

ORIGINAL

Depression in Family Caregivers of the Frail Elderly in Sapporo, Japan: A Cross-Sectional Study.

Asae OURA^{1,2)}, Mitsuru MORI²⁾, Hisako IZUMI³⁾, Masakazu WASHIO⁴⁾

¹⁾ Research Fellow of the Japan Society for the Promotion of Science (JSPS Research Fellow),

²⁾ Department of Public Health, Sapporo Medical University School of Medicine,

³⁾ Department of Nursing, Sapporo Medical University School of Health Science,

⁴⁾ Faculty of Nursing, St. Mary's College

ABSTRACT

Background: Depression affecting caregivers is a risk factor for discontinuing at-home care.

Objective: The present cross-sectional study was conducted to evaluate factors related to depression of family caregivers.

Methods: A cross-sectional study was conducted in order to evaluate factors related to depression among family caregivers for the frail elderly with periodic nurse service in 2008, in 7 home-visiting nursing service stations in Sapporo, Japan. Caregivers were asked to answer a self-administered questionnaire about various factors that might affect their depression, and also to complete a Center for Epidemiologic Studies Depression Scale Evaluation (CES-D). We analyzed 71 pairs in total.

Results: Factors related to poor health (OR=3.40, 95% CI: 1.13, 10.18) and a longer time spent physically caregiving (OR=3.08, 95% CI: 1.02, 9.35) were associated with being depressed. On the other hand, factors related to a good or fair economic position (OR=0.30, 95% CI: 0.10, 0.91), having a sister or brother who could help from the outside (OR=0.21, 95% CI: 0.05, 0.91), being able to relieve irritation caused by caregiving (OR=0.10, 95% CI: 0.03, 0.36), using the care service at home well (OR=0.24, 95% CI: 0.06, 0.98), and being able to pay more than 10,000 Japanese Yen by themselves as part of the total care service costs (OR=0.15, 95% CI: 0.04, 0.57) were associated with not being depressed.

Conclusion: Caregivers should be supported not only informally but also by a new government funded system.

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Key words: Depression, Family caregivers, Frail elderly, Long-term Care Insurance, Japan

1 INTRODUCTION

Improvements in public health and advances in medicine after World War II have given Japan the longest life expectancy in the world ¹⁾. This has led to a dramatic increase in the number of elderly people in Japan, which is now well-documented ¹⁾, and a concurrent increase in the number of elderly in need of care (frail elderly). It is estimated that the number of frail elderly will reach 3.9 million by 2010²⁾. Both the physical and mental burdens placed on caregivers of the frail elderly are often the responsibility of family members ¹⁾.

Previously, frail elderly were cared for in the traditional Japanese family system where most Japanese elderly, over 60% compared with 20% or less in the West,

lived with their children ¹⁾. However, recently the birth rate in Japan has decreased dramatically, and the nuclear family has become expanded ³⁾. Therefore, caregivers often have to take care of the frail elderly without any help because other relatives live in distant places and are unable to help. It has been reported that caring for the frail elderly tends to induce depression in the caregivers⁴⁾. Depression affecting caregivers is a risk factor for caregivers discontinuing their provision of at-home care⁵⁾. The present study was aimed at investigating the factors related to depression among caregivers of the frail elderly in Sapporo, Japan.

2 SUBJECTS AND METHODS

Here is one part of the present cross sectional study among the cohort study. A cross-sectional study was conducted in order to evaluate factors related to depression among family caregivers for the frail elderly with periodic nurse service in 2008, in 7 home-visiting nursing service stations in Sapporo, Japan. Written informed consent was received from 86 pairs of caregivers and disabled elderly in October 2008. We excluded 15 patients aged 64 years or younger and their caregivers, because the main users of the Long-term Care Insurance System (LTC) are aged 65 or more. Thus we analyzed 71 pairs in total. The number of frail elderly included 31 males and 40 females with a mean age (\pm standard deviation; SD) of 81.1 ± 8.0 years, while the number of caregivers included 20 males and 51 females with a mean age (\pm SD) of 65.7 ± 11.6 years old. The relationship of those surveyed to the caregivers included: 15 husbands (21.1%), 20 wives (28.2%), 4 sons (5.6%), 23 daughters (32.4%), 8 daughters-in-law (11.3%), and 1 son-in-law (1.4%). This study was approved by the Ethical Boards of Sapporo Medical University.

The caregivers were asked to complete the following self-administered questionnaires in regards to their health status and caregiving situation in the same manner as in our previous studies ⁶⁻¹¹: (i) questions regarding the caregiver's health status including the Center for Epidemiologic Studies Depression Scale (CES-D) ¹²; (ii) questions regarding demographic variables of the caregivers and their frail elderly; and, (iii) questions regarding several care variables, such as: the time spent physically caregiving, the time spent attending to the frail elderly, and the duration of caregiving.

