, yet this could be the government's potential to provide additional support. People who belong to this group may not be included in the so-called national/local subsidies system, for example, but within the scope of self-help, it is considered that they cannot afford to prepare to live their own way until the end.

The possible explanations could be whether no branching was unified, too many

noises on obtained data or the small sample size for the variables in which the parameters were adjusted, but there were no branches.

Challenges and Limitation

The representativeness of the target population should be determined carefully.

CHERRIES guideline points out two biases to consider during an online survey: The Internet population's non-representative nature and the volunteer effect (Eysenbach, 2004).

Previous studies indicate that the ratio of the registered panels of survey companies tend to be younger than that of Japanese population estimates (Deguchi, 2008; Yasunaga, Ide, Imamura, & Ohe, 2006). The same tendency can be seen in CM Inc.'s registration panel compared with Japan's population estimates (population data by age and gender (fixed in January 2020)). Hence, we cannot guarantee that this research result is directly comparable to other public polls, which are considered to represent the general population. Since the research participants are registrants to the research survey company, it is difficult to determine whether they represent the population. However, this study's participants' ratio was around 0.001% in each age/gender group of the population estimation (Table 9). Despite a small sample size, the geographic distribution ratio of survey participants and population by prefecture also showed a similar tendency (Figure 2). Therefore, it can be considered that the participants of this study represent the target population at an acceptable level for exploratory research.

Voluntariness could be the participants' bias. Even without using a research panel, the difficulty of reducing participants' bias on Internet surveys remains, for we can only obtain answers from voluntary respondents. On the other hand, according to the Japan Institute for Labour Policy and Training report (2005), it is speculated that the characteristics of the Internet survey are closer to the mailed survey. In both types of surveys, it should be noted

that it is the respondents' choice to decide whether or not to respond to the survey; that is, voluntarily. (The Japan Institute for Labour Policy and Training, 2005). Based on that point, we judged that voluntariness is not a significant limitation for this study because it can occur in any survey method.

Loss of opportunity for online surveys and using research panel registrants could be the selection bias. In this study, we are unable to reduce this bias. However, it may be possible to conduct similar surveys multiple times, using multiple media.

As this survey is exploratory, there is a possibility of misclassifying the results due to the non-validated questionnaire. If validation is needed, it is possible to create a scale-based on factor analysis. Also, the questionnaire contains sensitive questions regarding experiences and personal aspects of death and dying. The study results are based on very subjective answers. Therefore, the results estimate participants' possible tendency, but it does not lead to a definitive conclusion.

Conclusion

Overall, household income, age/sex, working status, and health condition influence the selection of requirements to live as oneself to the end of life. At the beginning of the survey, it was assumed that the income sources necessary for health, food, clothing, and shelter to be secured. Then the understanding and support of family and friends and the support of the government would follow. However, even in the basic requirements of living as oneself, many desired administrative supports. Family and friends' understandings and supports were desirable when administrative support was not obtained.

Many results specific to females in their 30s were observed, especially those who chose other than "working" as well as the household income of 3-6 million yen. This group might be the potential candidates for the local and government to put additional support in place, considering the lifelong design of the 100-year life. Even the 6-9-million-yen group answered slightly different from the expectation. The results indicated that the higher household income is not always better; there might be influences of the tax and subsidized system in each household income range.

Since this study used survey items in an exploratory and comprehensive manner, it is premature to assert conclusions from the simple descriptive and categorical analysis. For this reason, it is desirable to carry out cluster analysis and association analysis. Furthermore, based on the association analysis results, a study on the declining birthrate, which has become a problem in proportion to the aging population, is also desirable.

It seems that the opportunities to discuss with medical staff and family members in terminal care have increased considerably. On the other hand, there may be few opportunities to face death as an individual or discuss it in schools or with friends. By responding to this survey, at least the 486 people who participated in this study may have been inspired to think about their own way of life and what is necessary for that purpose. In primary education,

efforts related to cancer education seem to have begun. It is recommended to consider death education as an opportunity to accept and think about death and improve life quality.

It has become more open to discussing death and dying. For example, it was out of this consideration ten years ago for the country to publish posters of life meeting (*Jinsei-kaigi*) in a big way and to encourage the importance and discussion of ACP. In 2020, the term "end of life planning (*Shu-katsu*)" is accepted as a general term, and it seems that the term "death with dignity" has become widespread. With the advent of high-priced drugs, it has become possible to discuss the economic value of life. Recently, even the word "choice of life" to prevent the collapse of medical care caused by COVID-19 has come to be heard.

We are always facing death even though we do not usually think or feel it. We should think about "death," which everyone will experience at some time. More than ever, we should continue discussions to create a society that sustains and enriches our lives. This research is only a small beginning. Through further research, we hope that it will lead to integrated and comprehensive policy proposals that will provide clues for solving the declining birthrate and the increases in social security costs due to the aging population.

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Tables and Figures

Table 1. Questionnaire Overview

Class	Question #	Contents
1	1-5 7-8	- Socioeconomic status (work, expertise, housemates, income, health) - Experiences (nursing or death care, facing or prepared death)
2	9-10 11-17 24-25	- Current view of death and dying - Current view of “live as being oneself” towards the end of life - Options to convey their intentions of how to live their final stages
3	19-23	Imagine 2040, - Requirements to live as being oneself to the end of life - Demands and expectations to the government and healthcare policymakers
4	26-28	Situation based decision-making questions, assuming being 70 years old
5	29	Effects of COVID-19 on their perspectives of life and death
Extra	6, 18 30	- Introductory questions: awareness of terms related to the aging society - Free text

Table 2. Data Management Procedures Before Analysis

Procedures	Result
Data cleaning	
Visual check for missing data and abnormal inputs	NA
Correcting measures for omissions, incomplete answers, errors	NA
Check for logically impossible and unusual answers	NA
Calculate effective response ratio	Conducted
All answers except free text were converted to single-byte numbers	Conducted
Free text was converted in full-width notation	Conducted
Dataset for analysis	
Single answers were coded with single-byte numbers	Conducted
Multiple answers were coded as [1 = checked] and [0 = not checked]	Conducted
After-coding techniques for free text answers	NA
For free text answers, blank cell and meaningless answers were filled as [NA]	Conducted
Coding tables	Applicable
Original dataset lock	August 10, 2020

Table 3. Life Expectancy and Pension Plan in 2040 by Six Strata.

	Life expectancy in 2040	Pension plan in 2040
Current in 2018	84.21	65.00
Mean of participants	85.21	71.08
Median of participants	85.00	70.00
Male		
20-29 yrs.	82.68	70.27
30-39 yrs.	85.01	71.21
40-49 yrs.	85.15	71.32
Female		
20-29 yrs.	84.20	69.40
30-39 yrs.	88.74	72.17
40-49 yrs.	85.46	72.12

Table 4. Demographic Characteristics (n=486)

*All values are presented as median (interquartile range) or n (%).

Class 1	n*	%*
Baseline information		
Median age (y)	35	(28-43)
Age		
1.20-29	162	33.3
2.30-39	162	33.3
3.40-49	162	33.3
Sex		
1.Male	243	50.0
2.Female	243	50.0
Residential area by prefecture (omitted)		
Socio-economic status		
Working status		
1.Student	31	6.4
2.Working	297	61.1
3.Household / Childcare	62	12.8
4.Job hunting / On leave	43	8.8
5.Others	53	10.9
Profession/field of expertise		
1.Medical / dental	24	4.9
2.Nursing / welfare	18	3.7
3.Pharmacy / Pharmaceutical	13	2.7
4.Medical device / regenerative medicine	3	0.6
5.Health and public health	6	1.2
6.IT / Information / Science and Engineering	48	9.9
7.Others	374	77.0
Health status		
1.Healthy	345	71.0
2.Healthy enough, no interference with daily life	96	19.8
3.Some impact on my daily life	29	6.0
4.Great influence on daily life	16	3.3
Household Income in 2019		
1.Less than 3 million yen	80	16.5
2.3 million yen to less than 6 million yen	158	32.5
3.6 million yen to less than 9 million yen	86	17.7
4.9 million yen and more	75	15.4
5.Do not know	87	17.9
Housemate		
1.Yes	358	73.7
2.No	128	26.3
Experiences		
Facing or prepared death		
Yes (more than 10 years ago)	41	8.4
Yes (5 to less than 10 years)	36	7.4
Yes (currently less than 5 years)	50	10.3
No	359	73.9
Nursing or death care		
Yes (more than 10 years ago)	43	8.8
Yes (5 to less than 10 years)	17	3.5
Yes (currently less than 5 years)	29	6.0
No	397	81.7

Table 4. Demographic Characteristics (n=486) -cont'd-

Class 2	n	%
Current view of death and dying		
What do you think about the event of "death" itself?		
I am afraid of death itself and the process leading up to death	78	16.0
I think it is okay because it makes me feel better (or released)	41	8.4
I am afraid I cannot live any longer	33	6.8
Somehow scary / I do not want to think	90	18.5
I do not care about it	22	4.5
It is a providence of nature, so it is inevitable	126	25.9
I have never thought of it / I do not know	31	6.4
I am afraid of not knowing what would it be like after I die	65	13.4
What do you think about you "dying"?		
Scary/horrible	64	13.2
I think it is okay because it makes me feel better (or released)	25	5.1
Farewell is painful and sad	65	13.4
It is a providence of nature, so it is inevitable	65	13.4
Good if it does not bother my families and friends	72	14.8
I do not know why I die	9	1.9
I do not care about it	25	5.1
It is okay if I had no pain or suffering	110	22.6
I want to keep alive all the time	24	4.9
I have not thought about it. I do not know	27	5.6
Current view of "live as being oneself" towards the end of life		
Have you ever thought of "how to live as being yourself" towards the end of life?		
Yes	169	34.8
No	185	38.1
No meaning to think about / I do not want to think	132	27.2
Best timing to start thinking about your hopes and wishes to "live as being yourself"?		
Already implemented	44	9.1
When you are seriously ill or injured	72	14.8
Around the time of parent dying	72	14.8
When the payment of long-term care insurance begins	7	1.4
Around the time of retirement	38	7.8
When all the children become independent	51	10.5
When it is hard to move your body as you want	83	17.1
No need to think	119	24.5
Best timing to start preparing for your hopes and wishes to "live as being yourself"?		
Already implemented	53	10.9
When you are seriously ill or injured	54	11.1
Around the time of parent dying	60	12.3
When the payment of long-term care insurance begins	8	1.6
Around the time of retirement	41	8.4
When all the children become independent	54	11.1
When it is hard to move your body as you want	102	21.0
No need to think	114	23.5
Whom do you want to convey your hopes and wishes to "live as being yourself"?		
Family, spouse, close relatives / friends	261	53.7
Medical care personnel	4	0.8
Professionals such as lawyers and public officers	8	1.6
I do not want to tell anyone	181	37.2
Other	32	6.6

