

添付資料 2 Working Paper

Socioeconomic within-gender gap in informal caregiving among middle-aged women: an evidence from Japanese nationwide survey

Mutsumi Tokunaga^a, Hideki Hashimoto^a

^aDepartment of Health and Social Behavior, The University of Tokyo, School of Public Health

This study was supported in part by Grants-in-Aid for Scientific Research from the Ministry of Health, Labour and Welfare (H22-seisaku-shitei-033) and by the Grant-in-Aid for Scientific Research of the Ministry of Health, Labour and Welfare of Japan (H26-Chikyukibo-ippan-001).

1. Introduction

Care giving to older people with needs has been dominantly dependent on informal care provision by female caregivers. A recent meta-analysis of 229 studies reported that 69% of the informal caregivers were women, and that gender gap existed in hours and numbers of care taking [1]. Gender-biased burden of caregiving could be attributed to traditional norms about gender roles [2, 3], gender-specific skills for caring [4], or gender gap in wage in labor market [5].

In order to relieve and equalize the burden of care in the household [3, 6], some countries including Japan have introduced long-term care insurance (LTCI) system to provide formal care services with affordable copayment [2, 7] that at least partially succeeded in increasing labor market participation of women [8]. However, there remains a gap within gender; women in lower income household did not enjoy such benefit.

As we know of, a within-gender gap across socioeconomic status (SES) has been only poorly studied in informal care giving. Most previous studies focusing on gender disparity in informal care provision ignored a gap across caregivers' SES [9, 10, 11, 12, 13, 14, 15, 16, 17]. Gender and socioeconomic status as represented in income, occupation, and educational attainment are conceptually independent [18, 19, 20, 21], but are intertwined in social stratification of life chances

and risks [22]. Women have a larger risk of low income, low educational attainment, and limited opportunities to access resources such as healthcare [23, 24, 25, 26, 27, 28, 29, 30].

Under these backgrounds, women in low socioeconomic status (SES) may face a larger risk of biased care burden because they lack resources to buy formal care, have less social support, and/or have no choice but remain in household for informal care without labor force skills. Such intertwined impact of gender and SES on the distribution of informal care burden, if exists, deserves policy attention to design welfare program for fair contribution and compensation of informal care in the society. The focus on not only gender gap, but disparity within women is considered important, while we are not aware of any literature directly addressing socioeconomic within-gender gap in informal care giving among women.

The aim of this study was to reveal the association of SES of women with the chance of being a primary caregiver for older people in needs. We focused particularly on household income, marital status, work status, and educational background among women.

2. Subjects and methods

2.1. Data source

A public insurance system has been an exclusively dominant platform to provide a formal LTC in Japan since 2000 [2]. The eligibility of formal care service use is based solely on a functional assessment of the recipient through a standardized protocol, regardless of households' demographic and SES conditions, and copayment is reduced or exempted in case of low-income households. We believe the investigation of within-gender gap in informal care provision under public LTC provision in Japan would help us identify a gap attributable to women's status in the household regardless of household's affordability of LTC.

For this study, we utilized data from the Comprehensive Survey of Living Conditions of the People on Health and Welfare (CSLCP), a nationwide representative, population based cross-sectional survey of households that is conducted every three years by the Ministry of Health Labour and Welfare in Japan. We pooled data derived from 2010 and 2013 surveys to obtain a sufficient size for analysis. The 2010 survey used a probabilistic sampling of about 5500 sampling area units stratified by 47 prefectures in Japan, then asked all the households in the sampled unit to participate in the self-administered questionnaire survey on household sociodemographic conditions and health status, educational status, marital status and work status of household members. In 2500 randomly-selected area units from the original sample, an additional questionnaire was further distributed to all households having a member eligible for public LTC at the time of the survey to collect information regarding formal LTC service use, informal care giving, and functional conditions of care recipients.

2.2 Subjects and sampling

For our purpose, we have to define the “population at risk”, or those who could be an informal caregiver in the household and/or labor force in formal labor market. To focus on a within-gender gap, we excluded male subjects from our analysis. We further limited our sample to females aged between 40 and 60 because women in this range of age are the most likely to be involved in personal care mainly with their elderly parents, and at the same time, they can be still part of the labor force [11, 31, 32]. We exclude women older than 60, the age of public pension eligibility, because they were more likely retired, and to be involved in care giving of their old spouses/parents regardless of socioeconomic status.

