

Analysis of Factors Influencing the Decision-Making of the Elderly

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Abstract

The aging rate in Japan is 29.0% as of 2022, and it is rising due to the decrease in the total population and the increase in the population aged 65 and over. It is significant to clarify what characteristics are present in the decision-making and behavior of the elderly. Therefore, this study conducts interviews with the elderly and qualitatively analyzes the data obtained to examine the factors that influence the decision-making of the elderly.

Keywords: Elderly, Decision-Making, Interviews

1 Introduction

The aging rate in Japan is 29.0% as of 2022 [1]. While the total population is decreasing, the number of people aged 65 and over is increasing, and the aging rate is expected to continue to rise, reaching 33.3% in 2037, when one out of every three people in Japan will be aged 65 or over. Even as the population aged 65 and over declines after 2043, the aging rate will continue to rise, reaching 38.7% by 2052, when it is estimated that one out of every 2.6 of the nation's population will be aged 65 and over[1]. With the growing proportion of the elderly, it is important to understand the characteristics of the elderly, as it will help to build an environment that is easier for them to live in and to help them understand themselves, including non-elderly generations.

What kinds of ideas and attitudes do older adults base their decision-making on. In conventional research on the elderly, research has mainly focused on health-related areas such as health care, disease prevention, and improvement of the health care system and long-term care policies for the elderly [2], as well as medical research on the mechanisms of dementia and Alzheimer's disease, early diagnosis, and maintenance and improvement of cognitive functions [3]. Although there has been research on psychosocial aspects of life satisfaction, loneliness, mental health, and social participation among the elderly [4], not much research has been conducted on decision-making motives and motivation for action among the elderly. Previous research on decision-making has shown that all humans behave rationally, but it has also shown that humans behave irrationally [5]. It is significant to clarify what characteristics are present in the decision-making and behavior of the elderly.

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Therefore, in this study, interviews were conducted with elderly people, and the data obtained were qualitatively analyzed to examine the factors that influence the decision-making of the elderly.

2 Related Research

Many studies have been conducted on the characteristics of the elderly. We will discuss survey results on representative theories and studies.

2.1 Research on Behavioral Characteristics of the Elderly

First, the self-perception of human aging is called senescence awareness.

The “elderly awareness” can be divided into two types: “awareness from within” and “awareness from without”. “Awareness from within” refers to one’s awareness of one’s own aging through various physical declines, such as the decline of one’s eyesight and hearing, whitening or loss of hair, teeth falling out and becoming dentures, physical fatigue, etc., as well as through slowing down in daily calculations and increased memory loss.

On the other hand, “awareness from without” is the awareness of aging from various social events, such as the growth and independence of children, the birth of grandchildren, separation from spouse or friends, retirement from work, or being treated as an old person by others [6].

As people age, they experience many losses, such as physical losses, such as loss of sight and hearing and slower walking, loss of social roles due to retirement from work, loss of existing relationships due to the death of a spouse, friend, or someone close to them, and so on. The human aging period, during which people experience such losses, can be a stressful time compared to other developmental stages. However, it is not the case that elderly people are not happy during the stressful aging period; when comparing elderly people with younger people, there is no difference in subjective well-being and psychological stability of elderly people, and it has been reported that elderly people have more stable moods compared to younger people [7]. Why is it that psychological well-being is maintained in older age despite experiencing more loss. One theory that explains this mechanism of emotional regulation is the Socioemotional Selectivity Theory (SST) proposed by Carstensen et al [8].

SST is a theory that explains how the perception that the remaining time in one’s life is finite affects one’s thinking and behavior. When people perceive that their remaining time in life is limited, they are said to value the “now” and make emotional adjustments that satisfy their current feelings. It states that older adults are motivated to take emotionally valuable actions as a result of their perceived limited remaining time. They explain that the elderly are able to lead happy and psychologically stable lives even in stressful situations because they value emotional control and emotional regulation and emotional satisfaction and invest cognitive or social resources to obtain them [9].

Carstensen et al. also experimented with a dot-probe task on information acquisition in older adults. In the dot-probe task, participants were presented with one of three facial photographs, one showing sadness, anger, or happiness, and one showing a neutral facial expression on either side of a monitor, and then a gray dot appeared where one of the photographs had been presented, and participants in the experiment judged whether the dot appeared on the left or right

side of the monitor. The results of the experiment showed that the elderly participants had faster reaction times when the dots appeared on neutral or positive face pictures than on negative face pictures. This result also suggests that the elderly avoid paying attention to negative information as soon as it is presented and give priority to positive information [10].