Table 4. Demographic Characteristics (n=486) -cont'd-

Class 2 -cont'd-	n	%
Current view of “live as being oneself” towards the end of life -cont'd-		
At what timing do you want to convey your hopes and wishes?		
Already implemented	33	6.8
When the payment of long-term care insurance begins	1	0.2
Around the time of retirement	29	6.0
When all the children become independent	45	9.3
When it is hard to move your body as you want	58	11.9
As long as I think I can convey my exact intentions	127	26.1
I do not want to tell anyone	193	39.7
By what means do you want to convey your hopes and wishes?		
Speak directly or look at faces on a videophone	185	38.1
Leave as written documents in letters, e-mails, smartphone apps, and more.	64	13.2
Leave an official document and have it disclosed if I cannot communicate	50	10.3
Leave a message by recording	12	2.5
I do not want to tell anyone	175	36.0
Choose the options close to your idea of “a person to die,” including you. [MA]		
People have the right to live and die in their way, as being themselves	197	40.5
People are responsible for their health and life (life-and-death)	91	18.7
I want to live as a human with dignity until the end	117	24.1
It is an individual’s right to choose how to live in their way until the end.	155	31.9
It is the role of the child to take care of the parents’ death	54	11.1
It is the role of the parent to show the child and grandchildren dying		
It is essential to leave your intentions of “how I want to live” when you are healthy.	108	22.2
It is essential to have a decision-maker for your end on your behalf.	57	11.7
Death always comes to everyone equally	228	46.9
Options to convey their intentions of how to live their final stages		
Plan to indicate the intention to “live as being yourself” if there is a space on the back of driver’s license or health insurance card such as an organ donation consent		
Relatively yes	275	56.6
relatively no	211	43.4
The best way to register/renew your manifestation of hopes and wishes		
Use an app such as a smartphone to register in a databank with ID / PW and update as needed	119	24.5
Updated according to annual notification from the company / local government (health diagnosis, final tax return, etc.)	98	20.2
When renewing an ID card such as a driver’s license, such as an organ donation consent	120	24.7
There is a better way → to free text in the last question if possible	8	1.6
It is better not to do it in the first place	141	29.0

Table 4. Demographic Characteristics (n=486) -cont'd-

Class 3 (primary endpoint)	n*	%*
Imagine 20 years from now.		
The average life expectancy of Japanese people	85	(83-90)
The age of pension starts	70	(70-75)
Imagine 20 years from now. Requirements to live as being oneself to the end of life		
If you could decide how to die 20 years later, which would you choose?		
Sudden death due to accident, heart disease, cerebral infarction, etc.	277	57.0
I could be bedridden, but I will be gradually weakened and die	209	43.0
What do you need or require to "live as being yourself" until the end of your life? [MA]		
Being healthy	328	67.5
Have my living environment (clothing, food, and housing)	224	46.1
Financial margin	267	54.9
Having a family member, spouse, partner, and more	151	31.1
Understandings and supports of family, spouse, and partners	113	23.3
Have a hobby or something to have fun	208	42.8
Connections with peers, communities, and society	95	19.5
Financial support of the government	67	13.8
Enhancement of administrative medical and welfare system	70	14.4
Obtaining correct knowledge and information	111	22.8
Medical/long-term care support system that suits you	92	18.9
Support system for health maintenance and prevention that suits you	114	23.5
Imagine 20 years from now. Demands and expectations to the government and policymakers		
What support do you need the most if you cannot acquire things you answered in the last question?		
Support for reviewing your living environment and way of thinking	88	18.1
Financial support of the government	116	23.9
Understandings and supports of family, spouse, and partners	145	29.8
Support for reviewing how to connect with society	57	11.7
Enhancement of administrative medical and welfare system	80	16.5

Table 4. Demographic Characteristics (n=486) -cont'd-

Class 4	n	%
Imagine yourself at the age of 70.		
How do you think of the societal change at that time? [MA]		
The average life expectancy of Japanese people will be over 100 years old	80	16.5
The mandatory retirement age will be around 80 years old	98	20.2
Mandatory retirement system will have been gone	162	33.3
A new insurance system will be created to replace the current system	75	15.4
AI and IT technology will manage personal health conditions.	145	29.8
New forms of long-term care/nursing by AI and IT will be widespread	133	27.4
Nursing care using nursing robots will be widespread	154	31.7
A nursing robot will nurse me	53	10.9
A new pension system will be created to replace the current system	97	20.0
Advances in medicine will allow us to replace our organs	35	7.2
Most medical/long-term care/health issues will have been resolved	20	4.1
Exact life expectancy will be able to be calculated	84	17.3
Other	14	2.9
Situation based decision-making question - diagnosed as a cold -		
I would go home and stay rest as I was told	294	60.5
Ask to prescribe a standard cold medicine (cold medicine)	60	12.3
Ask for an antibiotic (a drug that kills bacteria)	31	6.4
It is hard to say directly, so that I would get the medicine from another clinic.	41	8.4
Take over-the-counter cold medicine	41	8.4
Take extra antibiotics that were prescribed a few years ago	19	3.9
Situation based decision-making question - medication intake and daily activity -		
10 types of medicines every day, walking no more than 60 minutes a day. No support for daily life is required. However, lifespan is unknown.	74	15.2
5 types of medicines every day, walking no more than 30 minutes a day. No support for daily life is required. Lifespan is between 10-15 years.	120	24.7
2 types of medicines every day, walking no more than 15 minutes a day. No support for daily life is required. Lifespan is between 15-20 years.	111	22.8
No medication. Weakening slowly for the last three years.	181	37.2
Support is needed in daily life. The lifespan is 95 years.		

Table 4. Demographic Characteristics (n=486) -cont'd-

Class 5 (Impact of COVID-19)	n	%
Value change due to the COVID-19 situation regarding the answers you have in this survey.		
It changed a lot	36	7.4
I think it has changed a little	169	34.8
Not much effect	175	36.0
No change at all	106	21.8
Class Extra (Awareness of terms)	n	%
Select all of the following words that you have heard (Q6). [MA]		
Life expectancy	345	71.0
Healthy life expectancy	272	56.0
Happy life expectancy	57	11.7
ACP (Advanced Care Planning)	16	3.3
Life meeting*	48	9.9
AD (Advanced Directive)	10	2.1
Life-prolonging treatment	305	62.8
Ending note*	228	46.9
End of life planning	358	73.7
Calm death*	40	8.2
Death with dignity	251	51.6
Euthanasia	383	78.8
PPK (Pin-pin korori) (sudden death)	163	33.5
NNK (Nen-nen korori) (gradual death)	54	11.1
I have never heard of any	56	11.5
Select all of the following words that you have heard (Q18). [MA]		
An aging society with a declining birthrate	329	67.7
Solitary death	345	71.0
Demented caregivers	74	15.2
A (super-aged) death-ridden society	59	12.1
Social prescribing	22	4.5
Aged caregivers	273	56.2
Local comprehensive care system	79	16.3
Polypharmacy	26	5.3
Living alone	198	40.7
2025 problem	87	17.9
2040 problem	56	11.5
Health disparity	103	21.2
Sustainable society	140	28.8
SDGs (Sustainable Development Goals)	113	23.3
Health literacy	18	3.7
I have never heard of any	66	13.6

MA = multiple answers possible

Table 5. Fisher's Exact Test Summary Class 3 by Six Strata

Variables	Class 3							p
	Sex	male			female			
	Age n (%)	20-29	30-39	40-49	20-29	30-39	40-49	
Average life expectancy in 2040		81 (100.0)	81 (100.0)	81 (100.0)	81 (100.0)	81 (100.0)	81 (100.0)	0.03
1. 84 yrs. old or up		61 (75.3)	58 (71.6)	53 (65.4)	63 (77.8)	70 (86.4)	56 (69.1)	
2. < 84 yrs. old		20 (24.7)	23 (28.4)	28 (34.6)	18 (22.2)	11 (13.6)	25 (30.9)	
Starting age of pension plan in 2040								0.02
1. 65 yrs. old or up		77 (95.1)	78 (96.3)	80 (98.8)	70 (86.4)	77 (95.1)	79 (97.5)	
2. < 65 yrs. old		4 (4.9)	3 (3.7)	1 (1.2)	11 (13.6)	4 (4.9)	2 (2.5)	
Preferred way of dying								<0.01
1. Pin-pin-korori		35 (43.2)	49 (60.5)	54 (66.7)	38 (46.9)	46 (56.8)	55 (67.9)	
2. Nen-nen-korori		46 (56.8)	32 (39.5)	27 (33.3)	43 (53.1)	35 (43.2)	26 (32.1)	
Requirements: Being healthy								0.33
1. Yes		52 (64.2)	54 (66.7)	63 (77.8)	54 (66.7)	55 (67.9)	50 (61.7)	
0. No		29 (35.8)	27 (33.3)	18 (22.2)	27 (33.3)	26 (32.1)	31 (38.3)	
Requirements: Have my living environment (clothing, food, and housing)								0.39
1. Yes		40 (49.4)	32 (39.5)	35 (43.2)	35 (43.2)	37 (45.7)	45 (55.6)	
0. No		41 (50.6)	49 (60.5)	46 (56.8)	46 (56.8)	44 (54.3)	36 (44.4)	
Requirements: Financial margin								0.89
1. Yes		45 (55.6)	42 (51.9)	44 (54.3)	42 (51.9)	45 (55.6)	49 (60.5)	
0. No		36 (44.4)	39 (48.1)	37 (45.7)	39 (48.1)	36 (44.4)	32 (39.5)	
Requirements: Having a family member, spouse, partner, and more								0.13
1. Yes		28 (34.6)	19 (23.5)	27 (33.3)	25 (30.9)	33 (40.7)	19 (23.5)	
0. No		53 (65.4)	62 (76.5)	54 (66.7)	56 (69.1)	48 (59.3)	62 (76.5)	
Requirements: Understandings and supports of family, spouse, and partners								0.78
1. Yes		19 (23.5)	16 (19.8)	18 (22.2)	18 (22.2)	24 (29.6)	18 (22.2)	
0. No		62 (76.5)	65 (80.2)	63 (77.8)	63 (77.8)	57 (70.4)	63 (77.8)	
Requirements: Have a hobby or something to have fun								0.30
1. Yes		37 (45.7)	29 (35.8)	34 (42.0)	31 (38.3)	43 (53.1)	34 (42.0)	
0. No		44 (54.3)	52 (64.2)	47 (58.0)	50 (61.7)	38 (46.9)	47 (58.0)	
Requirements: Connections with peers, communities, and society								<0.05
1. Yes		18 (22.2)	16 (19.8)	13 (16.0)	11 (13.6)	20 (24.7)	17 (21.0)	
0. No		63 (77.8)	65 (80.2)	68 (84.0)	70 (86.4)	61 (75.3)	64 (79.0)	
Requirements: Financial support of the government								0.94
1. Yes		11 (13.6)	10 (12.3)	11 (13.6)	9 (11.1)	13 (16.0)	13 (16.0)	
0. No		70 (86.4)	71 (87.7)	70 (86.4)	72 (88.9)	68 (84.0)	68 (84.0)	
Requirements: Enhancement of administrative medical and welfare system								0.79
1. Yes		13 (16.0)	8 (9.9)	13 (16.0)	11 (13.6)	14 (17.3)	11 (13.6)	
0. No		68 (84.0)	73 (90.1)	68 (84.0)	70 (86.4)	67 (82.7)	70 (86.4)	
Requirements: Obtaining correct knowledge and information								0.68
1. Yes		17 (21.0)	14 (17.3)	23 (28.4)	18 (22.2)	19 (23.5)	20 (24.7)	
0. No		64 (79.0)	67 (82.7)	58 (71.6)	63 (77.8)	62 (76.5)	61 (75.3)	
Requirements: Medical/long-term care support system that suits you								<0.05
1. Yes		12 (14.8)	9 (11.1)	16 (19.8)	12 (14.8)	20 (24.7)	23 (28.4)	
0. No		69 (85.2)	72 (88.9)	65 (80.2)	69 (85.2)	61 (75.3)	58 (71.6)	
Requirements: Support system for health maintenance and prevention that suits you								0.02
1. Yes		19 (23.5)	12 (14.8)	17 (21.0)	16 (19.8)	31 (38.3)	19 (23.5)	
0. No		62 (76.5)	69 (85.2)	64 (79.0)	65 (80.2)	50 (61.7)	62 (76.5)	
Demands and expectations to the government and policymakers								0.48
1. Living support		14 (17.3)	15 (18.5)	17 (21.0)	14 (17.3)	16 (19.8)	12 (14.8)	
2. Financial support		12 (14.8)	23 (28.4)	19 (23.5)	19 (23.5)	19 (23.5)	24 (29.6)	
3. Supports of family		28 (34.6)	22 (27.2)	26 (32.1)	22 (27.2)	20 (24.7)	27 (33.3)	
4. Connection		11 (13.6)	6 (7.4)	7 (8.6)	17 (21.0)	10 (12.3)	6 (7.4)	
5. Medical and welfare		16 (19.8)	15 (18.5)	12 (14.8)	9 (11.1)	16 (19.8)	12 (14.8)	