Information on the frail elderly was collected from medical records. Briefly, the Barthel index ¹³ was employed for physical disability. Visiting nurses assessed the physical disabilities of their claims. To determine whether the elderly had any behavioral disturbance associated with dementia, we asked the caregivers to review behavioral problems listed on the Dementia Behavioral Disturbance (DBD) Scale ¹⁴. In addition, diagnosis of dementia was obtained by reviewing medical records.

Caregivers were divided into two groups according to their CES-D score: (i) those who were depressed (CES-D score is 16 and up ¹²) and (ii) those who were not. Statistical analyses were performed using the Statistical Package for Social Science (SPSS) 15.0J. The

Chi-square test and the Mann-Whitney U-test were used to compare these groups. A multiple logistic regression analysis was conducted to control any confounding factors related to the depression of the caregivers. The odds ratios (OR) and their 95% confidence intervals (95%CI) were calculated for each factor based on the logistic regression coefficient and standard error. For each of the estimations, the OR was adjusted for caregivers' gender, caregivers' age, and life events. A level of 0.05 was used as the critical level of significance.

3 RESULTS

29 (40.8%) of 71 caregivers were depressed. Table 1 shows the characteristics of the caregivers and the frail elderly. Depressed caregivers were more likely to be in poor health ($p=0.02$) than the non-depressed caregivers. Depressed caregivers were less likely to be in good or fair economic positions ($p=0.01$) than their counterparts.

Table 2 illustrates the care setting. Depressed caregivers spent a longer time physically caregiving ($p=0.04$) than the non-depressed caregivers. In additions, depressed caregivers were less likely to have a sister or brother help them from the outside ($p=0.04$), to be able to relieve irritation caused by caregiving ($p>0.01$), to use the care service at home well ($p=0.01$), and to able to pay more than 10,000 Japanese Yen as part of the total care service costs ($p=0.01$) by themselves than non-depressed caregivers.

Table 3 demonstrates the results by multiple logistic regression analysis. After adjusting for caregivers' gender, caregivers' age, and life event, depressed caregivers were more likely to be in poor health (OR=3.40, 95%CI: 1.13, 10.18), and spent a longer time physically caregiving (OR=3.08, 95%CI: 1.02, 9.35) than the non-depressed caregivers. Depressed caregivers were less likely to be in good or fair economic positions (OR=0.30, 95%CI: 0.10, 0.91), to have a sister or brother who could help from outside (OR=0.21, 95%CI: 0.05, 0.91), to be able to relieve irritation caused by caregiving (OR=0.10, 95%CI: 0.03, 0.36), to use the care service at home well (OR=0.24, 95%CI: 0.06, 0.98), and to be able to pay more than 10,000 Japanese Yen as part of total service costs (OR=0.15, 95%CI: 0.04, 0.57) by themselves than their counterparts

4 DISCUSSION

Under LTC in Japan, the care services provided for the frail elderly are performed according to the

Table 1 Comparison between depressed and non-depressed caregivers; characteristics of caregivers and the frail elderly.

| | Depressed (N=29) | Non-Depressed (N=42) | p-value |
|---|--------------------------|---------------------------|---------|
| Caregivers' characteristics | | | |
| Age (years old) | 67.3±12.3 | 64.5±11.0 | 0.19 |
| Gender (Male) | 9 (31.0%) | 11 (26.2%) | 0.66 |
| Caregivers who are spouses | 17 (58.6%) | 18 (42.9%) | 0.19 |
| Consulting with own medical doctor | 20 (69.0%) | 20 (48.8%) ^{##} | 0.08 |
| Felt ill (always, sometimes) | 16 (55.2%) | 12 (29.3%) ^{##} | 0.02 |
| Had a job | 2 (6.9%) | 8 (19.0%) | 0.15 |
| Economic position (good, fair) | 6 (21.4%) ^{###} | 21 (52.5%) ^{###} | 0.01 |
| Life event* | 9 (33.3%) [#] | 10 (23.8%) | 0.42 |
| Patients' characteristics | | | |
| Age (years old) | 79.7±8.1 | 82.0±8.0 | 0.18 |
| Gender (Male) | 13 (44.8%) | 18 (42.9%) | 0.87 |
| Barthel Index | 62.8±29.1 | 54.3±34.0 | 0.34 |
| Dementia | 20 (69.0%) | 33 (78.6%) | 0.36 |
| Dementia with behavioral disturbances** | 5 (17.2%) | 8 (19.0%) | 0.85 |

*Life event: any event which may cause depression within 6 months, e.g., the death of a family member.