In 2010, the original survey included 228,864 households and 609,018 subjects from 5,510 sampling units in 47 prefectures in Japan (household response rate=79.1%). 7192 households were eligible for LTC survey, of which 5912 households gave effective response. We limited our analysis to 2980 households where care recipients had cohabitation with primary caregivers within the same household. We did so because the survey collected detailed information of care givers only in the same household with the care recipient. We excluded 59 households where the caregiver took care of more than two care recipients at the same time. Consequently, 1103 households and their 1181 women aged 40-60 years of working age were available as target sample for further analysis. We conducted similar procedures for the 2013 data; we appended the datasets to obtain 2399 female subjects in 2236 households.

2.2 Measurement

2.2.1 Female family member characteristics

We considered female family members’ characteristics, including age ($40 \leq \text{age} < 50$ or $50 \leq \text{age} < 60$), marital status (whether currently married) [29], health status (whether have a chronic disease under treatment). Job status (full-time job, part-time job, no-job) [33], and educational attainment (“junior or high school degree”, “community college or training graduates”, and “university or graduates or above”) were counted as an indicator of female’s individual SES.

2.2.2. Care recipient characteristics

We included care recipients’ characteristics such as age, gender, health status and care eligibility level in public LTCI as indicators of the amount of care required. More specifically, eligibility level higher than II indicated those without functional independence, and need assistance in meal, toileting, bathing, and clothing [2, 3]. We divided the level into severe (Level III, IV, and V) vs. mild (Level I and II, and less than Level I).

2.2.3. Household characteristics

The number of household members over 18 years aged living together was included in the analysis because it should reflect the household capacity for informal care provision and the need for formal care related to household structure. The existence of the household members under 18 years old was also included because it should reflect conflicting demand for care provision to dependent children in the household. Equivalent household income was obtained through imputation, of which details are available elsewhere [3].

2.3. Statistical analysis

We compared caregiver women and non-caregiver ones in their demographic, socioeconomic, and health statuses by using t-tests and chi-square tests as they fit. We also compared by the caregiving status of women the characteristics of cohabited care recipients and their households. Then, we conducted multiple logistic regressions of caregiving status as a target variable, regressed on women's socioeconomic status with adjustment for care recipient's and household characteristics (e.g., care level, gender, and chronic disease under treatment, household composition, and equivalent household income). Since the severity of care need may differentially affect the chance of being caregivers, we tested interaction terms between care eligibility level of the care recipient and caregiver's educational, job status, and marital status. As we found a significant interaction by education and marital status, analysis stratified by care eligibility level (mild and severe) was additionally conducted. Statistical significant was inferred at a p value of 0.05. The results from the multivariate analysis were expressed as odds ratio (OR) with 95% confidence intervals (CI).

4. Results

The characteristics of female members (non-caregivers, caregivers), care recipients, and households by caregiving status are presented in Table 1. All of the 982 non-caregiver women were cohabited with caregiver family members, majority of whom were women older than 60 or younger than 40 (not shown in the table). Caregiver women were on an average 3 years older than non-caregiver counterparts ($p < .0001$) and more likely to have chronic conditions ($p < .0001$). Caregiver women were more likely to have high-school education or less, and to be non-workers, as well. Finally, caregiver women were more likely to be cohabited with care recipients of older age, female gender, and mild care needs. Finally, a quarter of caregiver women belonged to the lowest quartile group of household income.

Table2 showed the results of multivariate logistic regression analysis for caregiving status as an outcome. Younger age, fulltime work status, and married status were significantly related to non-caregiving status, while education was not significantly related to the caregiving status (model 1). However, after including an interaction term between education and care recipient's care levels, the interaction was significant (loglikelihood ratio test $p=0.0003$), and high school education or less turned to be significantly related to the chance of being a caregiver ($p=0.0001$). Marital status also showed a significant interaction with the care eligibility levels (loglikelihood ratio test $p=0.0015$, not shown in the table).

Table3 shows the results of adhoc analysis stratified by care recipient's care eligibility level. the odds ratio of the possibility of primary caregiver by subgroup, the caregiver living with care recipient at mild level and at severe level, respectively. It is found that compared with the caregivers ($n=693$ of 1074) with care recipient at mild care level and those at severe level ($n=725$ of 1325) were significantly associated with the elder age-group (OR, 0.61; 95% CI, 0.43-0.86 vs. OR,0.41; 95%CI,0.29-0.56), full time job (OR,0.46; 95%CI,0.28-0.76 vs. OR,0.36; 95%CI,0.23-0.55) , married (OR,1.02; 95%CI,0.65-1.60 vs. OR,0.41 ;95%CI,0.27-0.64) and lower level education (OR,1.00; 95%CI, 0.67-1.49 vs. OR,1.94; 95%CI,1.37-2.74).

