

# Daughters' awareness regarding caregiving for mothers: Impact of the mother-daughter relationship during adolescence

Yukiko Suzuki (Faculty of Health Sciences, Kyorin University, y-suzuki@ks.kyorin-u.ac.jp, Japan)

Shino Iwasaki (Department of Rehabilitation, Kyorin University hospital, shino-iwasaki@ks.kyorin-u.ac.jp, Japan)

Yuiko Kawachi (366 Rehabilitation Hospital, yuimaru.1126@outlook.jp, Japan)

Saki Nawano (Shin Utsunomiya Rehabilitation Hospital, reha@shin-utsunomiya.jp, Japan)

Kotone Honda (Department of Rehabilitation, Koganei rehabilitation Hospital, hond9603@gmail.com, Japan)

Hideki Mochizuki (Faculty of Health Sciences, Kyorin University, hide9@ks.kyorin-u.ac.jp, Japan)

## 将来的な母親介護に対する娘の意識—青年期の母娘関係が与える影響—

鈴木 優喜子 (杏林大学 保健学部)

岩崎 志野 (杏林大学医学部付属病院 リハビリテーション科)

河内 結子 (366 リハビリテーション病院)

縄野 咲 (新宇都宮リハビリテーション病院)

本田 琴音 (小金井リハビリテーション病院 リハビリテーション科)

望月 秀樹 (杏林大学 保健学部)

### 要約

本研究の目的は、青年期の母娘関係に焦点を当て、娘が将来母親を介護しようとする意識の高さと、母娘関係との関連について質問紙調査を通して明らかにすることとした。対象は青年期女性 91 名とし、集団調査を実施して (有効回答率 72.2 %)、介護意識と母娘関係との関係を検討した。将来母親を介護しようとする意識があると回答した者は全体の約 8 割を占めていた。parent-child relationship scale の 81 項目を因子分析した結果、「子が親から信頼・承認されている関係」「親が子と手を切る関係」「親が子を危険から守る関係」の 3 因子構造を仮定したモデルで妥当な適合度が認められた。「親が子と手を切る関係」因子と介護意識との間で有意差がみられ、高群に比べて低群の介護意識の得点が高かった。青年期女性の多くが母親に対して積極的に介護しようとする意識をもっていた。介護意識には、青年期の娘からみた母親との関係が関連しており、親が子を突き放した関係であると感じている娘は、母親を介護しようとする意識が低いことが明らかとなった。

### Key words

adolescence, parent-child relation, taking care, daughters' awareness, survey

### 1. Introduction

Japan is considered a progressively super-aging society, in which family stands as the core of at-home care, and many of the family caregivers are women (Koyama, 2016). In other words, in the current support system in Japan, daughters play a central role in care for their elderly parents. Regarding caregiving and family relationships, it has been indicated that disharmony between family members becomes apparent at the end of life (Baker, 2005; Prince-Paul, 2008). Baba (2020) reported that caregivers who feel that they have a trust relationship with their parents are more likely to accept the caregiving role. Previous studies suggest that caregiving awareness is influenced by family relationships that existed before the onset of a disease that demands caregiving (Baker, 2005; Prince-Paul, 2008; Baba, 2020). When the elderly parent is in need of care, the child may actively try to care for their parent if the parent-child relation-

ship was good before they became in need of care. Conversely, if there is disharmony between parents and children before the onset of the disease, then they may be reluctant in providing caregiving in the future. Therefore, the parent-child relationships before illness and their future caregiving awareness must be examined in more detail.