**corresponding to up to 1 item: wandering or violence etc Values are expressed as Mean±SD or number (%)

#: n=27, ##: n=41, ###: n=40, ####: n=28

Table 2 Comparison between depressed and non-depressed caregivers; care setting

| | Depressed (N=29) | Non-Depressed (N=42) | p-value |
|---|---------------------------|--------------------------|---------|
| Time spend on physical caregiving(hours/day) | 9.6±6.2 | 7.1±6.4 | 0.04 |
| Time attending the elderly(hours/day) | 9.2±6.0 | 9.0±8.6 | 0.57 |
| Duration of caregiving (months) | 53.4±38.8 | 57.3±50.9 | 0.93 |
| Had family member who helped with caregiving | 12 (41.4%) | 16 (38.1%) | 0.78 |
| Had Help from the outside | 13 (46.4%) [#] | 22 (52.4%) | 0.63 |
| Sister or brother helped from the outside | 4 (11.1%) | 15 (35.7%) | 0.04 |
| Relieving irritation caused by caregiving (possible) | 15 (51.7%) | 37 (90.2%) ^{##} | <0.01 |
| Use of the care service at home (well) | 18 (66.7%) ^{###} | 38 (90.5%) | 0.01 |
| Being able to pay more than 10,000 Japanese Yen as part of the total care service costs | 12 (44.5%) ^{###} | 31 (73.8%) | 0.01 |
| No. of using public care service | 1.7±1.2 | 2.2±1.1 | 0.13 |
| Being able to go out without accompanying the elderly | 20 (71.4%) [#] | 34 (82.9%) ^{##} | 0.26 |

Values are expressed as Mean±SD or number (%) #: n=28, ##: n=41, ###: n=27

Table 3 Odds ratio and 95% confidence intervals for depression associated with related factors.

| | Crude OR (95%CI) | Adjusted OR* (95%CI) |
|---|-----------------------|-------------------------|
| Caregivers' characteristics | | |
| Felt ill (always, sometimes) | 2.97 (1.10, 8.04) | 3.40 (1.13, 10.18) |
| Economic position (good, fair) | 0.25 (0.08, 0.74) | 0.30 (0.10, 0.91) |
| Care setting | | |
| Time spent on physical caregiving(more than 8 hours) | 4.22 (1.47, 12.07) | 3.08 (1.02, 9.35) |
| Help from the outside from a sister or brother | 0.29 (0.08, 0.99) | 0.21 (0.05, 0.91) |
| Relieving irritation caused by caregiving (possible) | 0.12 (0.03, 0.41) | 0.10 (0.03, 0.36) |
| Use of the care service at home (well) | 0.21 (0.06, 0.78) | 0.24 (0.06, 0.98) |
| Being able to pay more than 10,000 Japanese Yen as part of the total care service costs | 0.28 (0.10, 0.79) | 0.15 (0.04, 0.57) |

*Odd ratio: Adjusted "Caregiver's Gender" , "Caregiver's Age" , "Life Event" .**CI: confidence interval

Government Certified Disability Index (Yokaigodo, and Yoshiendo in Japanese)¹⁵⁾. For example, the more seriously physically disabled elderly or mentally disabled elderly will receive more intensive care services than their counterparts. That being said, the incidence of depression among caregivers was higher (40.8%) than among the general public¹⁶⁾. Depression affecting caregivers is a risk factor for caregivers discontinuing caregiving at home⁵⁾; therefore, every effort should be made reduce depression affecting caregivers.

In our previous studies, factors related to depression affecting caregivers were more likely caused by poor health¹⁷⁾, and, as a result, they spent a longer time physically caregiving⁸⁾. The district and time of study were different but there were still similar factors affecting depression as in the past. Depression in caregivers is a risk factor for caregivers not only for discontinuing caregiving at home⁵⁾, but also in how it damages the caregiver's own health^{18, 19)}.

In the present study, depressed caregivers were less likely to be in a good or fair economic position (OR=0.30, 95%CI: 0.10, 0.91), and less likely to be able to pay by themselves more than 10,000 Japanese Yen of the total care services costs (OR=0.15, 95%CI: 0.04, 0.57) than their counterparts. Depressed caregivers were more likely to be able to pay by themselves more than 20,000 Japanese Yen of the total care service costs in our previous study¹⁰⁾; however, the present results show the reverse. In future investigations, we would like to investigate the ratio of the effect to income.

