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Original Article

Work-related Stress, Caregiver Role, and Depressive Symptoms among Japanese Workers

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ABSTRACT

Background: In Japan, more than 60% of employees are reported to suffer from anxiety and stress. Consequently, Japanese society has begun to address such important issues as psychogenic disability and job-related suicide. Furthermore, given the aging of society and the surge in the number of elderly people requiring care, it is necessary to adequately and proactively support employees who care for their elderly relatives. The purpose of the present study was to investigate caregiver burden in caring for elderly relatives and work-related stress factors associated with mental health among employees.
Methods: We studied 722 men and women aged 18–83 years in a cross-sectional study. The K10 questionnaire was used to examine mental health status.
Results: The proportion of participants with a high K10 score was 15% ($n = 106$). Having little conversation with their supervisor and/or coworkers significantly increased the risk of depression [odds ratio (OR) 1.8], as did high job overload (OR 2.7) and job dissatisfaction (OR 3.8), compared with employees who frequently conversed with their supervisor and/or coworkers. Caring for elderly relatives as a prominent characteristic of an employee was a significant risk factor for depression (OR 2.1).
Conclusion: The present study demonstrated that employees who were caring for elderly relatives were significantly associated with an increased risk of depression. To prevent depressive disorders, it may be important to focus on reducing the work-caregiving role conflict, as well as enhancing employees' job control and better rewarding their efforts in the workplace.

1. Introduction

In Japan, more than 60% of employees are reported to suffer from anxiety and stress [1]. Consequently, Japanese society has begun to address important mental health issues such as psychogenic disability and job-related suicide.

The average life expectancy in Japan has increased dramatically as the mortality rate has decreased, resulting in growth of the elderly population. In 2009, 22.8% of the population was aged 65 years or older; this proportion has been projected to increase to more than 30% by 2025 [2]. This has led to an increase in the number of elderly people requiring care as a result of being bedridden or having cognitive impairment. Because caregivers who live in smaller households have consistently low support and caregivers whose household size is largest describe a pattern of high support, the increasing need for care of elderly relatives is caused by the familial structure having changed from an extended family to a nuclear one.

Based on this social background, the Long-Term Care Insurance (LTCI) Act was enacted in 2000. Its purpose was to provide care for elderly people with the support of society as a whole. In 2000, 2,180,000 people were certified for LTCI, and 1,490,000 used it [3]. By April 2009, these figures had increased dramatically, with 4,690,000 people certified and 3,840,000 users [3].

In general, research studies have reported that providing care has a detrimental effect on emotional well-being [4–6] and social activity [7], and that caregivers of the elderly are more likely to experience physical and psychological burdens and suffer from anxiety and depression than noncaregivers [8–10]. A large majority of family caregivers are traditionally nonworking spouses,

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daughters, or daughters-in-law of elderly people in need of care. However, the recent trend shows an increasing number of primary caregivers who maintain paid employment due to fewer family members per household. In 2010, the Child Care and Family Care Leave Act was enacted to realize a society in which all workers who are eager to work while raising their children or taking care of family members can continue to work. According to a previous study, working family caregivers tend to adjust their working hours to allow them to provide care if they obtain support from their workplace colleagues and/or supervisor [11]. In addition, reduced work-related stress and increased job satisfaction are associated with better physical health and higher quality of life among caregivers [12–14]. Given the aging of society and the surge in the numbers of elderly people requiring care, it is important to adequately and proactively support employees who care for their relatives. However, many of the studies above were conducted in Western countries, with little of this research having been performed in Japan.

The purpose of this study was to investigate caregiver burden among employees who care for their elderly relatives and analyze work-related stress factors associated with mental health condition in employees.

2. Materials and methods

2.1. Participants

We conducted a self-administered questionnaire survey in Nagasaki Prefecture, Japan, from December 2009 to February 2010. First, a letter was sent to the directors of three workplaces. The letter explained the aims, procedures, and ethical considerations of the study. The directors of all three workplaces agreed to participate. The questionnaire was distributed to 844 employees. The purpose and ethical aspects of the study were described at the beginning of the questionnaire, and only employees who agreed to participate and who provided informed consent were enrolled as study participants. The participants were requested to fill out the questionnaire and return it in a sealed envelope to the researchers by mail. Of the 844 questionnaires distributed, 787 were returned (response rate 93.2%). After eliminating respondents whose sex or age were unknown and those who did not complete all questions of the K10, 722 participants (355 men and 367 women) remained for analysis.