Among parent-child relationships, mother-daughter relationships have been considered closer and more intimate than other combinations of parent-child relationships (Fischer, 1981; Lamborn & Steinberg, 1993). The reasons for the closeness of the mother-daughter relationship are that women place more importance on communion (Shrier, Tompsett, Shrier, 2004). Further, mother-daughter relationships tend to become more intimate and dependent following marriage and childbirth because their relationship is frequently accompanied by pleasant behaviors such as travels and purchases (Kitamura & Muto, 2001). Japanese culture in particular emphasizes harmony with others and is characterized by low individual independence (Markus & Kitayama, 1991). Additionally, the traditional concept of gender roles has not yet disappeared from the Japanese society,

in which the emphasis is placed on work for men and child rearing and housework for women (Nakai, 2000). Moreover, parents have higher expectations that daughters will take care of them in the future instead of their sons (Mizumoto, 2016). For the daughters' side, it is easier for them to have a closer and more intimate relationship with their mothers because of the remarkable increase in educational attainment in Japan and the continued economic and physical dependence on mothers due to late marriage. Thus, the relationship between the daughter and mother is of lifelong importance (Surrey, 1991). To that end, the quality of the relationship between the mother and daughter has considerable influence on the daughter, and it is crucial to pay closer attention to this important issue.

Meanwhile, adolescence is considered a period of unique conflicts (Lamborn & Steinberg, 1993; Ochiai & Satoh, 1996), and the parent-child relationship during adolescence has a significant impact on children (Mizumoto, 2016; Allen, Hauser, Bell, & O'Connor, 1994). Adolescent college students spend less time with their families and become distant from their parents and are in a period of psychological and social independence (Ochiai et al., 1996; Noguchi & Ichikawa, 2018). These previous studies suggest that mother-daughter relationships during adolescence have different characteristics from those of other ages. Therefore, we focused on that specific period, hypothesizing that the mother-daughter relationship during adolescence has an important impact on future caregiving awareness.

Baba (2019) highlighted, through qualitative research, that the pre-caregiving mother-daughter relationship significantly impacts the daughter's acceptance of caregiving responsibilities for an aging mother. To offer psychological support that truly aligns with the caregiver daughter's emotions, it is important for those around her to comprehend not only the challenges of caregiving but also her acceptance and willingness for it. Despite the crucial role of family caregiving in Japan's rapidly aging society, there remains a notable lack of research exploring how the mother-daughter relationship influences the daughter's willingness to care for her mother in the future. Baba's (2019) qualitative study delved into these dynamics, indicating a need for further quantitative investigation.

Moreover, to the best of our knowledge, there has been a notable absence of research examining mother-daughter relationships during adolescence, a period often marked by tension. Given this context, the present study aims to explore how discord in a mother-daughter relationship might affect the daughter's willingness to undertake her mother's care in the future. Specifically, it identifies which aspects of the mother-daughter relationship shape the daughter's attitude toward caregiving. In doing so, it clarifies the foundational information necessary for developing support strategies for children who may become caregivers in the future.

## 2. Materials and methods

### 2.1 Operationally defined terms

Adolescence was defined as the age between 15 years and 24 years (Ministry of Health, Labour and Welfare of Japan, 2023).

According to Kigo, Kihara, Umeki, Sawamura, Shimonagata (2001), "caregiving awareness" was defined as the "awareness of actively providing assistance (including financial support, environmental adjustment, etc.) or caregiving support to the mother even when she needs help with eating and excretion in bed."

### 2.2 Participants

Questionnaires were distributed to 126 adolescent female medical students attending Kyorin University. We instructed the participants not to answer when they encountered difficulties, such as emotional questions if their mother (biological or not) had passed away or daughters were separated from their mothers. Valid responses of the 111 recovered were those in which all required items were answered. The number of valid responses was 91, the average age of the respondents was  $20.7 \pm 0.6$  years, and 61.5 % of them lived with their mothers (all were biological parents).

Before the study was conducted, we calculated the appropriate sample size using G-Power, with an effect size of 0.6, a *p*-value less than 0.05, and a power of 0.8. For the Mann-Whitney U test, we required 37 participants per group. The sample size of this study met this goal, as the analysis was based on data retrieved from 91 participants. The population survey was conducted in three sessions from January to April 2022.

### 2.3 Evaluation

The questionnaire inquired participants and their mothers' characteristics, mother-daughter relationships, and caregiving awareness. Participant characteristics included sex, age, mother (biological parent) alive, distance to mother's (biological parent) residence (living together, living next door, within 30 minutes one way, within 1 hour one way, and more than 1 hour one way), and their mothers' characteristics (age, health status, occupation, and contact with relatives who are experiencing dementia).

