The association between involvement in family caregiving and mental health among middle-aged adults in Japan

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Abstract
It is widely known that the mental health of middle-aged adults is closely associated with involvement in family caregiving, as well as socioeconomic and sociodemographic factors. However, most studies focusing on mental health in adulthood have not fully controlled for time-invariant factors. Moreover, the relative importance of factors associated with mental health has remained largely understudied. In the current study, we employed fixed-effects regression models to examine the manner in which middle-aged adults’ mental health is associated with involvement in family caregiving and socioeconomic and sociodemographic factors, after controlling for time-invariant factors. Using data from a population-based, six-year panel survey in Japan, we focused on the evolution of the Kessler 6 (K6) scores (range: 0–24) for 26,522 individuals (12,646 men and 13,876 women) aged 50–59 years in 2005 over the subsequent five years. We found that men and women experienced 0.54 (95% CI 0.44–0.64) and 0.57 (95% CI 0.49–0.66) unit increases in their K6 scores, respectively, when they became involved in care provision for any family member. This magnitude of distress exceeded that associated with any socioeconomic or sociodemographic factor examined in this study. Furthermore, we found that care provision to a mother-in-law had an additional, negative association with mental health for female caregivers, as opposed to men. These findings suggest that more panel studies are needed to examine the correlates of mental health among middle-aged adults.

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1. Introduction

It is widely known that family care provision is closely associated with mental health in adulthood. Previous studies have found that family members’ involvement in nursing care tends to adversely affect their psychological well-being (e.g., Amirkhanyan and Wolf, 2006; Bookwala, 2009; Ennis and Bunting, 2003; Sugihara et al., 2004). An aging population and declining fertility are likely to increase the risks of psychological distress associated with individuals’ provision of care to their elderly parents and parents-in-law, unless public nursing services and/or support for family caregiving are sufficiently provided.

Middle-aged adults also contend with many socioeconomic and sociodemographic factors that could negatively affect their mental health. Among others, household income, employment status, marital status, co-residence with family members, and participation in social activities have been found to closely correlate with psychological distress (e.g., Butterworth et al., 2009; Kaplan et al., 2008; Lorant et al., 2007; Sareen et al., 2011).

In recent years, an increasing number of studies on mental health in adulthood have utilized panel, rather than cross-sectional data. Even with the use of longitudinal information, however, most studies have relied heavily on the analysis of the data over two time points (baseline and follow-up years) without fully controlling for time-invariant confounders, especially unobserved ones. This probably led to biased estimation results.

In the current study, we sought to validate previous findings on the correlates of mental health in adulthood by removing the effects of time-invariant factors. There are two types of time-invariant factors: observed and unobserved. Observed time-invariant variables include gender and educational background (as far as the analysis focuses on middle-aged adults), which are usually observed from a survey. Unobserved time-invariant factors are not observable from a survey. In the current study, personality traits, intelligence quotient (IQ), and other inherent individual attributes, which did not appear on the dataset of the survey, were regarded as potential time-invariant factors.

We employed fixed-effects regression models to examine the manner in which the mental health of middle-aged adults was associated with involvement in family caregiving, as well as
socioeconomic and sociodemographic factors, after controlling for both observed and unobserved time-invariant factors. To this end, we utilized data from a six-year nationwide survey in Japan. It included 26,522 individuals (12,646 men and 13,876 women) aged between 50 and 59 years in 2005; the study tracked developments in the participants’ mental health, involvement in family caregiving, and socioeconomic and sociodemographic factors over the subsequent five years.

1.1. Background

Many preceding studies have shown that family caregiving tends to increase caregivers’ psychological distress (e.g., Amirkhanyan and Wolf, 2006; Bookwala, 2009; Ennis and Bunting, 2003). The association has also been found to differ between male and female caregivers (Amirkhanyan and Wolf, 2006; Bookwala, 2009), and is seemingly affected by kinship between caregivers and care recipients (Pinquart and Sörensen, 2011).

It should be noted, however, that the observed associations are likely to have been confounded by time-invariant variables. In order to investigate the associations accurately, we have to control for as many time-invariant factors as possible that could potentially confound the associations. Some longitudinal studies have investigated changes in the psychological well-being of caregivers over time (Haug et al., 1999; Pot et al., 1997; Sugihara et al., 2004), but the association between involvement in caregiving per se and mental health has remained largely understudied.