5. Discussion

LTCI was introduced in order to relieve the burden of the caregivers and equalize it in 2000. Nevertheless, much more women still remain informal caregiver than men. To the best of our knowledge, this study is the first to investigate that the inequality within women for primary caregiver might be caused not only by the gender gap, but by the socioeconomic gap, using the nationwide representative population based data.

Our results showed that there was no significant association between educational or marital status and caregiver living with care recipient after adjustment for equivalent household income, demographic variables of care recipient. But, in the subgroup analysis by care recipient's stratum of severity, the women with lower human resources were likely to be caregiver with care recipient at severe level: the women with lower educational background, non-marital status, older, and unemployed, while the women living with care recipient at mild level were not associated with educational status or marital status significantly.

For the cause of this observed linkage, there are two possible explanations. First, the severe care level accounts for a lot of demand for care provided. For care recipient with mild care level which caregiver may provide more casual help, even caregiver in full-time will be easy to care. But, for care recipient with severe care level who needs to be watched for almost all day, caregiver in

full-time work may be difficult to care and have to buy more care services or quit her work or change her job into lower-paying jobs that accommodate part-time hours or flexible schedules to make time for care [34]. As a result, as the more severe the care level of the care-recipient, the more likely the caregiver will have to take a leave of absence from their job in order to provide care.

Second, for the more severe recipient, it takes longer time to care and more cost. Under such occasion, women with higher human capital may have a strong tendency to go out for their work instead of caring by themselves because of their own high opportunity cost. On the contrary, women with lower human capital have to stay at home for caring, because they may have little financial gain from going out to work even if they seek a job; Educational level is a major determinant of the value of time. The shadow price of time of college graduates exceeds that of high school graduates or below [35]. The problem of wage gap was caused not only between men and women, but even within women.

LTC is closely connected with shadow price because the informal care is low-value-added and cheaper labor than other labors. Consequently, socially- and economically-vulnerable people, such as women with disadvantage who are unmarried, unemployed or with lower education, tend to be inflicted caregivers by other family members. Policy makers should more discuss about double burden, socio-economic and gender inequality, upon female caregivers who are not financially independent. We made a suggestion that we should add more value to informal care by cash benefit in order to compensate the gap between caregiver and non-caregiver or design some housing with flexible assistance to meet the caregiver's needs, especially in severe case[36].

While our strengths of our study are based on a large national population-based with high coverage data, we could not take into account for several limitations. First, this was cross-sectional data, so that we could not distinguish which comes first, woman with no job might be stuck with care by other family members or as a reverse direction of causality, woman might resign her job after she became caregiver. Further research with panel data should be needed. Second, we understood that relationship between caregiver and care recipient such as daughters-in-law and married daughter have played an important role in informal care-giving arrangements within East Asian traditional norms[37] [38][39]. But, we could not put their relationship as variable, because we could not distinguish whether it was biological or marital relationship because of data availability.

6. Conclusion

LTCI was introduced in Japan to lighten the traditional gender-biased burden of caregivers. Recently, the gender-biased burden has been lightened. On the other hand, our study indicated that there still remained the problem of within gender discrimination influenced by human

capital such as marital status, labor status, and educational status for the possibility of the caregiver among women aged 40-60 living with care-recipient. To equalize the gap between caregivers and non-caregivers under LTC, policy makers should design the respite care services for 24 hours in order to relieve their burden, or revise LTCI systems involving the cash benefit.

Conflict of interest

The authors have no conflicts of interest to declare.

Ethics approval/Statement

Anonymous secondary data are approved for research use by the governmental agency, and ethical consideration is waived.