Adolescent daughter-mother relationships were assessed using the parent-child relationship scale (Ochiai et al., 1996). This scale comprises 81 items and six factors for the parent-child relationship, including both the mother and father: relationship where the parent embraces child; relationship toward a child protected by parents; relationship where the parent supports the child when in trouble; relationship where the parent cuts ties with the child; relationship with the child trusted and depended by their parents; relationship where the parent relies on the child (Ochiai et al., 1996). This scale is often used in surveys that categorize child-parent relationships among adolescents (Gao & Kito, 2008; Fujiwara & Ito, 2017; Doi & Miyake, 2018). In our

study, only the mother-child relationship was measured, and responses to each question were asked on a five-point scale ranging from "strongly disagree" to strongly agree."

To evaluate daughters' concepts about taking care of their mothers, we referenced previous research (Kigo et al., 2001) and asked participants to respond to the following statement; "If your mother needed assistance with eating or excretion in bed, then would you try to actively provide caregiving support or assistance (including financial assistance or environmental adjustments) to your mother?" The available responses were "I do not think so at all," "I do not think so," "I am not sure," "I think so," and "I really think so," scoring from 1 to 5, respectively.

Answers were also supplemented with information regarding elements that would hinder caregiving if the mother required caregiving. Referencing Kigo et al. (2001), the aforementioned options were as follows: a lack of confidence in caregiving knowledge and skills; heavy physical burden; need for constant attention; unwillingness to sacrifice one's life; inability to use time freely; having other caregivers; not being good at housework/cooking/washing; financial difficulties; other (multiple answers possible).

## 2.4 Procedure

An anonymous self-administered questionnaire survey was conducted after classes at Kyorin University using the aggregation method. Questionnaires were distributed only to those who consented to participate in the study. The answers were filled in on the spot, and the completed questionnaire was handed to the research collaborators.

## 2.5 Data analysis

To clarify the overall structure of the adolescent daughter-mother relationship, we conducted a factor analysis (Promax rotation) using the principal factor method for 81 items on the parent-child relationship scale by Ochiai et al. (1996).

We calculated the proportion of those who responded to the question of whether they would actively care for their mothers in the future (henceforth, referred to as "caregiving awareness"). Additionally, we examined the relationship between the degree of caregiving awareness and the mother-daughter relationship. Scores of 5 to 1 points were given in order to responses that ranged from "strongly agree" to strongly disagree" with respect to caregiving awareness. Subjects were classified into high- and low-score groups according to the average total score for each factor on the parent-child relationship scale. Subsequently, we performed the Mann-Whitney U test to examine differences in caregiving awareness scores. SPSS (Ver. 21.0, IBM Corporation, Armonk, USA) was used for statistical analyses, and the significance level was set as a  $p$ -value of  $< 0.05$ .

## 3. Results

### 3.1 Questionnaire recovery

We distributed a total of 126 questionnaire copies to students enrolled in Kyorin University, one of Japan's medical universities by hand; 111 were correctly filled out and returned. Twenty respondents with missing data were excluded from the analysis; thus, data from 91 participants (effective recovery rate: 72.2 %) were included in the analysis. It is recommended that a study is validated when its response rate exceeds 70 % (Rubinfeld, 2004). This study had a sufficient response rate for validation of the study. The survey was conducted from January to April 2022.

### 3.2 Attributes of participants

Participant characteristics and evaluation results are shown in Table 1. The survey included a total of 91 participants (mean age,  $20.7 \pm 6$  years), and their mothers' mean age was  $51.6 \pm 3.8$  years; 56 participants (61.5 %) lived with their mothers. Regarding the mothers' health status, 45 (49.5 %) were extremely healthy, 37 (40.7 %) were somewhat healthy, eight (8.8 %) were not very healthy, and one (1.1 %) was not healthy.