In addition, people set various goals in their daily lives. As a strategy for goal selection and goal attainment in elderly, the selective optimization with compensation theory (SOC theory) proposed by Baltes et al. In everyday life, people experience positive emotions when they set and achieve goals. In order to live happily, it is important for the elderly to achieve a variety of goals as well. Therefore, the SOC theory states that elderly people devise ways to achieve their goals by selecting their goals, optimizing their resources to solve their goals (optimization), and providing assistance from outside (compensation). Barthes uses the example of the pianist Rubinstein to illustrate SOC theory. Rubinstein was famous for his fast piano playing, but as he got older, it became difficult for him to play fast. Therefore, he stopped aiming to play fast or play many pieces (selection) and reduced the number of pieces he played so that he could devote more time to practicing a limited number of pieces (optimization). He also adopted a strategy to sound like he was playing fast by playing the non-fast parts more slowly than before (compensation) [11].

As for one's sense of time, people feel that time passes quickly or slowly, but it is generally believed that time passes more quickly as one gets older. Kato conducted an experiment on the passage of time with subjects aged 18 to 85 years, and found that as a sense of time among the elderly, they are aware of the rapidity of the passage of time not only for long time intervals of a year or more, but also for the passage of an hour or a day [12].

Furthermore, until now, the elderly have generally been perceived as recipients of support and altruistic behavior. However, with the aging of the population, many situations in which the elderly demonstrate altruism toward the young by utilizing their own experience and wisdom, such as supporting children raising children or volunteering as senior citizens, are being recognized in society [13]. Such altruistic behavior of the elderly toward the young is believed to lead to the acquisition of a sense of purpose in life, improvement of subjective well-being, and improvement of "generativity," a psychological development proposed by Erikson [14]. Generativity is defined by Erikson as "the interest in teaching and leading the next generation" [15]. In recent years, it has also become clear that older adults' sense of well-being cannot be improved without feedback from the recipients of their support, who provide support and gain a sense of well-being [16].

2.2 Research on Behavioral Characteristics from a Behavioral Economics Perspective

Over the years, some prominent researchers in both economics and psychology have criticized some of the tenets of mainstream economics as psychologically unrealistic and proposed alternative assumptions that they believed would improve economic analysis. This agitation for greater psychological realism is now yielding results. Commonly labeled "behavioral economics" [17]. It states that this differs from the type of human being treated in behavioral economics, which is *homo economicus*, the type of human being who acts based on economic rationality, the sole criterion of behavior to maximize one's own economic interests, as assumed by the so-called traditional economics.

According to Michelle Baddeley [18], the main theories in behavioral economics are prospect theory, social preference theory, time preference theory, and risk preference theory. Many other researchers have conducted research on theories based on human heuristics and biases. Here, we mention these theories mentioned by Michelle Baddeley.

Through various experiments, Kahneman and Tversky found the existence of behavioral patterns that are inconsistent with the traditional decision-making theory of expected utility, and proposed a new theory called prospect theory as an alternative to expected utility theory by constructing an evaluation model that incorporates the results of these experiments. The “prospect” in prospect theory is a combination of the outcome of adopting a given option and the probability of that outcome occurring, which is the same as gambling under risk. In decision-making under risk, the desired prospect is chosen from among several prospects.

Experiments and other studies have shown that when people are in a situation where things would not be possible without others and each other, they act based on their other-regarding preferences [20]. Such preferences are called “other-regarding preferences.” These other-regarding preferences can be broadly classified into three categories: social preferences, interdependent preferences, and intention-based reciprocity. Social preference is the preference that one considers not only one's own interests but also those of others. Interdependent preference is the preference that people are interested in the “type” of the other person, and if humans are divided into altruistic and selfish people, altruistic people express altruistic preferences when they interact with altruistic people, and if the other person is selfish, they will also act selfishly. Intention-based reciprocity is the presumption that humans will pay attention to the intentions of others and take actions that are detrimental to them if they have bad intentions toward them, and take actions that are beneficial to them if they have good intentions [21][22].