Reference

- [1] M. Pinquart, S. Sörensen (2006). Gender differences in caregiver stressors, social resources, and health: an updated meta-analysis. *J Gerontol B Psychol Sci Soc Sci* (2006) 61 (1): P33-P45. DOI.org/10.1093/geronb/61.1.p33
- [2] N.Ikegami (1997).Public Long-term Care Insurance in Japan. *JAMA*; 278(16) :1310-1314 DOI:10.1001/jama.1997.03550160030017.
- [3] M.Tokunaga, H. Hashimoto, N. Tamiya (2015). A gap in formal long-term care use related to characteristics of caregivers and households, under the public universal system in Japan: 2001–2010. *Health Policy*.Vol.119,Issue6,P840-849. DOI: 10.1016/j.healthpol.2014.10.015
- [4] S.M.Allen (1994). Gender differences in Spousal caregiving and unmet need for care. *J gerontology*. 49 (4): S187-S195. DOI: 10.1093/geronj/49.4.S187
- [5] A. Heim Mueller , K. Inglis (2006) . The earnings of informal carers: Wage differentials and opportunity costs. *Journal of Health Economics* 26(2007)9821-841. DOI:10.1016/j.healeco.12.009
- [6] M. Pinquart, S. Sörensen (2006). Gender differences in caregiver stressors, social resources, and health: an updated meta-analysis. *J Gerontol B Psychol Sci Soc Sci* (2006) 61 (1): P33-P45. DOI.org/10.1093/geronb/61.1.p33
- [7] J. C. Campbell, N. Ikegami (2003). Japan's Radical Reform of Long-term Care. *Social Policy & Administration* Vol. 37, Issue 1, p. 21–34 DOI: 10.1111/1467-9515.00321
- [8] S. Shimizutani, W. Suzuki, H. Noguchi (2008). The Socialization of At-home Elderly Care and Female Labor Market Participation: Micro-level Evidence from Japan. *Japan and the World*

- Economy, vol.20, no.1, p.82-96. DOI:10.1016/j.japwor.2006.08.003
- [9] T. Coward, Raymond, C. Horne, W. Jeffrey.Dwyer (1992). Demographic Perspectives on Gender and Family Caregiving. Pp. 18-33 in Gender, Families, and Elder Care, edited by J.W. Dwyer and R. T. Coward. Newbury Park, CA: SAGE Publications, Inc
- [10] J. Jenson, S. Jacobzone (2000). Care allowances for the frail elderly and their impact on women care-givers, OECD labour market and social occasional papers No.41. DOI:10.1787/18151981
- [11] B. J. Kramer, J. D. Lambert (1999). Caregiving as a life course transition among older husbands: A prospective study. *Gerontologist*, 39, 658 – 667. DOI: 10.1093/geront/39.6.658
- [12] N. A. Mathiowetz, S. Olikier (2005) .The Gender Gap in Caregiving to Adults. Manuscript prepared for presentation at the American Time Use Survey Early Results Conference, Retrieved from:<<http://www.atusers.umd.edu/wip2/papers/Olikier.pdf>>
- [13] B. Ingersoll-Dayton, M. E. Starrels, D. Dowler (1996) Caring for parents and parents-in-law: Is gender important? *The Gerontologist* 36,483-491. DOI: 10.1093/geront/36.4.483
- [14] D. Lena, S. Demack, C. Bambra (2007). Age and gender of informal carers: a population-based study in the UK. *Health and Social Care in the Community*.15(15),439-445. Doi:10.1111/j.1365-2524.2007.00702.x
- [15] R. J. V. Montgomery (1992). "Gender Differences in Patterns of Child-Parent Caregiving Relationships." Pp. 65-83 in Gender, Families, and Elder Care, Newbury Park, CA: SAGE Publications, Inc.
- [16] L. Dahlverg, S. Demack, C. Bambra (2007). Age and gender of informal carers: a population-based study in the UK. *Health and Social Care in the Community*.15(5),439-445. DOI:10.1111/j.1365-2524.2007.00702.x
- [17] C.H.V.Hourven, N.B.Coe, M.M.Skira (2013). The effect of informal care on work and wages. *Journal of Health Economics* 32(2013)240-252 DOI:10.1016/j.jhealeco.2012.10.006
- [18] J.A. Baxter, M.Taylor(2014). Measuring the socio-economic status of women across the life course. *Family Matters* No.95.: Australian Institute of Family Studies
- [19] Y. Ben-Shlome, G.D.Smith (1999). Commentary: Socio-economic position should be measured accurately.*BMJ*(Clinical research ed.),318(7187),844.
- [20] T.Dutton, G.Turrell, B.Oldenburg(2005). Measuring socio-economic position in population health monitoring and health research (Health Inequalities Monitoring Series No.3). Brisbane:Queensland University of Technology.
- [21] Krieger, N., Williams, D. R., & Moss, N. E. (1997). Measuring social class in US public health research: Concepts, methodologies, and guidelines. *Annual Review of Public Health*, 18(1), 341-378. DOI:10.1146/annurev.publhealth.18.1.341