Depressed caregivers were less likely to have a sister or brother who helped them from the outside (OR=0.21, 95%CI: 0.05, 0.91). It appears to be the case that support from a relative of similar age but who lives in a different house is of substantial benefit to the caregiver. Caregivers must perform other chores (shopping, cleaning etc.) even when family members who are living with them help them to care for the frail elderly. However, domestic help from the outside would reduce the burden of domestic work that must be done by the caregiver. The result of the present study dealt only with blood relatives or relatives-in-law of caregivers because, and this may be a particularly Japanese characteristic, the local neighbors did not involve themselves or give help to the frail elderly living nearby. It is Japanese tradition that problems have to be resolved within the family²⁰⁾. Depressed caregivers appear to uphold the traditional Japanese way of thinking in which family members should care for the frail elderly without depending on outside services; and, furthermore,

caregivers may actually realize the limitations of what they can do alone. A public campaign is required to inform the general population that Japanese traditional consciousness will be forced to adapt to new circumstances in which the use of professional services for the care of the frail elderly is the norm.

In the present study, depressed caregivers were more likely to be able to relieve irritation caused by caregiving (OR=0.10, 95%CI=0.03, 0.36). Tyrer et al²¹⁾ have described depression as a lowered mood with predominant feelings of worthlessness and self-reproach. Mental support for caregivers may be effective in reducing their depression.

Depressed caregivers were less likely to use care services at home well (OR=0.24, 95%CI=0.06, 0.98). The depression affecting caregivers is a risk factor for caregivers discontinuing caregiving at home⁵⁾. Therefore, the government should always be working to discover the needs of people and should offer service to caregivers that is easy to use.

Certain limitations to our study should be mentioned. First, the design of the present study was cross-sectional, and therefore, it was hard to understand the inter-relational terms of causes and effect. However, we started to follow-up with our subjects, and were able to clarify the factors that might cause depression for a future study. One more thing to remember is that this study is not geographically representative of all Japan, and furthermore, the number of subjects was insufficient.

In conclusion, the factors of being in poor health and spending a long time physically caregiving are associated with depression. Factors of being in a good or fair economic position, having a sister or brother who could help from the outside, being able to relieve irritation caused by caregiving, using the care service at home well, and being able to pay more than 10,000 Japanese Yen of the total care service cost are associated with depression. The traditional family caregiving system, which allows caring for the frail elderly only by family members, has proven itself incapable of dealing with changes brought about by the expansion of the nuclear family. Under LTC, social service professionals (care managers) assess eligibility and decide the care plan for the frail elderly²²⁾. Mant et al²³⁾ reported that by supporting the family, the quality of life of the caregivers for the family has improved. Since the family is the smallest social unit, care managers should improve their skills with regard to family support by providing information, offering emotional support, and by being a liaison with formal and

informal services.

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Correspondence:

Asae OURA

Department of Public Health, School of Medicine, Sapporo
Medical University, Chuo-ku Minami-1 Nishi-17, Sapporo,
Hokkaido, 064-8556, Japan

Phone: +81-(0)11-611-2111, Fax: +81-(0)11-641-8101, e-mail:
aoura@sapmed.ac.jp

札幌市における在宅要介護高齢者を介護する 家族の抑うつ；横断研究

大浦麻絵^{1, 2)}, 森 満²⁾, 和泉比佐子³⁾, 鷺尾昌一⁴⁾

¹⁾ 日本学術振興会特別研究員

²⁾ 札幌医科大学医学部公衆衛生学

³⁾ 札幌医科大学保健医療学部看護学

⁴⁾ 聖マリア学院大学看護学部

背景：在宅介護において介護者の抑うつは在宅介護中断の危険因子である。

目的：横断研究において、在宅要介護高齢者を介護する家族の抑うつの有無で要因を比較する。

方法：在宅要介護高齢者を介護する家族の抑うつに影響を及ぼす要因を探るために、2008年札幌市の7つの訪問看護ステーションにおいて本横断研究は行われた。主家族介護者を対象に抑うつに影響を与えていると思われる要因で構成された自記式調査票を用いた。抑うつは、Center for Epidemiologic Studies Depression Scale Evaluation (CES-D) で判定した。71組を解析対象とした。

結果：本調査において、家族介護者が健康でないと感じ

ている (OR = 3.40, 95%CI: 1.13, 10.18)、見守り時間が長い (OR = 3.08, 95%CI: 1.02, 9.35) 場合は、抑うつのOdd比が高かった。一方、家庭の経済状態のゆとりがある (OR = 0.30, 95%CI: 0.10, 0.91)、兄弟姉妹が介護を手伝いに通ってくれている (OR = 0.21, 95%CI: 0.05, 0.91)、イライラを上手に解消できる (OR = 0.10, 95%CI: 0.03, 0.36)、在宅サービスを上手に利用できている (OR = 0.24, 95%CI: 0.06, 0.98)、介護保険利用にあたり自己負担が月1万円以上である (OR = 0.15, 95%CI: 0.04, 0.57) 場合は家族介護者の抑うつのOdd比を下げていた。

まとめ：介護者には、公的のみでなくサポートをしていくための新システムが必要である。