### 3.3 Typology of mother-daughter relationships in adolescence

A factor analysis (Promax rotation) using the principal factor method was conducted on the 81 items in the parent-child relationship scale by Ochiai et al. (1996). The results showed that the responses of 91 subjects to the parent-child relationship scale suggested that a three-factor structure was appropriate. To obtain three clear factors, items with low loadings of less than 0.40 (14 items) and those with high loadings on two or more factors were excluded. Further, the value of the reliability coefficient was added, which resulted in the selection of a total of 28 items (Table 2). The items that constitute each of the three factors in this study and those that constitute the factors of "relationship with the child trusted and depended by their parents," "relationship where the parent cuts ties with the child," and "relationship toward a child protected by parents" in previous research (Ochiai et al., 1996) were almost consistent. Therefore, in this study, we adopted the same factor names as in the previous study. Regarding the remaining three factors in the previous study, for the factor "relationship where the parent relies on the child," items related to the first factor named "relationship with the child trusted and dependent by their parents" also includes items relating to the relationship where the parent relies on the child (e.g., "I sometimes feel affection when I see my mother's back," "when in doubt, my mother tries to refer to my thoughts"). Additionally, items related to the relationship where the parent provides support when the child is in trouble (e.g., "my mother encourages me to solve problems on my own when I have problems with my friends" and "my mother teaches me various things when I have problems with school") were in-

Table 1: Characteristics of participants

		Total ( <i>n</i> = 91)
Age of participants, years		20.7 ± 0.6
Household composition, <i>n</i>	Households with parents	13 (14.2 %)
	Households with mother	1 (1.0 %)
	Households with parents and brothers	42 (46.1 %)
	Households with brothers	1 (1.0 %)
	One person living	22 (24.1 %)
Other		12 (13.1 %)
Distance from mother's residence, <i>n</i>	Living together	60 (65.9 %)
	Within 30 minutes one way	1 (1.0 %)
	Within 1 hour one way	1 (1.0 %)
	More than 1 hour one way	29 (31.8 %)
Age of participants' mothers, years		51.6 ± 3.8
Mother's health	Very healthy	82 (90.1 %)
	Somewhat healthy	0 (0 %)
	Not very healthy	8 (8.7 %)
	Not healthy	1 (1.0 %)
Mother's occupation	Employee	27 (29.6 %)
	Self-employed	8 (8.7 %)
	Part-time	32 (35.1 %)
	Homemaker	13 (14.2 %)
	Other	9 (9.8 %)

Notes: Value of age is presented as means ± SDs. Other are presented as number of people (%).

cluded. Furthermore, items related to the relationship where the parent embraces the child (e.g., “my mother tries to entrust me with things and dreams that she could not do” and “my mother wants to know all about my friendships”) were included. Therefore, the “relationship with the child trusted and depended by their parents” seems to have become an item that includes the factors related to the “relationship where the parent relies on the child,” “relationship where the parent provides support when the child is in trouble,” and “relationship where the parent embraces the child.”

We calculated Cronbach's  $\alpha$  coefficient to examine the reliability of the sub-items of the responses to the parent-child relationship scale (Ochiai et al., 1996). The results showed the following: “relationship with the child trusted and depended by their parents” ( $\alpha = 0.92$ ), “relationship where the parent cuts ties with the child” ( $\alpha = 0.87$ ), and “relationship toward a child protected by parents” ( $\alpha = 0.94$ ) (Table 2). Therefore, the validity of the factor structure was judged to be close to the normal level, and the following analysis was conducted using these three factors.

#### 3.4 Actual circumstances of adolescent caregiving awareness

For caregiving awareness, the responses were as follows: “strongly disagree,” two people (2.2 %); “disagree,” 12 people

(13.2 %); “neither agree nor disagree,” seven people (7.7 %); “agree,” 33 people (36.3 %); “strongly agree,” 37 people (40.7 %). Additionally, the caregiving awareness-present group (“agree,” “strongly agree”) included 70 of 91 people (76.9 %), and the caregiving awareness-absent group (“strongly disagree,” “disagree,” “neither agree nor disagree”) included 21 of 91 people (23.1 %). The  $\chi^2$  test indicated a significant bias, and many adolescent women were conscious of actively caring for their mothers ( $\chi^2 = 26.385$ ,  $df = 1$ ,  $p < 0.01$ ).