Table 6. Fisher's Exact Test Summary Requirements to Live as Being Oneself

Table 6-1. Requirements to live as being oneself (overall)

Variables	Requirements to live as being oneself to the end of life					<i>p</i>
	Myself	Surround-ings	Administra-tion	Two of the above	All of the above	
n (%)	331	63	47	23	22	
Working status						0.06
Student	21 (6.3)	3 (4.8)	3 (6.4)	2 (8.7)	2 (9.1)	
Working	212 (64.0)	40 (63.5)	19 (40.4)	13 (56.5)	13 (59.1)	
Household / Childcare	32 (9.7)	11 (17.5)	14 (29.8)	2 (8.7)	3 (13.6)	
Job hunting / On leave	34 (10.3)	2 (3.2)	3 (6.4)	3 (13.0)	1 (4.5)	
Others	32 (9.7)	7 (11.1)	8 (17.0)	3 (13.0)	3 (13.6)	
Working status by Group						0.04
Working	212 (64.0)	40 (63.5)	19 (40.4)	13 (56.5)	13 (59.1)	
Other factors	119 (36.0)	23 (36.5)	28 (59.6)	10 (43.5)	9 (40.9)	
Housemate						0.12
Yes	236 (71.3)	51 (81.0)	32 (68.1)	20 (87.0)	19 (86.4)	
No	95 (28.7)	12 (19.0)	15 (31.9)	3 (13.0)	3 (13.6)	
Household Income in 2019						0.05
< 3 million yen	62 (18.7)	9 (14.3)	3 (6.4)	4 (17.4)	2 (9.1)	
3 to 6 million yen	115 (34.7)	15 (23.8)	14 (29.8)	6 (26.1)	8 (36.4)	
6 to 9 million yen	51 (15.4)	19 (30.2)	9 (19.1)	5 (21.7)	2 (9.1)	
> 9 million yen	54 (16.3)	6 (9.5)	7 (14.9)	2 (8.7)	6 (27.3)	
Do not know	49 (14.8)	14 (22.2)	14 (29.8)	6 (26.1)	4 (18.2)	
Health status						0.05
Healthy	242 (73.1)	42 (66.7)	30 (63.8)	14 (60.9)	17 (77.3)	
Healthy enough	63 (19.0)	13 (20.6)	8 (17.0)	7 (30.4)	5 (22.7)	
Some impact	18 (5.4)	6 (9.5)	3 (6.4)	2 (8.7)	0 (0.0)	
Great influence	8 (2.4)	2 (3.2)	6 (12.8)	0 (0.0)	0 (0.0)	
Health status by Group						0.05
Relatively healthy	305 (92.1)	55 (87.3)	38 (80.9)	21 (91.3)	22 (100.0)	
Relatively not healthy	26 (7.9)	8 (12.7)	9 (19.1)	2 (8.7)	0 (0.0)	
Experience in facing or prepared death						0.46
Yes (> 10 years ago)	32 (9.7)	6 (9.5)	2 (4.3)	2 (8.7)	1 (4.5)	
Yes (5 to 10 years)	15 (4.5)	1 (1.6)	0 (0.0)	1 (4.3)	0 (0.0)	
Yes (current - 5 years)	22 (6.6)	2 (3.2)	1 (2.1)	3 (13.0)	1 (4.5)	
No	262 (79.2)	54 (85.7)	44 (93.6)	17 (73.9)	20 (90.9)	
Experience on facing or prepared death by Group						0.07
Yes	69 (20.8)	9 (14.3)	3 (6.4)	6 (26.1)	2 (9.1)	
No	262 (79.2)	54 (85.7)	44 (93.6)	17 (73.9)	20 (90.9)	

Table 6-2. Requirements to live as being oneself (by socioeconomic variables)

Variables	Requirements to live as being oneself to the end of life						Support needed when the requirements are not acquired								
	Myself		Surroundings		Administration		Review living environment		Understandings and support of family		P				
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No					
	n (%)	331	155	63	423	47	439	88	398	145	341	P			
Working status		0.01										0.37	<0.01	0.73	0.12
Student	21 (6.3)	10 (6.5)	3 (4.8)	28 (6.6)	3 (6.4)	28 (6.4)	5 (5.7)	26 (6.5)	7 (4.8)	24 (7.0)					
Working	212 (64.0)	85 (54.8)	40 (63.5)	257 (60.8)	19 (40.4)	278 (63.3)	51 (58.0)	246 (61.8)	99 (68.3)	198 (58.1)					
Household / Childcare	32 (9.7)	30 (19.4)	11 (17.5)	51 (12.1)	14 (29.8)	48 (10.9)	10 (11.4)	52 (13.1)	20 (13.8)	42 (12.3)					
Job hunting / On leave	34 (10.3)	9 (5.8)	2 (3.2)	41 (9.7)	3 (6.4)	40 (9.1)	10 (11.4)	33 (8.3)	9 (6.2)	34 (10.0)					
Others	32 (9.7)	21 (13.5)	7 (11.1)	46 (10.9)	8 (17.0)	45 (10.3)	12 (13.6)	41 (10.3)	10 (6.9)	43 (12.6)					
Working status by Group		0.06										0.78	<0.01	0.55	0.04
Working	212 (64.0)	85 (54.8)	40 (63.5)	257 (60.8)	19 (40.4)	278 (63.3)	51 (58.0)	246 (61.8)	99 (68.3)	198 (58.1)					
Other items	119 (36.0)	70 (45.2)	23 (36.5)	166 (39.2)	28 (59.6)	161 (36.7)	37 (42.0)	152 (38.2)	46 (31.7)	143 (41.9)					
Housemate		0.10										0.17	0.39	0.02	<0.01
Yes	236 (71.3)	122 (78.7)	51 (81.0)	307 (72.6)	32 (68.1)	326 (74.3)	56 (63.6)	302 (75.9)	120 (82.8)	238 (69.8)					
No	95 (28.7)	33 (21.3)	12 (19.0)	116 (27.4)	15 (31.9)	113 (25.7)	32 (36.4)	96 (24.1)	25 (17.2)	103 (30.2)					
Household Income in 2019		<0.01										0.04	0.11	0.08	0.08
< 3 million yen	62 (18.7)	18 (11.6)	9 (14.3)	71 (16.8)	3 (6.4)	77 (17.5)	19 (21.6)	61 (15.3)	17 (11.7)	63 (18.5)					
3 to 6 million yen	115 (34.7)	43 (27.7)	15 (23.8)	143 (33.8)	14 (29.8)	144 (32.8)	33 (37.5)	125 (31.4)	46 (31.7)	112 (32.8)					
6 to 9 million yen	51 (15.4)	35 (22.6)	19 (30.2)	67 (15.8)	9 (19.1)	77 (17.5)	9 (10.2)	77 (19.3)	35 (24.1)	51 (15.0)					
> 9 million yen	54 (16.3)	21 (13.5)	6 (9.5)	69 (16.3)	7 (14.9)	68 (15.5)	9 (10.2)	66 (16.6)	24 (16.6)	51 (15.0)					
Do not know	49 (14.8)	38 (24.5)	14 (22.2)	73 (17.3)	14 (29.8)	73 (16.6)	18 (20.5)	69 (17.3)	23 (15.9)	64 (18.8)					
Health status		0.27										0.58	0.01	0.85	0.49
Healthy	242 (73.1)	103 (66.5)	42 (66.7)	303 (71.6)	30 (63.8)	315 (71.8)	61 (69.3)	284 (71.4)	109 (75.2)	236 (69.2)					
Healthy enough	63 (19.0)	33 (21.3)	13 (20.6)	83 (19.6)	8 (17.0)	88 (20.0)	18 (20.5)	78 (19.6)	27 (18.6)	69 (20.2)					
Some impact	18 (5.4)	11 (7.1)	6 (9.5)	23 (5.4)	3 (6.4)	26 (5.9)	5 (5.7)	24 (6.0)	6 (4.1)	23 (6.7)					
Great influence	8 (2.4)	8 (5.2)	2 (3.2)	14 (3.3)	6 (12.8)	10 (2.3)	4 (4.5)	12 (3.0)	3 (2.1)	13 (3.8)					
Health status by Group		0.13										0.35	0.03	0.69	0.17
Relatively healthy	305 (92.1)	136 (87.7)	55 (87.3)	368 (91.3)	38 (80.9)	403 (91.8)	79 (89.8)	362 (91.0)	138 (93.8)	305 (89.4)					
Relatively not healthy	26 (7.9)	19 (12.3)	8 (12.7)	37 (8.7)	9 (19.1)	36 (8.2)	9 (10.2)	36 (9.0)	9 (6.2)	36 (10.6)					
Experience in facing or prepared death		0.14										0.72	0.23	0.11	0.25
Yes (> 10 years)	32 (9.7)	11 (7.1)	6 (9.5)	37 (8.7)	2 (4.3)	41 (9.3)	9 (10.2)	34 (8.5)	17 (11.7)	26 (7.6)					
Yes (5 to 10 years)	15 (4.5)	2 (1.3)	1 (1.6)	16 (3.8)	0 (0.0)	17 (3.9)	3 (3.4)	14 (3.5)	3 (2.1)	14 (4.1)					
Yes (< 5 years)	22 (6.6)	7 (4.5)	2 (3.2)	27 (6.4)	1 (2.1)	28 (6.4)	10 (11.4)	19 (4.8)	6 (4.1)	23 (6.7)					
No	262 (79.2)	135 (87.1)	54 (85.7)	343 (81.1)	44 (93.6)	353 (80.4)	66 (75.0)	331 (83.2)	119 (82.1)	278 (81.5)					
Experience on facing or prepared death by Group		0.04										0.49	0.03	0.09	1.00
Yes	69 (20.8)	20 (12.9)	9 (14.3)	80 (18.9)	3 (6.4)	86 (19.6)	22 (25.0)	67 (16.8)	26 (17.9)	63 (18.5)					
No	262 (79.2)	135 (87.1)	54 (85.7)	343 (81.1)	44 (93.6)	353 (80.4)	66 (75.0)	331 (83.2)	119 (82.1)	278 (81.5)					