And in relation to social preferences, a study on altruism among the elderly reported that altruistic behaviors toward the younger generation, such as volunteering and other social contribution behaviors by the elderly and support for child rearing, lead to psychological well-being among the elderly [23].

Time preference refers to a preference such that one would prefer a gain of the same amount in the present to a gain of a certain amount in the future. Economic and psychological research on time preference has shown that many people prefer small present gains to large future gains (i.e., they value future gains at a discount) [24][25]. And it is said that as people get older, their time discount rate increases, i.e., their tendency not to wait increases, and they tend to estimate the value of a year in the future at a higher rate [26][27].

Regarding risk preference, the experiment on the gambling task showed that the winning-experienced group bet significantly more in reckless situations than the losing-experienced group, and significantly more positive emotions were evoked [28]. It was also found that there was a significant positive correlation between positive affect and the degree of reckless betting in the second half of the task. Furthermore, Isen & Geva [29] showed that participants who were evoked by positive emotions were more deliberative when the betting amount was high, but had a risk preference when the amount was small. These results suggest that emotions, especially positive emotions, influence risk preference [30]. People are predicted to become more risk averse as they get older [31]. Behind this is

thought to be a biological pathway, with aging decreasing cognitive ability, which in turn leads to decreased risk tolerance [32].

3 Investigation and Analysis of Factors Influencing the Decision-Making of the Elderly

From previous studies, it appears that the behavior of the elderly may not be based on economic rationality, but rather that they make decisions based on some motive that they themselves perceive. Therefore, based on the findings of research on the elderly and behavioral economics, this study aimed to clarify the factors that influence the decision-making of the elderly, and conducted a survey and analysis using the following methods.

3.1 Survey Method

Ten subjects aged 65 years or older were interviewed in March 2024 using the semi-structured interview method. In the interviews, the respondents were asked to reflect on their recent decision-making experiences. We did not limit the content of their decisions, but asked them to name the most recent decisions that had left a lasting impression on them. The interview time was about 30 minutes to one hour per person.

3.2 Analysis Method

The analysis was conducted with the help of the qualitative synthesis method [33], which can represent the whole picture as a unified entity with logical consistency from fragmented information. In order to extract the factors that influence the decision making of the elderly, we used the theoretical framework of research on the elderly and behavioral economics presented in previous studies. The analytical procedure was as follows. (1) From the verbatim transcripts of the interviews, one label was created for each coherence of meaning. (2) All labels were reviewed, and labels with similar contents were gathered together to form groups. (3) Create a nameplate with 80 to 150 characters as a sentence that expresses the meaning of the group. (4) Add matters and essences expressing the nameplate. (5) Classification by the contents that express the characteristics of the elderly.

4 Results of Analysis

The verbatim transcripts of the interviews with the 10 study subjects were analyzed with the aid of the qualitative integration method, and labels were created. The groupings were then repeated and finally consolidated into 17 groups. Table labels expressing the meaning of the groups, as well as the matters and essences that represent the table labels, were created and classified into six categories. Hereafter, groups are denoted by **【】** and labels by **[]**.

4.1 【Myopic view】

As for **[Now is important.]**, “I broke my hand and my husband couldn't do anything about it, so I wanted it fixed as soon as possible, but only if it was a left hand fracture, because it was my right, and I couldn't do anything about it. I didn't compare it to other hospitals, and he had it operated on right away.”

As for [Now, not in the future.], “These days, I buy what I want now. I don't really have or feel the need to do it for something in the future.”

4.2 【Sense of time】

As for [Time is important]. “When I buy something, I look at it on the Internet and make my choice more often. I don't want to waste the time and effort to go to a store and look. This is one of the reasons.”

As for [The day is slower]. “It would be easier to work. Working makes the day go by quicker.” This was mentioned.

4.3 【Changes due to aging】

As for [Changes in one's appearance], “I am in my mid-80s, and even if I buy clothes, there is no way that an elderly person can be popular even if he or she dresses up. It doesn't matter if I dress up.”

As for [Physical deterioration], “I remodeled my bath last year. I was going to fix it after it broke, but since we are old, I thought it would be better to do it while we are still able to move because we don't want to be stuck. We remodeled early because you never know when we're going to be.”

