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The maintaining and improving effect of grandchild care provision on elders' mental health—Evidence from longitudinal study in Taiwan

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ABSTRACT

Objective: This study aims to determine the impact of grandchild care provision on elders' mental health by self-comparison and longitudinal study design.
Method: Information of 2930 grandparents from the *Study of Health and Living Status of the Middle-Aged and Elderly in Taiwan* were analysed. Elders' mental health was evaluated by *Epidemiological Studies Depression Scale* in both 2003 and 2007. Participants were divided into 4 groups based on their changing behaviour of caring for grandchildren from 2003 to 2007. Chi-square test was used to compare changes in elders' individual characteristics and total CESD scores between and within groups. ANOVA was used to compare the means of elders' depressive symptoms between groups while paired-*t* test was used to compare changes in elders' depression symptoms from 2003 to 2007. Logistic regression was performed to determine the associations between elders' changing behaviour of caring for grandchildren and changes in depressive symptoms.
Results: Elders continuously caring for grandchildren or started to take care of grandchildren significantly felt happier and enjoyed life more than before and more than elders who do not provide grandchild care. Logistic regression analyses exploring the impact of grandchild care provision found that elders provided no grandchild care had worst mental health amongst all. Elders stopped providing grandchild care had significantly higher risk of developing depressive symptoms (OR = 1.40) than elders provided no grandchild care at all time.
Discussion: By self-comparison, this study illustrates how taking care of grandchildren maintains elders' mental health, especially against them from loneliness and depression.

1. Background

Due to increasing life expectancy and falling fertility, the role of grandparent has become a normal stage in the family cycle as most people now have more years to spend on grandchildren than ever before. While grandparenthood played more important role in multi-generational family, the importance of the health effect from intergenerational exchanges between grandparents and grandchild increased (Bengtson, 2001; Uhlenberg, 2009).

As the central to the model of intergenerational solidarity, grandparents' provision of grandchild care had been identified as a particularly important form of multigenerational family support (Roberts, Richards, & Bengtson, 1991; Szydlik, 2004). Typical and common arrangements for grandparents' provision of grandchild care are looking after children when their parents are at work, baby-sitting over the weekend or during the evening, or taking care of grandchildren under other circumstances on a regular or irregular basis (Hirshorn, 1998; Landry-Meyer, 1999).

Theoretically, grandchild care could have both beneficial or detrimental effect on elders' health. Stress process model suggests that the negative health effect developed from the overloaded strain of elders' role as caregiver of their grandchild (Pearlin, 1989). Role enhancement theory alternatively argues that elders' health improved by an accumulation of multiple roles due to increased social support from their social roles (Szinovacz & Davey, 2006). However, the majority of studies on the grandparent–grandchild relationship and its effect on elders' health have put the emphasis on grandparents responsible for the care of grandchildren (parental or custodial grandparenting) and reported the possible risks of such caregiving on elders' physical health and depressive symptoms (Baker & Silverstein, 2008; Bert Hayslip, Blumenthal, & Garner, 2014; Blustein, Chan, & Guanais, 2004; Grundy et al., 2012; Hayslip & Kaminski, 2005; Hughes, Waite, LaPierre, & Luo, 2007). Recently, a study has shown benefits to grandparents who take

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care of grandchildren, especially from the perspective of emotional reward (Grundy et al., 2012). Studies in USA by using a representative longitudinal dataset found "no evidence to suggest that caring for grandchildren has dramatic and widespread negative effects on grandparents' health and health behaviour (Hughes et al., 2007)". On the contrary, they found some evidence of benefits to grandmothers who babysit (Hughes et al., 2007). A recent study conducted in 10 European countries also found that providing up to 15 h a week of childcare helps maintaining grandparents' health and well-being (Glaser, Gessa, & Tinker, 2014). Although the interests and the evidence of the possible positive impact of caring for grandchildren on elders' health were increasing, studies in eastern countries were comparatively rare (Chen & Liu, 2011; Ku et al., 2013; Lo & Liu, 2009). In eastern culture, to extend the family generations and to have frequent intergenerational transfers is the responsibility of individuals. While the falling fertility and modernization shaped the family structure and brought the possible harmful effect from loneliness on elders, the importance of grandparent–grandchild intergenerational exchange in promoting elders' mental health is increasing (Perissinotto, Cenzer, & Covinsky, 2012).

Taiwan is a typical Chinese society which is strongly influenced by the traditional value of filial piety. While adult children were required to take care of their elders, to take care of grandchildren were usually elders' wish and willingness in the culture (Coombs & Sun, 1973; Yi & Lin, 2009). With a low fertility rate (1.07 children per woman in 2013) and long life expectancy (75.96 years for men and 82.47 years for women in 2009), Taiwan will become "aged society (the ageing population is over 14%" in 2018 (Ministry of Health and Welfare, 2008)). Rapid industrialization and urbanization during the 20th century has brought about a social evolution including recognition of the government's responsibility to offer welfare systems, as well as more elders living without partners and apart from their children (Ministry of Health and Welfare, 2008).