Table 7. Logistic Regression Summary Part A

Variables	Average life expectancy in 2040 "64 yrs. old or up"		Starting age of pension plan in 2040 "65 yrs. old or up"		Preferred way of dying "Pin-pin-korot"		"myself"		"surroundings"		"administration"	
	OR (CI)	p	OR (CI)	p	OR (CI)	p	OR (CI)	p	OR (CI)	p	OR (CI)	p
Male, 20s (Ref.)												
Male, 30s	0.92 (0.45-1.91)	0.83	1.50 (0.29-7.69)	0.63	2.09 (1.09-4.01)	0.03	1.37 (0.67-2.79)	0.38	0.82 (0.31-2.14)	0.68	0.65 (0.20-2.08)	0.46
Male, 40s	0.60 (0.29-1.23)	0.16	4.81 (0.47-49.30)	0.18	2.43 (1.24-4.75)	0.01	1.50 (0.73-3.08)	0.27	0.61 (0.23-1.63)	0.32	0.78 (0.24-2.52)	0.68
Female, 20s	1.18 (0.55-2.53)	0.67	0.23 (0.06-0.91)	0.04	1.21 (0.63-2.33)	0.56	1.20 (0.59-2.41)	0.62	0.84 (0.32-2.18)	0.72	0.61 (0.19-1.92)	0.40
Female, 30s	2.09 (0.90-4.86)	0.09	1.05 (0.23-4.87)	0.95	1.95 (1.01-3.74)	<0.05	0.90 (0.46-1.77)	0.75	1.15 (0.47-2.82)	0.75	1.03 (0.37-2.85)	0.96
Female, 40s	0.78 (0.37-1.63)	0.51	3.08 (0.46-20.90)	0.25	3.29 (1.66-6.50)	<0.01	2.19 (1.05-4.56)	0.04	0.35 (0.12-1.05)	0.06	0.63 (0.21-1.90)	0.41
Working status "working" (Ref)												
Other categories	1.25 (0.77-2.02)	0.37	0.87 (0.33-2.26)	0.77	0.69 (0.46-1.05)	0.08	0.76 (0.49-1.19)	0.23	0.73 (0.39-1.37)	0.33	2.60 (1.29-5.25)	0.01
Profession/field of expertise "medical" (Ref)												
"IT/engineer"	1.86 (0.76-4.55)	0.17	2.10 (0.37-12.00)	0.40	1.86 (0.82-4.23)	0.14	1.59 (0.65-3.91)	0.31	0.54 (0.15-1.97)	0.35	0.38 (0.07-2.04)	0.26
"others"	1.70 (0.92-3.14)	0.09	3.23 (1.13-9.24)	0.03	0.91 (0.51-1.60)	0.74	0.96 (0.52-1.76)	0.89	1.07 (0.47-2.44)	0.87	0.92 (0.36-2.34)	0.86
Housemate "Yes" (Ref)												
No	1.18 (0.71-1.96)	0.53	1.09 (0.37-3.21)	0.87	0.82 (0.52-1.29)	0.39	1.37 (0.82-2.28)	0.23	0.60 (0.29-1.25)	0.18	1.82 (0.84-3.91)	0.13
Household Income in 2019 "< 3 million yen" (Ref)												
3 - 6 million yen	1.07 (0.58-1.99)	0.83	1.24 (0.31-5.04)	0.76	0.94 (0.53-1.66)	0.82	0.77 (0.40-1.48)	0.43	0.75 (0.30-1.85)	0.52	2.84 (0.76-10.70)	0.12
6 - 9 million yen	2.75 (1.19-6.34)	0.02	0.72 (0.13-3.87)	0.70	1.00 (0.50-2.02)	0.99	0.40 (0.19-0.85)	0.02	1.99 (0.76-5.23)	0.16	5.11 (1.17-22.30)	0.03
> 9 million yen	1.76 (0.79-3.90)	0.16	1.54 (0.22-10.60)	0.66	0.69 (0.35-1.40)	0.31	0.73 (0.33-1.60)	0.43	0.57 (0.18-1.81)	0.34	4.45 (1.00-19.90)	0.05
Do not know	1.36 (0.66-2.80)	0.40	0.38 (0.09-1.50)	0.16	1.22 (0.64-2.33)	0.54	0.38 (0.19-0.77)	0.01	1.53 (0.60-3.89)	0.38	5.16 (1.35-19.70)	0.02
Health status "healthy" (Ref)												
Not healthy	0.48 (0.24-0.98)	0.04	0.21 (0.06-0.70)	0.01	0.54 (0.27-1.08)	0.08	0.38 (0.18-0.79)	0.01	2.62 (1.03-6.68)	0.04	3.61 (1.35-9.61)	0.01
Nursing or death care experience "Yes" (Ref)												
Never	1.32 (0.82-2.15)	0.26	2.83 (1.00-7.99)	<0.05	1.01 (0.65-1.57)	0.97	1.08 (0.67-1.73)	0.76	0.76 (0.40-1.43)	0.39	1.47 (0.63-3.41)	0.38
Facing or prepared death experience "Yes" (Ref)												
Never	0.91 (0.51-1.62)	0.75	1.55 (0.53-4.52)	0.42	0.87 (0.52-1.46)	0.60	0.48 (0.26-0.87)	0.02	1.66 (0.73-3.78)	0.23	4.56 (1.25-16.70)	0.02

Table 8. Logistic Regression Summary Part B

Variables	Requirement “myself”		Requirement “surroundings”		Requirement “administration”	
	OR (CI)	<i>p</i>	OR (CI)	<i>p</i>	OR (CI)	<i>p</i>
Male, 20s (Ref.)						
Male, 30s	1.33 (0.65-2.74)	0.43	0.90 (0.34-2.41)	0.84	0.61 (0.18-2.04)	0.42
Male, 40s	1.43 (0.69-2.96)	0.34	0.70 (0.25-1.90)	0.48	0.67 (0.20-2.26)	0.52
Female, 20s	1.16 (0.57-2.35)	0.68	0.91 (0.35-2.38)	0.84	0.52 (0.16-1.69)	0.28
Female, 30s	0.84 (0.42-1.67)	0.62	1.32 (0.53-3.28)	0.54	1.04 (0.37-2.96)	0.94
Female, 40s	2.18 (1.04-4.59)	0.04	0.38 (0.12-1.16)	0.09	0.59 (0.19-1.84)	0.36
Working status “working” (Ref)						
Other categories	0.73 (0.47-1.15)	0.18	0.76 (0.40-1.45)	0.4	2.45 (1.21-4.95)	0.01
Profession/field of expertise “medical” (Ref)						
“IT/engineer”	1.61 (0.65-3.96)	0.3	0.53 (0.14-1.96)	0.34	0.43 (0.08-2.35)	0.33
“others”	1.01 (0.55-1.87)	0.96	0.99 (0.43-2.29)	0.98	0.98 (0.37-2.63)	0.97
Housemate “Yes” (Ref)						
No	1.28 (0.76-2.15)	0.35	0.65 (0.31-1.39)	0.27	1.64 (0.75-3.56)	0.22
Household Income in 2019 “< 3 million yen” (Ref)						
3 - 6 million yen	0.79 (0.41-1.53)	0.48	0.71 (0.28-1.76)	0.46	3.29 (0.85-12.70)	0.08
6 - 9 million yen	0.43 (0.20-0.93)	0.03	1.70 (0.64-4.54)	0.29	6.06 (1.33-27.60)	0.02
> 9 million yen	0.75 (0.34-1.66)	0.47	0.50 (0.16-1.63)	0.25	5.38 (1.16-24.90)	0.03
Do not know	0.38 (0.19-0.77)	0.01	1.46 (0.57-3.76)	0.43	5.79 (1.49-22.50)	0.01
Health status “healthy” (Ref)						
Not healthy	0.37 (0.18-0.78)	0.01	2.62 (1.01-6.83)	0.05	4.30 (1.53-12.10)	0.01
Nursing or death care experience “Yes” (Ref)						
Never	1.10 (0.68-1.77)	0.7	0.74 (0.39-1.42)	0.37	1.57 (0.66-3.74)	0.31
Facing or prepared death experience “Yes” (Ref)						
Never	0.47 (0.25-0.86)	0.02	1.64 (0.72-3.78)	0.24	4.83 (1.29-18.10)	0.02
<added> Support needed when requirements are not met “Living support” (Ref)						
Financial support	0.71 (0.37-1.37)	0.31	0.92 (0.32-2.66)	0.88	1.40 (0.55-3.56)	0.48
Supports of family	0.53 (0.28-1.00)	<0.05	2.57 (1.03-6.42)	0.04	0.47 (0.16-1.37)	0.16
Connection	0.76 (0.35-1.67)	0.5	1.62 (0.53-4.97)	0.4	1.33 (0.44-4.00)	0.61
Medical / welfare	0.83 (0.40-1.71)	0.62	1.64 (0.58-4.63)	0.35	0.30 (0.08-1.12)	0.07

Table 9. Population Ratios of Participants and Japanese Population

	Participants		Participants / CM Inc.	
	male	female	male	female
20–29 years	81	81	0.07%	0.03%
30–39 years	81	81	0.07%	0.03%
40–49 years	81	81	0.05%	0.03%
CM Inc.*		CM Inc. / Japanese population		
	male	female	male	female
20–29 years	118916	319653	1.96%	5.55%
30–39 years	119441	323989	1.71%	4.81%
40–49 years	165295	263106	1.79%	2.94%
Japanese population**		Participants / Japanese population		
	male	female	male	female
20–29 years	6068000	5764000	0.001%	0.001%
30–39 years	6985000	6742000	0.001%	0.001%
40–49 years	9214000	8935000	0.001%	0.001%

* CM Inc. registered panels as of January 2020.