As for, [At my age], “I can't blame it on my age, but you know, as you get older, your body becomes dull. You forget things, and things don't work as well as they did when you were young. It's like when you were young. My body doesn't move the way I want it to, unlike when I was young.” “My movements are really slow now. My movements are really slow now, and my walking is totally different. It's still slow.”

As for [I'm treated like an old man] , “I can still climb up to the top of the big tree in the apartment, but there are some people in the management association of the apartment who are very picky. I know they are thinking about my body, but if I fall down, they say they have to pay me a fee. So I made a pledge that if I fell out of the tree, they wouldn't charge me a fee.”

As for [Restrictions on behavior], “I think I have only three or four years left to do my hobby of fishing. I am 77 years old. I can drive a car for three or four more years, so I think I have three or four more years to go fishing with a car. I switched from a large caravan to a light one, and then from a light one to a motorcycle.”

4.4 【How to relate to others】

As for [I want to help people], “I volunteer to deliver boxed lunches to the homes of elderly people in the city. It's good for my health and I get to meet people in the community.” “I also take care of the azaleas in my condominium because no one takes care of them, and I have soil that I sell to keep the weeds away.”

As for [Helping the young], “There are young people in the neighborhood who are having a hard time raising children. I provide them with various goods and services.”

As for [Teaching others], “Teaching is also a way for me to learn, so I teach.”

4.5 【Setting Goals】

As for [Realistic goals], “I usually go shopping at Takashimaya, but I never go there on weekends because it is too crowded. I buy some things on weekday afternoons and try not to go on weekends. I use mail order for heavy items such as carrots, potatoes, and bottled goods.”

As for [Optimal Goal], “At my age, you switched from a car to a motorcycle. So I got rid of most of the tools I use for work, just the things I need.”

As for [High Goal], “I have always set my goals high. I still do. I think about how I can make 10 million yen a year. That may have something to do with my childhood experiences.”

4.6 【Positive way of life】

As for [Choose Something Fun], “I participate in a project by the city and a university in the city to have people do health checks, exercise checks, and food checks with the goal of getting healthy, and I thought it would be fun to do it together, so I joined.”

As for [Avoiding Trouble], “I don't get into trouble much anymore. It's a hassle, isn't it? There's no end to it once you start talking about it. So I try to keep things as peaceful as possible.”

As for [Relationships that avoid family disputes], “My brother decided the distribution of the inheritance on his own. My second son has his own complaints, and I have mine, too, but we are all content to live in peace because we can live normally. I want to live in peace. I want to live in peace, and I don't want to have to worry about anything.”

5 Discussion

This section discusses similarities and differences based on the results of the analysis of the behavior of the elderly revealed in the qualitative survey in the previous section, in light of previous studies.

5.1 Characteristics of Time Preference

Respondent said, “I broke my hand, and my husband couldn't do anything, so I wanted him to fix it as soon as possible; if it was a left hand fracture, then yes, but it was my right, so I couldn't do anything. I didn't compare with other hospitals and had him operated on right away.” “These days I shop for what I want now. I don't have much of a sense or feel it's for something in the future.” These statements are consistent with the results of a previous study, which showed that people become more impatient as they get older.

On the other hand, the respondent who stated, “I don't want to leave money to my son, and I think it will be easier for him to live if I take care of his things (living space) to some extent.” Respondent is renovating the house systematically so that his son will not be in trouble in the future. They are placing a high value not on the present but on the future life of their sons.

These results indicate that not all events are necessarily myopic in terms of time preference, and that some events allow for future-oriented decision making.

5.2 Characteristics of Sense of Time

The most common response to the question “Sense of time” was “When I buy something, I look at it on the Internet and make my choice. In terms of the statement “I waste time and effort to go to the store and look”, the behavior of trying to value time is also consistent with the previous study in that the elderly in the previous study felt that time goes by too quickly.

On the other hand, “It would be easier to work. If you work, the day will go by faster.” Regarding the elderly who stated that they feel that the day is long, and furthermore, that it would be easier for the day to go by faster, it can be assumed that some elderly feel distress when they feel that the day is long.

The former elderly person has a wife and lives with her. In addition, his two daughters do not live with him, but they regularly return to their parents' home and go on family trips. The latter, on the other hand, stated that his wife has passed away and he lives with his son, but that he has no one to talk to and no longer drinks in the evening, suggesting that his sense of time is related to the way he relates to others, such as his relationship with his roommates.