#### 3.5 Influence of adolescent daughter-mother relationship on caregiving awareness

As a result of principal component analysis, 28 items for three factors were selected, and the scores for each item were totaled to calculate the composite score for each of the three factors. The total score for all three factors has a maximum of 140 points and a minimum of 28 points. Among the subjects analyzed in this study, the highest score was 117 points, the lowest score was 49 points, and the total average score for the three factors was  $39.7 \pm 6.7$  points.

Participants were divided into a high-score group and low-score group according to the average composite score for each of the three factors on the parent-child relationship scale (Ochiai et al., 1996), and the differences in caregiving awareness between the two groups were examined. The results showed that

Table 2: Results of factor analysis of general mother-daughter relationship in adolescents (principal factor method, Promax rotation)

	Factor 1	Factor 2	Factor 3
Factor 1 Relationship with the child trusted and depended by their parents ( $\alpha = 0.92$ )			
My mother trusts me	0.78	0.11	0.05
My mother seems to be genuinely happy with what I do for her	0.71	-0.05	0.01
My mother accepts me as a person	0.71	0.23	0.16
My mother encourages me to solve problems on my own when I have problems with my friends	0.71	-0.06	-0.35
My mother and I try to understand each other's positions	0.71	0.29	-0.01
My mother treats me as an equal	0.70	0.07	0.07
My mother teaches me various things when I have problems with school	0.69	-0.14	-0.29
My mother respects my privacy	0.69	0.17	0.13
My mother encourages me to solve problems on my own when I have problems with school	0.69	-0.11	-0.36
My mother says that the child's happiness is the mother's happiness and watches over me	0.68	-0.01	-0.21
My mother doesn't interfere but always cares about me	0.67	0.21	0.05
My mother and I have a relationship of mutual respect as individuals	0.63	0.36	0.11
My mother quietly watches over me from a distance	0.62	0.27	0.39
My mother teaches me various things when I have problems with studying	0.60	-0.17	-0.35
I am an equal to my mother, so I can say what I want to say	0.58	0.31	0.14
I sometimes feel affection when I see my mother's back	0.57	-0.07	-0.27
My mother tries to entrust me with things and dreams that she could not do*	-0.48	-0.13	-0.38
My mother believes I am getting along well with friends	0.43	0.26	0.09
My mother wants to know all about my friendships*	-0.41	-0.12	-0.04
When in doubt, my mother tries to refer to my thoughts	0.40	0.08	-0.25
Factor 2 Relationship where the parent cuts ties with the child ( $\alpha = .87$ )			
My mother says "just live as you want" and does not take care of me	-0.35	0.77	-0.15
My mother does not care regardless of what I do*	-0.19	0.74	0.05
My mother seems to have no interest in my career*	-0.26	0.72	0.00
My mother neglects me*	-0.21	0.71	-0.08
My mother tells me that I don't need to come home*	-0.17	0.66	0.01
My mother is not very interested in me*	-0.33	0.60	0.07
Factor 3 Relationship toward a child protected by parents ( $\alpha = .94$ )			
My mother picks me up when I come late	0.23	-0.28	0.72
My mother picks me up when I come home late at night	0.21	-0.32	0.71
Correlation between factors	Factor 1	-0.33	0.21
	Factor 2	—	-0.24

Note: \* Inverse item.

there was a significant difference for the "relationship where the parent cuts ties with the child" factor, and the score of caregiving awareness in the low-score group was higher than that in the high-score group. In other words, the daughter's relationship with her mother was significantly related to caregiving awareness. Specifically, the results showed that daughters who felt that they were in a relationship where the mother cast them aside had lower awareness of providing caregiving support or assistance to their mother. Meanwhile, for the factors "relationship with the child trusted and depended by their parents" and "relationship toward a child protected by parents" had no sig-

nificant differences in caregiving awareness (Table 3).