** Population Estimates, Annual Report, 2019, Table 4. Population by Sex and Sex ratio for Prefectures, Portal Site of Official Statistics of Japan website (<https://www.e-stat.go.jp/>) (retrieved on October 1, 2020)

Figure 1. Flow Diagram of Participants' Recruitment Process

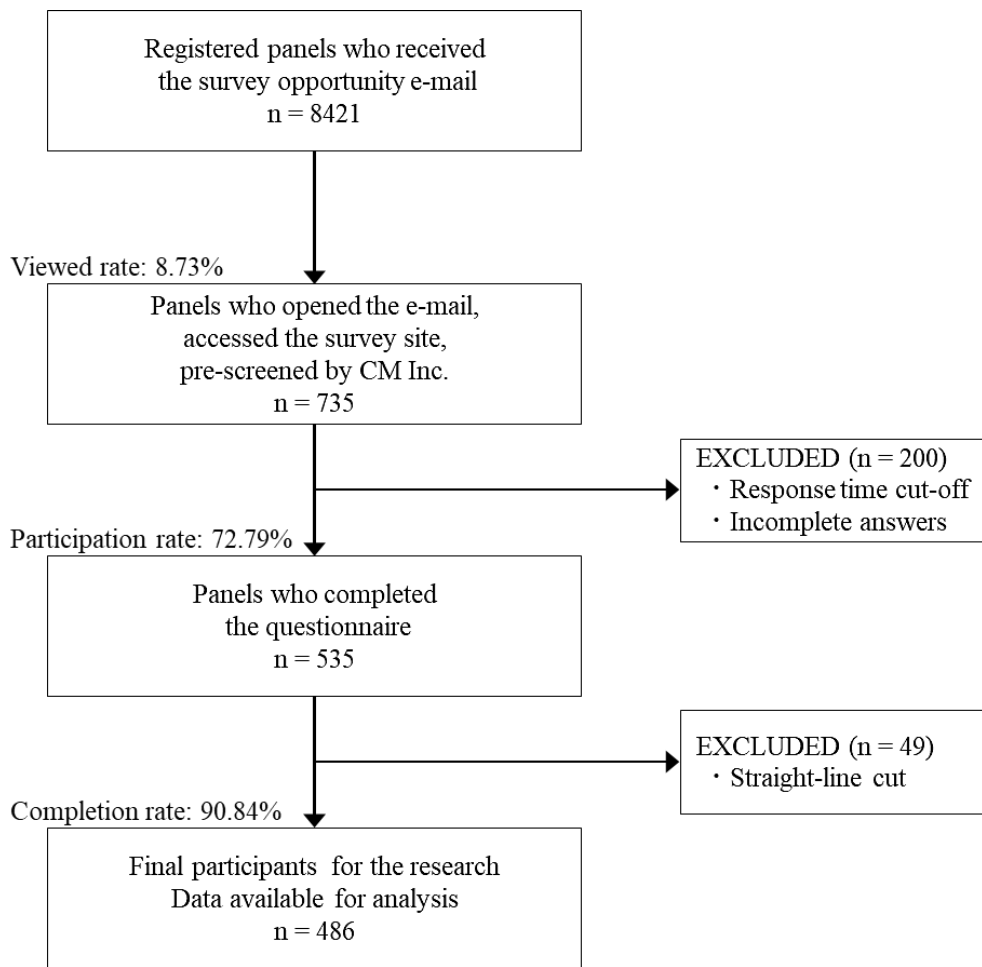


Figure 2. Geographical Distribution Ratio

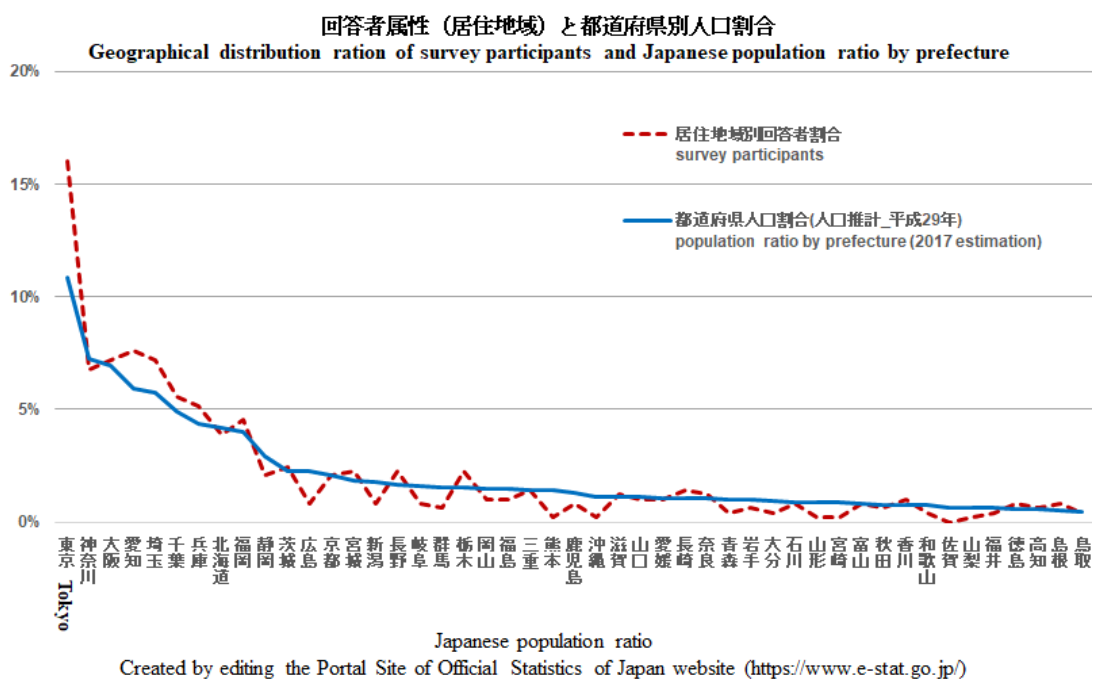
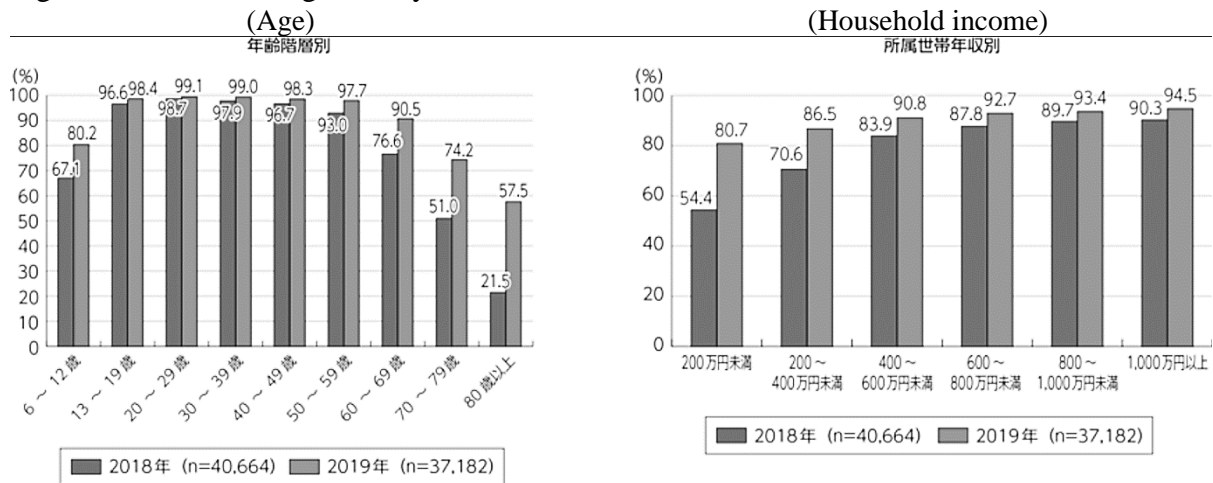