The present study was reviewed and approved in October 2009 by the institutional ethics committee of Nagasaki University School of Medicine, Nagasaki, Japan.

2.2. Questionnaire

The questionnaire included questions on demographic characteristics, self-rated health, quality of sleep, satisfaction with daily life, employment status (working hours, work environment), and caregiving status regarding elderly people (aged 65 years and older) requiring assistance or supervision. Mental health condition was assessed using the K10, whereas occupational stress was assessed using the National Institute for Occupational Safety and Health Generic Job Stress Questionnaire (NIOSH-GJSQ).

2.3. Measures

The K10 has been widely used to measure psychological distress. It was developed as a convenient and reliable self-rating scale to screen for psychological distress [15]. The K10 was found to have high screening performance for psychological distress [15–18]. The Japanese version of the K10 also has high internal consistency, with a Cronbach's α of 0.91 [19]. Receiver operating characteristic (ROC) curve analysis showed good discrimination of Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV mood and anxiety disorders, as assessed by the area under the curve of 0.94 [20].

The K10 is a 10-item scale. Participants were asked to indicate how frequently they had experienced symptoms or feelings during the past month using a five-point Likert scale ranging from none of the time (0), a little of the time (1), some of the time (2), most of the time (3), to all of the time (4). The total score is the sum of all responses, and ranges from 0 to 40. Higher scores reflect more severe psychological distress. A score of 15 or higher on the K10 indicates increased risk for psychological distress [21].

The NIOSH-GJSQ was developed to measure occupational stress, particularly the relationship between job-related psychosocial stressors and mental health condition [22]. The NIOSH-GJSQ has acceptable reliability, with Cronbach's α coefficients ranging from 0.65 to 0.90 (mean = 0.81), and is widely used in the field of occupational health [22]. The Japanese version of the NIOSH-GJSQ was developed as a convenient and reliable self-rating scale to screen for job-related stress [23]. It has demonstrated consistently high levels of internal consistency (Cronbach's α, 0.68–0.95) [24]. Domains indicating occupational stress in the Japanese version of the NIOSH-GJSQ used in this study were "job overload" (7 items, score range 0–7), "job control" (3 items, score range 0–3), "intra-/inter-group conflict" (3 items, score range 0–3), and "job satisfaction" (2 items, score range 0–2). The proposed cut-off point score of each domain was as follows: two points over for job control, two points over for intra-/inter-group conflict, and two points over for job satisfaction. Different cut-off point scores by sex were set for job overload: six points over in males and five points over in females.

2.4. Data analysis

The associations between the frequency of participants with a high K10 score and demographic, lifestyle, caregiving status, work environment, and work-related stress factors were analyzed. The chi-square test was used for nominal scale data such as sex, whereas the Cochran-Armitage test was used for ordinal scale data such as self-rated health.

Furthermore, the simultaneous effect of factors on the frequency of individuals with a high K10 score was analyzed using a linear logistic model. The most appropriate model was selected on the basis of the Akaike Information Criterion (AIC). The AIC is a measure of goodness of fit of a statistical model, and provides a means for model selection. Starting from a model including sex, age, self-rated health, quality of sleep, satisfaction with daily life, working hours per day, conversation with supervisor and coworkers, support from supervisor and coworkers, job overload, intra-/inter-group conflict, job control, job satisfaction, and caring for elderly relatives as covariates, the final model with a minimum AIC value was selected as the most appropriate. The variables of age, self-rated health, quality of sleep, conversation with supervisor and coworkers, satisfaction with daily life, job overload, job satisfaction, and caring for elderly relatives were included in the final model, whereas the variables of sex, working hours per day, support from supervisor and coworkers, intra-/inter-group conflict, and job control were excluded. The maximum likelihood estimation of the final model parameters was carried out, followed by calculation of the odds ratio (OR) and its 95% confidence interval (CI) for each covariate in the model.

3. Results

Table 1 shows the characteristics of the study participants. Their mean age was 40.4 (standard deviation 10.7) years. Among the 722