To assess the relative importance of family care provision as a correlate of mental health in adulthood, other factors that could likely affect mental health must be examined jointly. In this regard, socioeconomic factors such as income and employment status should be considered. A number of studies analyzing conventional measures of poverty or economic hardships found that these were negatively related to mental health (Butterworth et al., 2009; Kaplan et al., 2008; Lorant et al., 2007; Sareen et al., 2011). The adverse impact of unemployment on mental health has also been studied (Clark, 2003; Clark and Oswald, 1994).

Other than these socioeconomic factors, some sociodemographic factors have been found to be closely related to mental health. Researchers have provided evidence that widowhood and divorce tend to have a depressive effect, especially on men (Chiperfield and Havens, 2001; Jang et al., 2009; Lee et al., 2001). Family relations other than marital status may also play a role in mental health, especially in Japan and other Asian countries, where a multi-generational family setting is more prevalent than in Western countries. Indeed, studies have argued that Japanese women tend to encounter strain in traditional households, where caregiving for elderly parents traditionally takes place within the family setting (Mizuno and Takashaki, 2005; Nishi et al., 2010; Takeda et al., 2004).

Recent studies have focused on the importance of social relations for the maintenance of mental health in adulthood. In general, social activities are postulated to be crucial for successful aging, as regular social interaction increases older adults’ chances of obtaining social support (Lin et al., 1999; Umberson et al., 1996). However, the importance of social relations may differ according to social background (Kikuzawa, 2006).

In Japan, the government initiated the long-term care insurance (LTCI) system in 2000 to help older people lead more independent lives and to relieve family caregivers of the burdens associated with their roles. However, according to statistics released by the Japanese Ministry of Health, Labour and Welfare (MHLW), more than 70% of nursing care is still provided at home. Meanwhile, Tsutsui et al. (2013) found changes in perceived filial obligation among family caregivers after the introduction of the LTCI system, which may affect the association between family caregiving and mental health. Hence, it is of great interest to examine whether family caregiving still serves as an important stressor among middle-aged adults.

1.2. The current study

The current study examined the association of mental health with family caregiving and socioeconomic and sociodemographic factors among Japanese adults aged 50–64 years. This study is expected to provide new insights into the correlates of adult mental health by considering three aspects.

First, the study employed fixed-effect regressions, which allowed for the removal of the effects of observed and unobserved time-invariant characteristics through individual mean-centering of each variable. This methodology has been widely used in studies examining the association between socioeconomic factors and mental health (Andrés, 2004; Lorant et al., 2007; McKenzie et al., 2014). We extended this methodology to the analysis of the association of mental health with family caregiving, as well as socioeconomic and sociodemographic factors.

Second, we intended to assess the relative importance of family caregiving in adults’ mental health by comparing the magnitude and statistical significance of the association between mental health and family caregiving, as well as between the former and socioeconomic and sociodemographic factors. Previous studies have focused on the association of mental health with each of these factors selectively, leaving their relative importance largely understudied.

Third, we investigated how kin relationships between caregivers and care recipients confounded the association between family caregiving and mental health. Previous studies on family relations in Japan have pointed to the psychological strain between daughters-in-law and mothers-in-law (Mizuno and Takashaki, 2005); thus, we reasonably hypothesized that female caregivers caring for their mothers-in-law would experience greater distress than at other sub-sample in the current study.

2. Methods

2.1. Study sample

We used six-year panel data obtained from a nationwide, population-based survey, “The Longitudinal Survey of Middle-Aged and Older Adults.” The survey was conducted by the MHLW between 2005 and 2010. Samples in the first wave were collected nationwide in November 2005 through a two-stage random sampling procedure. First, 2515 districts were randomly selected from 5280 districts used in the MHLW’s nationwide, population-based “Comprehensive Survey of the Living Conditions of People on Health and Welfare,” which was conducted in 2004. The 5280 districts were, in turn, randomly selected from about 940,000 national census districts. Second, 40,877 residents aged 50–59 years as of October 30, 2005 were randomly selected from each selected district, according to its population size.

The questionnaires were physically distributed to the participants’ homes, where they were completed by the participants as of November 2, and physically collected several days thereafter. A total of 34,240 individuals responded (response rate: 83.8%). The second to sixth waves of the survey were conducted in 2006–2010 and consisted of 32,285, 30,730, 29,605, 28,736, and 26,220 respondents, respectively (response rate: 91.8–97.3%). Unlike in the first wave, the questionnaire was mailed only to individuals who had participated in the previous wave or the one prior to that, who
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