5.3 Characteristics of Elderly Awareness

All of the interviewees made statements that they themselves were aware that they were “aging. As the equivalent of “awareness from within” in the previous study, they said, “When you get older, you become dull, don't you think? Like forgetfulness. Like when you were young. My body doesn't move the way I want it to. My movements are really slow now, too. Walking is totally different. It's slow. These are some of the comments made regarding the decline in their physical abilities.

As for “external awareness,” he said, “I can still climb up to the top of the big tree in the apartment building, but there are people in the management association of the apartment building who are very noisy. I know they are thinking about my body, but they say that if I fall, they have to pay me a fee. So I made a pledge that if I fall out of a tree, I won't ask for a fee,” she said. Although not directly, it was evident that being treated as an elderly person by those around her and other factors contributed to her awareness of her elderly. Another respondent said, “I am already 77 years old. I can drive a car for three or four more years, so I guess I have three or four more years to go fishing with a car. Many people feel that they are restricted in their activities because it becomes physically difficult for them to drive as they get older, or they are asked to return their driver's license. This restriction in their social life may lead to the perception of elderly.

One person said, “I remodeled my bath last year. We thought about fixing it after it broke, but we are too old to move, so we decided it would be better to do it while we can move. Some of the elderly people are aware of their elderly, and their behavior changes as a result of this awareness.

5.4 Characteristics of Altruism

“I volunteer to deliver lunch boxes to the homes of elderly people in the city. It's good for my health and I get to meet people in the community.” “There are young people in my neighborhood who are having a hard time raising children. I also provide various gifts to them.” “We also take care of the azaleas in the condominium because no one takes care of them, so we sell soil to keep the weeds from growing.”

Previous studies have shown a relationship between altruism and the sense of happiness among the elderly. Based on the situation of the volunteers, it is expected that the elderly's sense of happiness improves when they receive feedback such as gratitude from the recipients of their support. Although we did not ask direct questions related to the sense of happiness in this interview, the points that the interviewees responded to and the content of other conversations suggest that many of the subjects are not in a situation where they would at least think about unhappiness.

Regarding the elderly who stated that “they teach because it is also a way for them to learn,” some of them said that they were acting altruistically and that the source of their altruistic behavior was for their own sake. Therefore, it is necessary to consider whether the source of altruistic behavior of the elderly is only for the benefit of others.

5.5 Characteristics Related to Goal Setting

In SOC theory, there are three components: selection, optimization, and compensation. Selection is the process of choosing one's own goals and optimization is the process of considering how to act in order to achieve one's goals, but must be considered in light of one's own abilities and resources. Compensation is then the process of compensating for what one lacks with something else.

In this subject's interview, he chose the goal of “going shopping on a regular basis” and said, “I never go on weekends because it is crowded. I buy some things on weekday afternoons and try not to go on weekends.” Another person stated that she uses mail order for heavy items such as carrots, potatoes, bottles, and heavy items that are difficult to buy with regular shopping. Another respondent, in terms of “I switched from a car to a motorcycle at my age” for the goal of driving to go out and get around, confirmed that in order to achieve their goal, they have chosen a goal that suits them, changing from driving a car to driving a motorcycle, due to the risk of accidents and financial considerations. This was confirmed by the results of the interviews. From the content of these interviews, it was confirmed that they were taking actions consistent with the SOC theory of selection, optimization, and compensation.

5.6 Characteristics of Positive Thinking

“I thought it would be fun to do it min-do, so I joined.” “I want to live in peace. I want to live in peace. I think that the future is short and there is nothing to mess around with. I want to live in peace.” “I want to live in peace, and I don't want anything to get in the way of that.” This suggests that, in their elderly, they are choosing to have fun and are voluntarily avoiding conflict. This is consistent with Carstensen's theory of socioemotional selectivity.

6 Conclusion

In this study, interviews were conducted with older adults, and the data obtained were analyzed qualitatively. Based on the results of this analysis, we examined the factors that influence the characteristics of decision making among the elderly according to the theories of some previous studies. However, there were some inconsistencies in the time preference and time interval items. Further investigation is needed to determine whether this is the case for the elderly in general, or whether it is due to their backgrounds and current circumstances. We intend to clarify this point in future research.

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