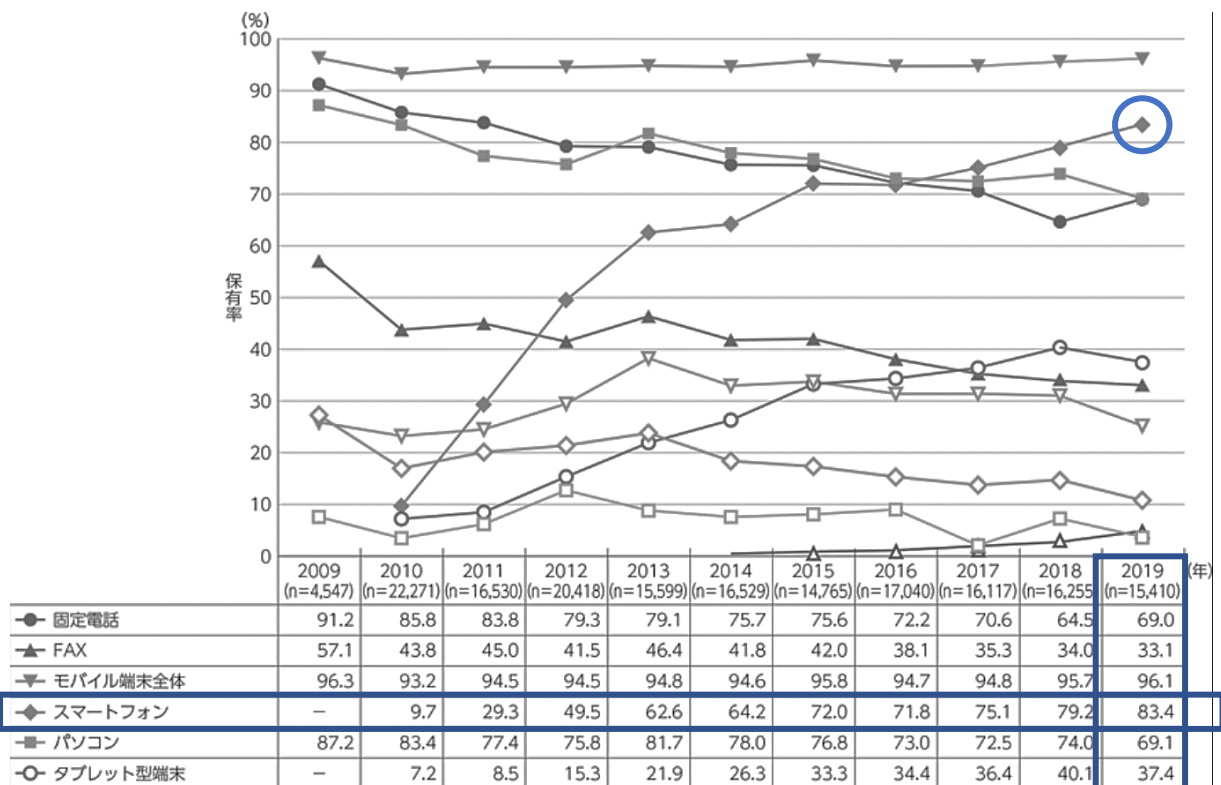
Figure 3. Internet Usage Rate by Attribute and Smartphone Usage Rate

Figure3-1. Internet usage rate by attribute



Source: Ministry of Internal Affairs and Communications "Communication Usage Trend Survey"
<https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html>

Figure 3-2. Smartphone usage rate



Source: Ministry of Internal Affairs and Communications "Communication Usage Trend Survey"
<https://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html>

Figure 4. CART model

Figure 4-1. Average life expectancy in 2040

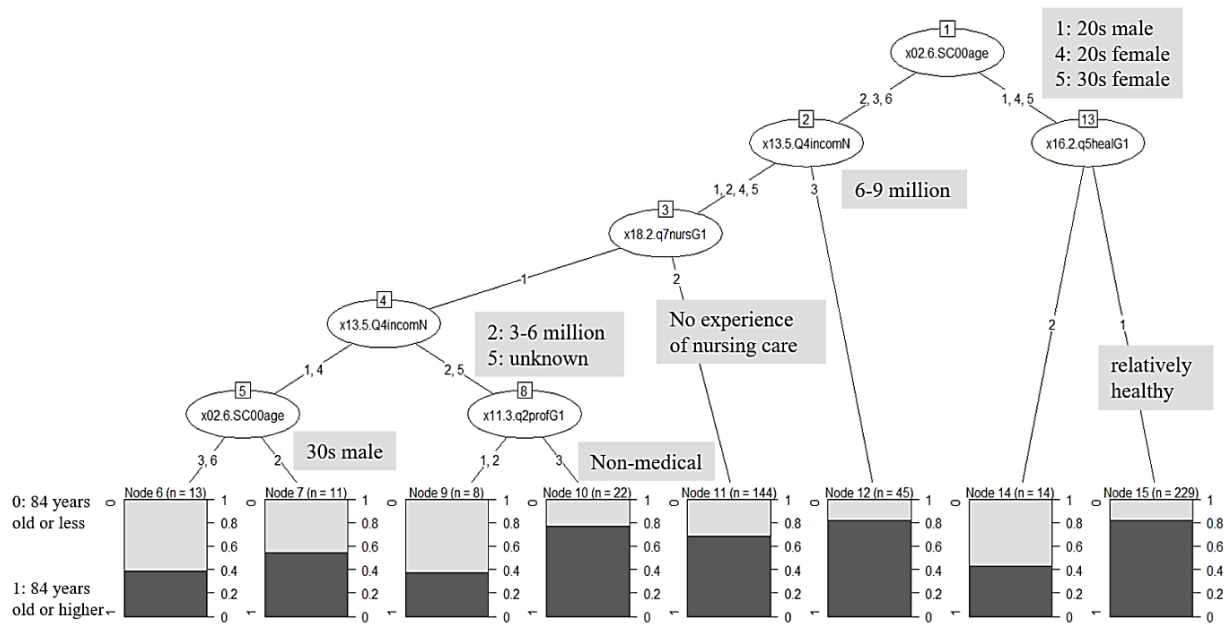


Figure 4-2. The preferred method of dying

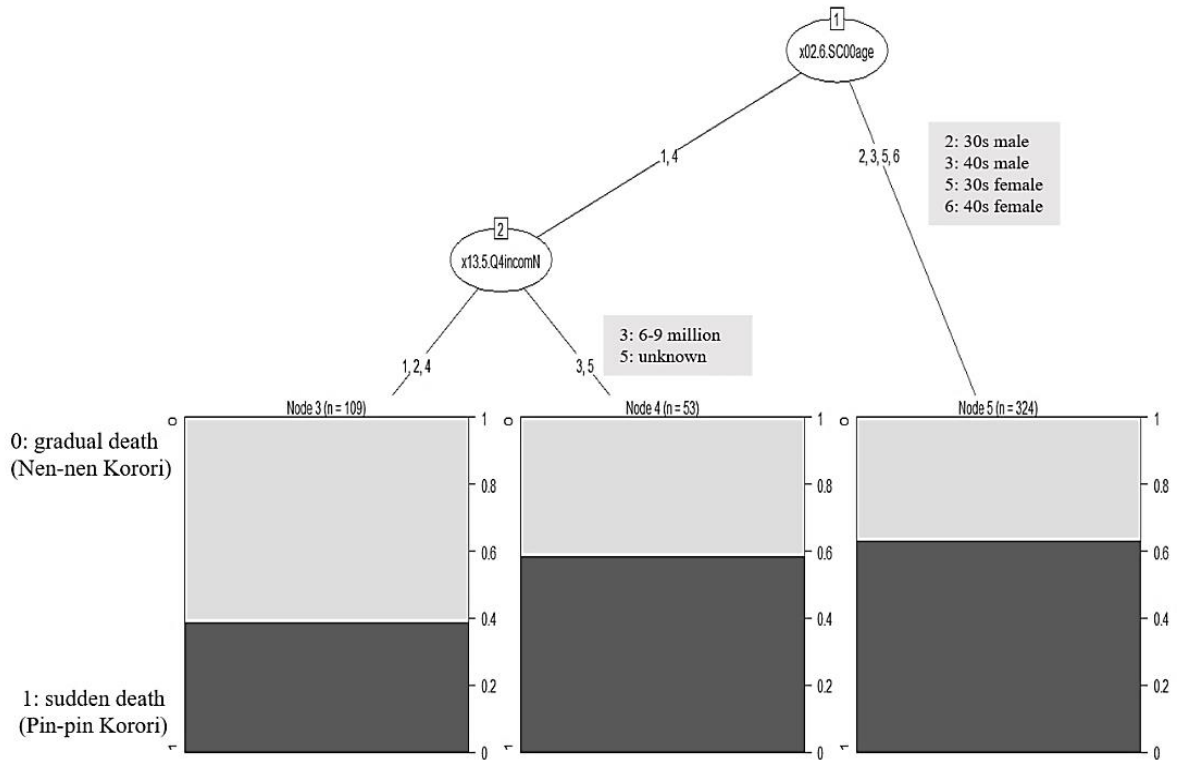
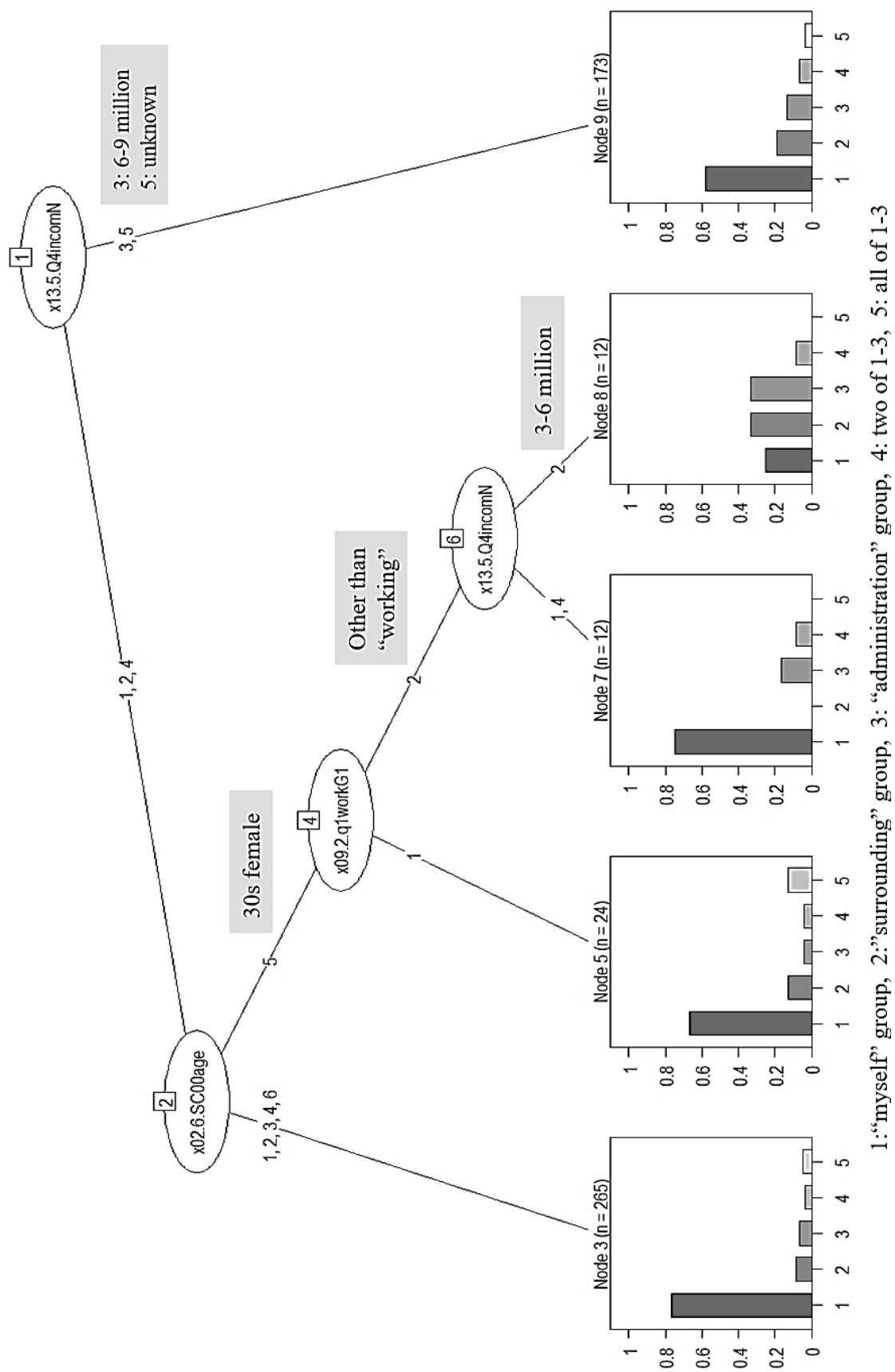