### 3.6 Aspects adolescent daughters consider to be hindrances to future caregiving

A breakdown of the aspects that would be hindrances when providing caregiving support to mothers is as follows in descending order: inability to use time freely (67 people, 73.6 %); need for constant attention (45 people, 49.5 %); heavy physical burden (36 people, 39.6 %); lack of confidence in caregiving knowledge and skills (28 people, 30.8 %); financial difficulties (19 people, 20.9 %); unwillingness to sacrifice one's life (14

Table 3: Differences in caregiving awareness scores for each factor in the mother-daughter relationship

		Caregiving awareness		
		<i>n</i>	Median	<i>p</i> value
Factor 1	Low-score group	40	4.0 (3,5)	0.110
	High-score group	51	4.0 (4,5)	
Factor 2	Low-score group	54	4.5 (4,5)	0.008* low-score group > high-score group
	High-score group	37	4.0 (3,5)	
Factor 3	Low-score group	37	4.0 (4,5)	0.863
	High-score group	54	4.0 (4,5)	

Notes: \*  $p < 0.01$ . All items were compared using the Mann-Whitney's U test (median [1st quartile, 3rd quartile]).

people, 15.4 %); not being good at housework/cooking/washing (six people, 6.6 %); other (two people, 2.2 %); and having other caregivers (one person, 1.1 %).

#### 4. Discussion

In our study, we discovered three detected factors that matched the “relationship with the child trusted and depended by their parents,” “relationship where the parent cuts ties with the child,” and “relationship toward a child protected by parents.” Subsequently, we confirmed that the three elements that represent the characteristics of parent-child relationships in adolescents described by Ochiai et al. (1996) were accurately reflected.

Of the three factors detected by factor analysis in this study, the first factor—“relationship with the child trusted and depended by their parents”—included question items for the “supporting relationship,” “relationship toward a child protected by parents,” and “embracing relationship” proposed by Ochiai et al. (1996) in addition to the above factor. Ochiai et al. (1996) also stated that the “relying relationship,” “relationship with the child trusted and depended by their parents,” and “supporting relationship” were prominent among the characteristics of parent-child relationships among university students. Therefore, the “relationship with the child trusted and depended by their parents,” “relying relationship,” and “supporting relationship” were consistent with these characteristics.

Approximately 80 % of adolescent women responded that they had caregiving awareness, and many of the late adolescent women were actively aware of caregiving. Kayukawa (2001) reported that more women than men would like to take care of their parents when they age. The fact that this survey only targeted daughters actually enriched the proportion of the responders that had a high level of caregiving awareness. Additionally, this study targeted medical Japanese university students, a target group that presumably had a high interest in medical and nursing care and an appreciation toward their parents' efforts to provide them all the necessary supplies and opportunities to study medicine. This is assumed to constitute the main reasons many of them had high active caregiving awareness.

It was revealed that the participants' belief that their mothers have cut them off was related to their future awareness for the caregiving of their mother. More elaborately, if the relationship between the mother and daughter was interrupted, then there was higher probability that the adolescent daughter would have a lower awareness of providing caregiving support to her mother in the future. This is explained through the severing of the close ties of a two-way relationship between the mother and the adolescent daughter, which affects the adolescent's sensitive and developing psychology. Conversely, the continued assistance and support of the mother and the healthy nurturing of her relationship with her daughter yield an increased awareness for providing caregiving support from her side in the future. This result, although reasonable, can be said to be a new finding determined in a quantifiable manner.

Meanwhile, the “relationship with the child trusted and depended by their parents” and “relationship toward a child protected by parents” did not show any association with future caregiving awareness. Allen & Walker (1992) indicated that caregiving is an activity that fulfills a function similar to child rearing, while Colin (1995) revealed that parent-child caregiving means the reversal and replacement of parent-child power relationships and responsibilities. Karantzas, Evans, Foddy (2010) highlighted that stable attachment and trusting relationships can mitigate the challenges of caregiving. In a qualitative study, Baba (2019) interviewed daughters who are caregivers for their mothers, investigating the relationship between caregiving continuation and emotional experiences. Baba's (2019) findings indicated that psychological independence within the mother-daughter relationship before caregiving facilitated a more accepting attitude toward the caregiving role. The results of this study showed no association between caregiving awareness and the possible trust the daughters have established with their mothers. This can be explained by the fact that our study targeted adolescents with no experience of caregiving, while Baba (2019) mainly focused on middle-aged people with experience in caregiving. Additionally, the onset of a disease may differentiate the impact of parent-child relationships regarding the awareness of caregiving. Daughters might have different

awareness if they exhibit caregiving because of a health issue compared to those who have not experienced it before, and they responded to the questionnaire only by imagining that it may happen in the future. The results of this survey showed that awareness when imagining future caregiving for mothers was not related to whether the relationship between the mother and the adolescent daughter had a strong bond of trust.