Previous studies not only found the prevalence of grandchild care provided by grandparents increased over time in Taiwan, but also found the protective effect of taking care of grandchildren on elders' mental health against depression and loneliness in elderly Taiwanese (Tsai, Motamed, & Rougemont, 2013; Tsai, Motamed, Elia, & Rougemont, 2011). However, most of the previous studies were based on cross-sectional design which could not rule out the possibility that people with depression are less likely to perform grandchildren care. Therefore, this current study was conducted with longitudinal data to determine the impact of the changing behaviour of elders' provision of grandchild care on their changing mental health status.

2. Methods

2.1. Participants and survey design

This study uses data from the fifth and sixth-wave surveys of the *Study of Health and Living Status of the Middle-Aged and Elderly in Taiwan*, a longitudinal, multidisciplinary national survey representing the population aged 50 and over in Taiwan. The first-wave survey of the *Study* was conducted in 1989 on people aged 60 and over. The following surveys were conducted every 3 years. To maintain the representation of people aged 60 and above and to increase the elderly population to individuals aged over 50, the second cohort was included in the second survey in 1996 and the third cohort was included in the fifth survey in 2003.

Written informed consent was obtained by the participants before their participation. The research protocol was approved by the Institutional Review Board of Taipei Medical University.

In this study, information from the fifth and sixth waves of the surveys which were conducted in 2003 and 2007 was used. A total of 5377 individuals aged 50 and over were in the sample of the fifth wave survey in 2003, and the sample in 2007 was of 4534 persons aged 54 and over. In order to evaluate the impact of elders' changing behaviour in caring for grandchildren on their loneliness and depression, only those who had grandchildren and, capable of answering the Centre for Epidemiological Studies Depression Scale (CES-D scale) themselves, and participated in both 2003 and 2007 surveys were included in this study. In the end, there were 2930 elders included in the final analysis.

Elders' personal characteristics including age, gender, education, partnership and information regarding whether they co-resided with their children were used in the study. In addition, information about their self-reported health status collected with the question "How do you feel about your current health status?" and the question "Compared with last year, how do you feel about your current health status?" were used in the analysis. The multiple response answer was scaled on 5 levels ranging from "very good" to "very bad" (1 = very good, 5 = very bad) and from "much better" to "much worse" (1 = much better, 5 = much worse).

For evaluating elders' changing behaviour in taking care of grandchildren, elders were asked "whether they currently look after their grandchildren for their children" in both 2003 and 2007. In the questionnaires of both 2003 and 2007, the frequency of taking care of grandchildren as "usual" and "sometimes" was collected. While there were only instructions in 2007 for distinguishing the frequency between "usual" and "sometimes", answers of "usual" and "sometimes" were both classified as "yes" in this study for comparability.

The 10 items CES-D scale evaluated both in 2003 and 2007 was used for determining elders' depression in the study. These items included "My appetite was poor", "I felt that everything I did was an effort", "My sleep was restless", "I was in a bad mood", "I felt lonely", "People were unfriendly", "I felt sad", "I had no energy for things", and 2 reverse items as "I was happy" and "I enjoyed life". The multiple response answer was scaled on 4 levels ranging from "none" to "always" (1 = none, 4 = always). The internal consistency reliability of scale scores of all waves of the *Study of Health and Living Status of the Middle-Aged and Elderly in Taiwan* was confirmed by previous study (Lee, Ou, Chen, & Weng, 2009).

2.2. Statistical analysis

Participants were divided into 4 groups based on their behaviour of caring for grandchildren in 2003 and 2007 as: "Take care of grandchildren in both 2003 and 2007", "Only take care of grandchildren in 2003", "Only take care of grandchildren in 2007" and "Do not take care of grandchildren in both 2003 and 2007". Based on examining the changes in elders' mental health status from time to time of these 4 groups, it would be more clear if grandchild care provision were beneficial to elders' mental health.

Then four approaches were used to analyse the data. For summary statistics, the chi-square test was used to compare elders' personal characteristics including: age, gender, educational level, work status, partnership and co-residence with children between 4 groups in both 2003 and 2007. The changes of elders' individual characteristics including work status, partnership and co-residence with children from 2003 to 2007 within each group were also compared by chi-square test. The means of elders' health status including self-rated health, health compared with last year and their loneliness and depression as evaluated by the CES-D scale were compared between 4 groups in both 2003 and 2007 by ANOVA test. Paired-*t* test was used to compare the means of elders' self-rated health, health compared with last year, loneliness and depression evaluated by the CES-D scale from 2003 to 2007 of each group, respectively. All CES-D item scores were totalled (2 reverse items were reverse scored) to represent the level of elders' depression. The changes of elders' total