- [22] N. Krieger (2014) Discrimination and health inequalities. *International journal of health services*. vol.44.No.4. P.643-710. DOI:10.2190/HS.44.4.b
- [23] R. A. Miech, W. Eaton, Kung-Yeeliang (2003), Occupational Stratification Over the Life Course A Comparison of Occupational Trajectories Across Race and Gender During the 1980s and 1990s. *WORK AND OCCUPATIONS*, Vol. 30 No. 4, 440-473
DOI: 10.1177/0730888403256459
- [24] B. Griffin,W. Hu (2015).The interaction of socio-economic status and gender in participation in medicine. *Medical Education*. Vol. 49, Issue 1, p.103–113. DOI: 10.1111/medu.12480
- [25] T.N. Greenstein (2000). "Economic Dependence, Gender, and the Division of Labor in the Home: A Replication and Extension." *Journal of Marriage and the Family* 62:322-335.
- [26] B. Stevenson, J. Wolfers (2009). The Paradox of Declining Female Happiness. *American Economic Journal: Economic Policy*, American Economic Association, vol. 1(2), pages 190-225. DOI: 10.3386/w14969
- [27] A. L. Stewart, M. L. Dean, S.E. Gregorrich, P. Brawarsky, J.S. Hass (2007). Race/ethnicity, socio-economic status and the health of pregnant women. *Journal of Health Psychology*, 12(2): 285-300. DOI.org/10.1177/1359105307074259
- [28] R. Blundell, M. Costa Dias, C. M. Meghir, J. Shaw (2013). Female labour supply, Human capital and welfare reform. National bureau of economic research Working Paper 19007
DOI: org/10.3386/w19007
- [29] D.A.Wolf, B.J. Soldo (1994). Married women's allocation of time to employment and care of elderly parents. *Journal of human resources*,Vol.29, No.3, P.1259-1276.
DOI.org/10.2307/146140
- [30] L. Benham (1974). Benefits of Women's Education within Marriage. *Journal of Political Economy* volume 82 issue 2, Part 2 on pages S57 to S71. DOI: org/10.1086/260291
- [31] A.C. Donfut, J. Ogg, F-C. Wolff (2005). European patterns of intergenerational financial and time transfers. *Eur J Ageing* (2005) 2: 161–173. DOI 10.1007/s10433-005-0008-7
- [32] E. K. Pavalko, J. E. Arits (1997). Womens's caregiving and paid work: casual relationships in late midlife. *Journal of gerontology: Series B: Psychological Sciences and Social Sciences s*, Vol.52B,No.4.p.S170-179. DOI.org/10.1093/geronb/52b.4.s170
- [33] S. Harper (2005). Family Support of the Elderly and Female Labour Supply: Trade-Offs among Caregiving, Financial Transfers, and Work—Evidence from the US Health and Retirement Survey. *Oxford Scholarship*. DOI:10.1093/0199251169.003.0008
- [34] D.H. Van Houtven, N.B. Coe, M.M. Skira (2012).The effect of informal care on work and wages. *Journal of health economics* 32(1):240-252 DOI: 10.1016/j.jhealeco.2012.10.006
- [35] R. Gronau (1974). The Effect of Children on the Housewife's Value of Time: Economics of the Family: Marriage, Children, and Human Capital *Journal of Political Economy*. 81(2):168-99.

DOI: 10.1086/260160

- [36] P. Olivares-Tirado, N. Tamiya (2014). Trends and factors in Japan's Long-term Care Insurance System. Springer Briefs in Aging. DOI:10.1007/978-94-007-7875-7
- [37] J.W. Anastas, J. L. Gibeau, P.J. Larson (1990). Working families and eldercare: A national perspective in an aging America. *Social Work*, 35,405-411.
- [38] G. C. Smith, M.F. Smith, R.W. Toseland (1991). Problems identified by family caregivers in counseling. *The Gerontologist*, 31, 15–22. DOI:10.1093/geront/31.1.15
- [39] A. Nishi, N. Tamiya, M. Kashiwagi, H. Takahashi, M. Sato, I. Kawachi (2010). Mothers and daughters-in-law: a prospective study of informal care-giving arrangements and survival in Japan. *BMC Geriatrics*,10:61. DOI: 10.1186/1471-2318-10-61