Figure 4-3. Requirements to live as being oneself



Appendices

Questionnaire in Japanese

No.	設問 (参加者への提示順)	設定根拠・補足説明等
S1	あなたの年齢を記載してください (回答日時点)。 実数入力	層別化のための変数である。 当該調査会社が収集する基本項目である。
S2	あなたの性別を選択してください。 ○男 ○女	層別化のための変数である。 当該調査会社が収集する基本項目である。
S3	現在のお住まいになっている地域を選択してください。 該当する都道府県を選択	当該調査会社が収集する基本項目である。
1	あなたの就労状況について、最もあてはまるものを選択してください。 ○学生 ○就業者 ○家事・育児 ○就職活動・求職・休職中 ○その他	就労状況により、価値観が変化するため設定した。 田中, 美帆, & 齊藤, 誠一. (2016). 成人期の生と死に対する態度尺度の構成. <i>カウンセリング研究</i> , 49(3), 160-169. doi:10.11544/cou.49.3-4_160
2	あなたのご職業または学業における専門分野について最もあてはまるものを選択してください。 ○医療・歯科系の分野 ○看護・福祉系の分野 ○薬学・製薬系の分野 ○保健・公衆衛生の分野 ○医療機器・再生医療系の分野 ○IT・情報工学・理工学系の分野 ○それ以外の分野	厚生労働省の平成29年度_人生の最終段階における医療に関する意識調査結果(確定版)より、一般国民と医師・看護師・介護職員の回答に差がみられたことから、医療系専門分野を設定した。 また、20年後の未来に対する調査であることから、今後発展するデジタル化社会に影響を持つであろうIT・情報工学・理工学系の専門分野を設定した。
3	生活空間を共有している家族または同居人(親戚・友人等)はいらっしゃいますか。 ○はい ○いいえ	家族や同居人の有無により回答結果に違いがあるかを確認するために設定した。 金児, 暁嗣. (1993). 現代家族の孤独と死生観(医学と心理学). <i>社会心理学研究</i> , 8(3), 159-169. doi:10.14966/jssp.KJ00004622753
4	昨年の世帯収入について、最もあてはまるものを選択してください。 ○300万円未満 ○300万円以上~600万円未満 ○600万円以上~900万円未満 ○901万円以上 ○分からない	年収により回答結果に違いがあるかを確認するために設定した。 Andrewら(2018)によると、人生の満足度は\$9.5万前後、感情的幸福度は\$6-7.5万前後が上限であるとのことから、選択区分を設定した。 Jebb, Andrew & Tay, Louis & Diener, Ed & Oishi, Shigehiro. (2018). Happiness, Income Satiation, and Turning Points Around the World. <i>Nature Human Behavior</i> . 2. 33-38. 10.1038/s41562-017-0277-0.
5	現在の健康状態について教えてください。 ○健康(通院・服薬なし) ○通院・服薬はあるが、日常生活に差し障りない ○通院中であり、ある程度日常生活に影響がある ○闘病中・入院中であり、日常生活に大きく影響している	健康状態により価値観が変化することが想定されるため、設定している。特に日常生活への影響がある場合とそうでない場合については比較が可能であろうと考える。
6	次のうち、聞いたことがある言葉をすべて選択してください。 □平均寿命 □健康寿命 □幸福寿命 □人生会議 □ACP(アドバンスドケアプランニング) □アドバンスドディレクティブ(AD) □延命治療 □エンディングノート □終活 □平穏死 □尊厳死 □安楽死 □ピンピンコロリ □ネンネコロリ ※ここまではランダム表示 ○いずれも聞いたことがない	以下、「死・死ぬこと」に対する、調査項目が始まることから、導入設問として設定した。 死に関連する用語を羅列しているが、設定用語の選択自体に特に意味はない。

7 8	<p>・ ご家族やご友人を「介護」または「看取った」経験はありますか。最も直近の時期を選択してください。</p> <p>・ ご自身が死に直面した/死を覚悟した経験はありますか。最も直近の時期を選択してください。</p> <p><input type="radio"/>ある(10年以上前) <input type="radio"/>ある(5年～10年未満)</p> <p><input type="radio"/>ある(現在～5年未満) <input type="radio"/>ない</p>	<p>介護や見取りの経験の有無・死に直面した/死を覚悟した経験の有無により回答結果に違いがあるかを確認するために設定した。</p> <p>選択区分については、大災害とされている阪神・淡路大震災(1995)と東日本大震災(2011)および熊本地震(2016)を区別するために設定している。</p>
9	<p>「死」という事象そのものについてどう思いますか。 ※ランダム表示</p> <p><input type="radio"/>死そのものや、死までの過程が怖い</p> <p><input type="radio"/>楽になれるので良いと思う</p> <p><input type="radio"/>生きられなくなることが怖い</p> <p><input type="radio"/>何となく怖い/考えたくない</p> <p><input type="radio"/>なんとも思わない</p> <p><input type="radio"/>自然の摂理なので仕方ない</p> <p><input type="radio"/>考えたことがない・よく分からない</p> <p><input type="radio"/>死んだ先が分からないのが怖い</p>	<p>回答結果の信頼性を担保するため、先行研究と類似の結果が得られるかを確認するために設定した。</p> <p>なお、先行研究においてはネガティブな選択肢のみの設定が多かったことから、中立的またはポジティブな選択肢を追加した。</p>
10	<p>ご自身が「死ぬこと」について、どう思いますか。 ※ランダム表示</p> <p><input type="radio"/>怖い・恐ろしい <input type="radio"/>痛みや苦しみが無ければ良い</p> <p><input type="radio"/>別れが辛い・悲しい <input type="radio"/>自然の摂理なので仕方ない</p> <p><input type="radio"/>迷惑がかかかなければ良い</p> <p><input type="radio"/>何で死ぬのか分からない</p> <p><input type="radio"/>なんとも思わない <input type="radio"/>ずっと生き続けたい</p> <p><input type="radio"/>考えたことがない・よく分からない</p> <p><input type="radio"/>楽になれるので良いと思う</p>	<p>回答結果の信頼性を担保するため、先行研究と類似の結果が得られるかを確認するために設定した。</p> <p>なお、先行研究においてはネガティブな選択肢のみの設定が多かったことから、中立的またはポジティブな選択肢を追加した。</p>
11	<p>「いかに自分らしく生き」、また人生の最期を「いかに自分らしく迎えるか」について、考えることはありますか。</p> <p><input type="radio"/>ある <input type="radio"/>ない</p> <p><input type="radio"/>考えても仕方ない・考えたくない</p>	<p>厚生労働省の平成29年度_人生の最終段階における医療に関する意識調査結果(確定版)の類似設問を基に設定した。</p>
12 13 14	<p>・ 人生の最期まで「あなたらしく生きる」ための希望や願いについて、具体的に考え始めるタイミングはいつ頃が良いと思いますか。</p> <p>・ 人生の最期まで「あなたらしく生きる」ための希望や願いについて、実際に準備を始めるタイミングはいつ頃が良いと思いますか。</p> <p>・ 人生の最期まで「あなたらしく生きる」ための希望や願いを、どのようなタイミングで伝えたいですか(伝えていきますか)。</p> <p><input type="radio"/>すでに実施している</p> <p><input type="radio"/>自分が大病・大けがをしたとき</p> <p><input type="radio"/>親が他界する頃 <input type="radio"/>介護保険の支払いが始まる頃</p> <p><input type="radio"/>定年退職を迎える頃 <input type="radio"/>子供が全員自立する頃</p> <p><input type="radio"/>思うように動くことが辛くなる頃</p> <p><input type="radio"/>考える必要はない</p>	<p>厚生労働省の平成29年度_人生の最終段階における医療に関する意識調査結果(確定版)の類似設問を基に設定し、人生の節目に当たる選択肢を追加した。</p>
15	<p>人生の最期まで「あなたらしく生きる」ための希望や願い誰に伝えたいですか(伝えていきますか)。</p> <p><input type="radio"/>家族・配偶者、近しい親族・友人</p> <p><input type="radio"/>医療介護関係者</p> <p><input type="radio"/>弁護士などの専門家・役所などの公的機関</p> <p><input type="radio"/>伝えない・伝えたい人はいない <input type="radio"/>その他</p>	<p>厚生労働省の平成29年度_人生の最終段階における医療に関する意識調査結果(確定版)の類似設問を基に設定し、いくつかの選択肢を追加した。</p>
16	<p>人生の最期まで「あなたらしく生きる」ための希望や願いを、どのような手段で伝えたいですか(伝えていきますか)。</p> <p><input type="radio"/>直接話す・テレビ電話などで顔を見て話す</p> <p><input type="radio"/>手紙・eメール・スマートフォンのアプリなどで、文字として残す</p> <p><input type="radio"/>録音・録画でメッセージを残す</p> <p><input type="radio"/>公的文書に残し、意思疎通ができなくなったら開示してもらう</p> <p><input type="radio"/>伝えない・伝えたい人はいない</p>	<p>厚生労働省の平成29年度_人生の最終段階における医療に関する意識調査結果(確定版)においては、意思表示の文書化に関する設問であったが、本調査においては、意思表示をする上での具体的な手段について問うている。</p>