Hindrances to caregiving included responses of "inability to use time freely" at approximately 70 % and "need for constant attention" at approximately 50 %. Many adolescent women had a negative impression of future caregiving because of their lack of time. Aoki, Tagashira, Morishita, Yamasaki, Hirai, Kira, Jinno (2002) reported that the use of social services such as outpatient rehabilitation reduced the sense of caregiving burden in approximately 90 % of caregivers. Adolescents may be unaware of these available social services or may not have adequate information about social services and care environments. This may lead to the distorted impression that taking on caregiving does not leave the caregiver with much spare time. The results suggest that disseminating accurate information about the environment surrounding caregiving requires implementing educational activities for adolescents to provide information on caregiving, such as types of social services and conditions under which they can be used.

## 5. Strengths and limitations

Our study had some limitations. First, the participants were students of a medical university and may have had a heightened sense of caregiving awareness compared to the general population. As the study sample included women with an interest in medicine and caregiving, selection bias may have influenced the survey results. Therefore, future research should include mother-daughter couples sampled from the general population.

Second, as the mothers of most participants were in good health, the participants were asked to report on their caregiving awareness with the assumption that they had not yet experienced caregiving for their mothers, imagining that this may occur in the distant future. Therefore, the impact of the parent-child relationship before the onset of the disease may differ between caregiving awareness by those with experience in caregiving and awareness of caregiving that may occur in the future (and which has not yet been experienced). This study's findings should be interpreted with caution, and future studies should target middle-aged women who are facing caregiving or are in urgent need of caregiving supplemented with comparisons with adolescents.

## Acknowledgments

We would like to express our sincere gratitude to all the participants.

This study was approved by the institutional review board of the Faculty of Health Sciences, Kyorin University (Approval number: 2021-78). In the survey cooperation request form, we

clearly stated the purpose of the survey, the protection of personal information, the fact that cooperation in the survey was voluntary, and that there would be no disadvantages due to non-participation. The questionnaires were anonymous, and it was assumed that consent to participate in the research was given upon recovery, a fact specified in the questionnaire. This study was conducted in accordance with the ethical guidelines of the first and corresponding author's university. The authors have no conflicts of interest to declare.

## References

- Allen, J. P., Hauser, S. T., Bell, K. L., & O'Connor, T. G. (1994). Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development*, 65, 179-194.
- Allen, K. R. & Walker, A. J. (1992). Attentive love: A feminist perspective on the caregiving of adult daughters. *Family Relations*, 41, 284-289.
- Aoki, E., Tagashira, K., Morishita, K., Yamasaki, T., Hirai, T., Kira, H., & Jinno, Y. (2002). Needs of day care user family and factors of exercising influence on the using frequency. *Journal of Kochi Rehabilitation Institute*, 4, 25-28. (in Japanese)
- Baba, A. (2019). A qualitative study on daughters' acceptance of caregiving for their elderly mothers. *Journal of Japanese Clinical Psychology*, 37, 248-258. (in Japanese)
- Baba, A. (2020). The impact of parent-child psychological independence before caregiving on caregiving: Focusing on acceptance of mother-daughter caregiving. *Japanese Journal of Applied Psychology*, 45, 198-206. (in Japanese)
- Baker, M. (2005). Facilitating forgiveness and peaceful closure: the therapeutic value of psychosocial intervention in end-of-life care. *Journal of Social Work in End-of-Life & Palliative Care*, 1, 83-95.
- Colin, V. L. (1995). *Human attachment*. New York: McGraw-Hill.
- Doi, M. & Miyake, S. (2018). Influence of parent-child relationship on self-injurious behaviour tendency. *Japanese Journal of Psychosomatic Medicine*, 58, 423-431. (in Japanese)
- Fischer, L. (1981). Transitions in the mother-daughter relationship. *Journal of Marriage and Family*, 43, 613-622.
- Fujiwara, A. & Ito, Y. (2017). Development of a scale to measure responses of individual university students' confrontations and conflicts with their parents. *Japanese Journal of Counseling Science*, 50, 32-40. (in Japanese)
- Gao, T. & Kito, T. (2008). How university students of different social cultures in China or in Japan negotiate their dependence or independence? *Kurume University Psychological Research*, 7, 19-28. (in Japanese)
- Karantzas, G. C., Evans, L., & Foddy, M. (2010). The role of attachment in current and future parent caregiving. *Journals*

- of *Gerontology, Series B: Psychological Sciences and Social Sciences*, 65, 573-580.
- Kayukawa, S. (2001). A study on the awareness about aged society and parents care: Through survey on the awareness of nurses, nursing students and college students. *Research Journal of Care and Welfare*, 8, 50-57. (in Japanese)
- Kigo, R., Kihara, S., Umeki, S., Sawamura, M., & Shimonagata, I. (2001). Middle-aged and elderly people's concepts about taking care of family members. *Educational Research and Training Faculty of Education Kumamoto University*, 18, 29-35. (in Japanese)
- Kitamura, K. & Muto, T. (2001). The influence adult mother-daughter relationships daughters psychological well-being: Life events of marriage and childbearing. *The Japanese Journal of Developmental Psychology*, 12, 46-57. (in Japanese)
- Koyama, Y. (2016). A preliminary analysis on care-giving for the elderly parents of married women. *Journal of Population Problems*, 72, 28-43. (in Japanese)
- Lamborn, S. D. & Steinberg, L. (1993). Emotional autonomy redux: Revisiting Ryan and Lynch. *Child Development*, 64, 483-499.
- Markus, H. & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224-253.
- Ministry of Health, Labour and Welfare of Japan (2023). Healthy Japan 21 (Lifestyle guidance and mental health care). Kenko nippon 21 (Seikatsu shido oyobi mentaru herusu kea). Report in Japanese, Accessed March 9, 2023. <https://www.mhlw.go.jp/bunya/shakaihoshoh/iryouseido01/pdf/info03k-03.pdf>.
- Mizumoto, M. (2016). Development of a mother-daughter intimacy scale for emerging adult woman and the effects of intimacy on daughters' psychological independence. *The Japanese Journal of Adolescent Psychology*, 27, 103-118. (in Japanese)
- Nakai, M. (2000). Gender-role attitudes and young women's career socialization. *Ritsumeikan Review of Industrial Society*, 36, 117-126. (in Japanese)
- Noguchi, Y. & Ichikawa, M. (2018). A study of psychological independence of female college students and father-daughter relationship. *Bulletin of the College of Humanities and Social Sciences, Ibaraki University*, 3, 27-49. (in Japanese)
- Ochiai, Y. & Satoh, Y. (1996). An analysis on the process of psychological weaning. *The Japanese Journal of Educational Psychology*, 44, 11-12. (in Japanese)
- Prince-Paul, M. (2008). Relationships among communicative acts, social well-being, and spiritual well-being on the quality of life at the end of life in patients with cancer enrolled in hospice. *Journal of Palliative Medicine*, 11, 20-25.
- Rubinfeld, G. D. (2004). Surveys: An introduction. *Respiratory Care*, 49, 1181-1185.
- Shrier, D. K., Tompsett, M., & Shrier, L. A. (2004). Adult mother-daughter relationships: a review of the theoretical and research literature. *The Journal of the American Academy of Psychoanalysis and Dynamic Psychiatry*, 32, 91-115.
- Surrey, J. L. (1991). Woman and empathy: Implications for psychological development and psychotherapy. In Jordan, J. V., Kaplan, A. G., Miller, J. B., Stiver, I. P., & Surrey, J. L. (eds.). *Women's growth in connection: Writings from the stone center*. (pp. 35-43). New York: The Guilford Press.

(Received March 5, 2024; accepted March 26, 2024)