17	<p>あなたを含め、「人が死ぬこと」に対する、あなたのお考えに近い選択肢をすべて選んでください。</p> <p>※最期…命の終わるとき。死にぎわ。臨終。末期(大辞林第三版)</p> <p><input type="checkbox"/> 人は、自分らしく生きる権利・死ぬ権利を持っている</p> <p><input type="checkbox"/> 人は、自分の健康や命(生死)に対する責任を持っている</p> <p><input type="checkbox"/> 最期まで尊厳を持った人間として生きたい</p> <p><input type="checkbox"/> 最期まで、どのように自分らしく生きるかを選ぶのは、個人の権利である</p> <p><input type="checkbox"/> 親を看取るのは子の役目/子や孫に逝く姿を見せるのは親の役目である</p> <p><input type="checkbox"/> 万が一に備えて、元気なうちに「最期まで自分らしく生きる方法」について、自分の意思を伝えておくことは大切だ</p> <p><input type="checkbox"/> 万が一に備えて、あなたの代わりにあなたらしい最期について決断を下す「家族・友人等」の意思決定者を定めておくことは大切だ</p> <p><input type="checkbox"/> 死はいつでも、誰にでも平等に訪れるものだ</p>	<p>回答者の死生観について確認するために設定した。</p> <p>選択肢の設定に関しては、以下の調査および報告等を参照した。</p> <ul style="list-style-type: none"> 厚生労働省:平成29年度_人生の最終段階における医療に関する意識調査結果(確定版) 日本ホスピス・緩和ケア研究振興財団 日本尊厳死協会 民間の調査報告、新聞記事等
18	<p>次のうち、聞いたことがある言葉をすべて選択してください。</p> <p>※ここまではランダム表示</p> <p><input type="checkbox"/> 少子高齢社会 <input type="checkbox"/> 孤独死 <input type="checkbox"/> 認知介護</p> <p><input type="checkbox"/> 老老介護 <input type="checkbox"/> 高齢多死社会 <input type="checkbox"/> 社会的処方 <input type="checkbox"/> 地域包括ケアシステム <input type="checkbox"/> ポリファーマシー <input type="checkbox"/> 独居 <input type="checkbox"/> 持続可能な社会 <input type="checkbox"/> SDGs <input type="checkbox"/> 2025年問題 <input type="checkbox"/> 2040年問題 <input type="checkbox"/> 健康格差 <input type="checkbox"/> ヘルスリテラシー</p> <p>○いずれも聞いたことがない</p>	<p>以下、「死・死ぬこと」に対する、2040年の自分に関する調査項目である。導入設問として設定した。</p> <p>社会的問題や対策・方針などに関連する用語を羅列しているが、設定用語の選択自体に特に意味はない。</p>
19	<p>【20年後】を想像してください。日本人の平均寿命は何歳になっていると思いますか。 ※平均寿命(2018年):男性 81.25歳、女性 87.32歳 実数入力</p>	<p>20年後のイメージを惹起するために設定している。</p>
20	<p>【20年後】を想像してください。年金受給年齢は何歳になっていると思いますか。 ※2020年現在、65歳です。 実数入力</p>	<p>20年後のイメージを惹起するために設定している。</p>
21	<p>ご自分の【20年後】を想像してください。20年後の自分が、自分の死に方を決められるとしたら、どちらを選びますか。</p> <p>○ 事故や心臓病・脳梗塞などで、突然死ぬ</p> <p>○ 寝たきりになっても良いから、徐々に弱って死ぬ</p>	<p>20年後のイメージを惹起するために設定している。</p>
22	<p>ご自分の【20年後】を想像してください。人生の最期まで「あなたらしく生きる」ために必要なこと/ものは何ですか。あなたのお考えに近い選択肢をすべて選んでください。</p> <p><input type="checkbox"/> 自分らしい生活環境(衣食住)があること</p> <p><input type="checkbox"/> 行政の経済的サポート</p> <p><input type="checkbox"/> 家族・配偶者・パートナーなどの同居人がいること</p> <p><input type="checkbox"/> 金銭的余裕</p> <p><input type="checkbox"/> 家族・配偶者・パートナーの理解・サポート</p> <p><input type="checkbox"/> 趣味や楽しみがあること</p> <p><input type="checkbox"/> 仲間・コミュニティ・社会とのつながり</p> <p><input type="checkbox"/> 自分に合った医療・介護支援制度</p> <p><input type="checkbox"/> 行政の医療福祉制度の充実</p> <p><input type="checkbox"/> 正しい知識・情報の入手</p> <p><input type="checkbox"/> 自分に合った健康維持・予防のための支援制度</p> <p><input type="checkbox"/> 健康であること</p>	<p>2040年の医療政策立案に向けた設問である。</p> <p>健康な生活を送るために必要とされる基本的衣食住、社会とのつながり、並びに行政支援等について選択肢を設定している。</p>
23	<p>ご自分の【20年後】を想像してください。一つ前の質問について、人生の最期まで「あなたらしく生きる」ために必要なこと/ものが得られなかった場合、どのような支援が必要になると思いますか。最もあてはまるものを1つだけ選択してください。</p> <p>※ランダム表示</p> <p>○自分の生活環境や考え方の見直し支援</p> <p>○行政の経済的サポート</p> <p>○家族・配偶者・パートナーの理解・サポート</p> <p>○行政の医療福祉制度の充実</p> <p>○社会とのつながり方の見直し支援</p> <p>○その他</p>	<p>2040年の医療政策立案に向けた設問である。</p> <p>健康な生活を送るために必要とされる基本的衣食住、社会とのつながり、並びに行政支援等について選択肢を設定している。</p>

24	<p>人生の最期まで「あなたらしく生きる」ための希望や願いに関する意思表示について、運転免許証や健康保険証の裏面に記載欄があったら記載しますか(例;臓器提供意思表示)。 <input type="radio"/> そう思う・どちらかと言うとそう思う <input type="radio"/> そう思わない・どちらかと言うとそう思わない。</p>	<p>意思表示について、既に利用されている社会インフラより、実行可能性が高いと想定される方法の有効性を検討すべく、設定した。</p>
25	<p>人の価値観や想いは日々変化していきます。人生の最期まで「あなたらしく生きる」ための希望や願いに関する意思表示の登録・更新方法やその時期について、最も良いと思うものを選択してください。 <input type="radio"/> スマートフォンなどのアプリを利用して、ID/PW 付のデータバンクへの登録し随時更新 <input type="radio"/> 年 1 回の会社/自治体からの周知(健康診断・確定申告など)に合わせて更新 <input type="radio"/> 臓器提供ドナーカードのように、運転免許証などの身分証明証の更新時 <input type="radio"/> もっと良い方法がある→最後の設問(自由記載)で入力してください。 <input type="radio"/> そもそもやらない方が良い。 ※ランダム表示</p>	<p>意思表示の定期的な見直し方法について、既に利用されている社会インフラより、実行可能性が高いと想定される選択肢を設定した。</p>
26	<p>【70 歳になった】ご自分を想像してください。そのころの社会では、医療・介護・健康はどのように変化していると思いますか。あなたのお考えに近い選択肢をすべて選んでください。 <input type="checkbox"/> 日本人の平均寿命が 100 歳を超えている <input type="checkbox"/> 定年退職が 80 歳前後になる <input type="checkbox"/> 定年退職制度がなくなっている <input type="checkbox"/> 現在の国民皆保険制度に代わる、新しい保険制度ができています <input type="checkbox"/> AI や IT によって、個人の健康状態が把握・管理されている <input type="checkbox"/> AI や IT による新しい形の介護・看護が普及している <input type="checkbox"/> 介護ロボットによる介護医療が普及している <input type="checkbox"/> 実際に介護ロボットにより、自分が介護されている <input type="checkbox"/> 現在の年金制度に代わる、新しい年金制度ができています <input type="checkbox"/> 医療の発展により、自分の臓器を取り換えることができるようになる <input type="checkbox"/> 医療・介護・健康に関する問題はほとんど解決されている <input type="checkbox"/> 正確な余命が計算できるようになる</p>	<p>以下、「死・死ぬこと」に対する、70 歳の自分に関する調査項目である。導入設問として設定した。 近未来に想定される社会構造の変化に関する選択肢を羅列しているが、設定した選択肢自体には特に意味はない。 選択肢の設定に関しては、以下の調査および報告等を参照した。 ・厚生労働省保険局:「2040 年を展望した社会保障・働き方改革本部のとりまとめについて」を参照している。 ・三菱総合研究所政策・経済研究センター:未来社会構想 2050</p>
27	<p>【70 歳になった】ご自分を想像してください。次の文章を読んで、あなたのお考えに最も近い選択肢を選んでください。 【状況】あなたは元気な 70 歳です。熱と咳が数日続いたので近くのクリニックを受診しました。呼吸や食欲は普段と変わりません。医師の診断は「感冒(カゼ)」。咳止めのお薬を処方され、安静に過ごすよう言われました。あなたはどうしますか。最も近い選択肢を選んでください。 <input type="radio"/> 言われた通り、帰宅し安静に過ごす <input type="radio"/> 市販の風邪薬を服用する <input type="radio"/> 総合感冒薬(風邪薬)の処方をお願いする <input type="radio"/> 抗生物質(菌を殺す薬)の処方をお願いする <input type="radio"/> 直接言いつらいので、他のクリニックに再受診し欲しい薬を貰う <input type="radio"/> 数年前に処方されて余っていた抗生物質を服用する ※ランダム表示</p>	<p>状況設定設問である。 受診と服薬行動について確認するために設定している。回答者の調査時年齢における設問としても有効であると考え。</p>

28	<p>【70 歳になった】ご自分を想像してください。次の文章を読んで最もあなたらしい生き方だと思われる選択肢を選んでください。</p> <p>【状況】あなたは元気な 70 歳です。何もせず、薬を服用しない場合の寿命は 95 歳です。いずれの選択肢でも、亡くなる時は、数日前から意識が低下し穏やかに亡くなります。</p> <ul style="list-style-type: none"> ○ 毎日 10 種類の薬を飲み元気を保っている。薬の副作用で 60 分以上のウォーキングは難しいが、日常生活のサポートは不要。ただし、いつ死ぬかわからない。 ○ 毎日 5 種類の薬を飲み元気を保っている。薬の副作用で 30 分以上のウォーキングは難しいが、日常生活のサポートは不要。寿命は 10-15 年の間である。 ○ 毎日 2 種類の薬を飲み元気を保っている。薬の副作用で 15 分以上のウォーキングは難しいが、日常生活のサポートは不要。寿命は 5-7 年の間である。 ○ 何の薬も飲んでいない。少しずつ衰え、最後の 3 年は日常生活にサポートが必要になる。寿命は 95 歳である。 	<p>状況設定設問である。 医療経済学的観点における死生観について検討するために設定している。</p>
29	<p>本調査でお答えいただいた回答について、新型コロナウイルス感染症の世界的パンデミックによる、「生きること」もしくは「死ぬこと」に対するあなたの価値観は変わったと思いますか。</p> <ul style="list-style-type: none"> ○ 大きく変わった ○ 多少変わったと思う ○ あまり影響はない ○ まったく変わっていない 	<p>COVID-19 の影響が大きいことから、回答結果にバイアスが生じると想定されるため、設定した。</p>
30	<p>最後に、2040 年の日本の医療制度・医療政策について、期待や要望、ご提案などがありましたら記入してください。 直接入力 (200 字以内、※この質問は任意です)</p>	<p>自由記載</p>