

THE ASSOCIATION BETWEEN LIVING ARRANGEMENTS AND CHANGES IN FUNCTIONAL HEALTH STATUS AMONG THE ELDERLY IN TAIWAN: RESULTS OF A NATIONAL COHORT STUDY

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Objective: Limited prospective data have examined the association between living arrangements and changes in functional health. This study aimed to evaluate this association and specifically to explore factors that might predict decline in functional health among the general elderly population in Taiwan.

Methods: Data were collected from the "Survey of Health and Living Status of the Elderly in Taiwan", a national longitudinal study which started as early as 1989. At baseline in 2003, a total of 1,100 community-dwelling subjects, aged ≥ 60 years, were questioned and followed up until 2007. Respondents were divided into three groups according to different living arrangements at study entry: living alone, living with a spouse, and living with spouse plus others (e.g., children, other relatives and/or any care-giver). Potential confounders including sociodemographic and health variables, such as gender, age, marital status, financial status, self-rated health, mental health and coexisting diseases, were obtained and analyzed at baseline (2003). Over this 4-year period, functional health was measured both in 2003 and 2007 as the sum of limitations (the lower the score, the better function a person had) in six physical (ADL) and six instrumental activities of daily living (IADL). The outcome variables were any change in functional health defined as the difference in score between the 2003 and 2007 measures (2003 score minus 2007 score) and were subsequently recorded as a change in Overall ADL, IADL and ADL – specifically "+" denoting improvement, "0" indicating no change, and "-" meaning decline in functional health status. For this study, decline in functional health in particular was selected for analysis. Multivariate logistic regression was used to evaluate predicting factors for decline in functional health status with $p < 0.05$ representing statistical significance. The association between living arrangements and decline in functional health was also explored.

Results: Of the 1,100 elderly subjects during 4-year follow-up, 14.9% (N=164) had an improvement in functional health while 14.5% (N=159) had a decline. Most elderly (70.6%, N=776) remained unchanged. For those with a decline in Overall ADL, self-rated health (RR:1.57[95%CI:1.25-1.98]), cognitive impairment (RR:2.20[95%CI:1.38-3.50]), living with spouse plus others (RR:2.23[95%CI:1.14-4.37]) and age (RR:2.33[95%CI:1.80-3.00]) were found to be independent predicting factors. Regarding the association between living arrangements and decline in physical functional health, those living alone had the least decline in overall physical function, living with a spouse was worse than living alone (RR:1.23[95% CI:0.61-2.47]), and living with a spouse plus others (RR:1.74[95% CI:0.94-3.31]) had the greatest deterioration among these three groups.

Conclusion: This study found that even though those elderly living alone were older, their overall physical function, mental status and self-rated health fared better than those living with a spouse or a spouse plus others. Furthermore, those living independently had the least decline in functional health during 4-year follow-up.

Key words: physical function, living arrangement, ADL, IADL, longitudinal study, Taiwan

OBESITY PARADOX: BMI IS INVERSELY ASSOCIATED WITH THE RISK OF HIP FRACTURE IN ELDERS WITH TYPE 2 DIABETES

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Background: Taiwan has the fastest aging population in the world. Thus, osteoporosis and related fractures have increasingly become some of the most challenging disorders that threaten Taiwan older persons. Hip fractures cause considerable adverse outcome and excess mortality, posing a growing and major burden on health care. Low body weight is confirmed a risk factor for osteoporotic fractures in general population. However, epidemiological studies on the risk of hip fracture among type 2 diabetic patients were limited. The aim of the study was to explore the association between body mass index (BMI) and the risk of hip fracture in elders with type 2 diabetes.

Methods: We conducted a retrospective cohort study on 20,590 type 2 diabetes elders who participated in the National Diabetes Case Management Program in Taiwan. BMI at baseline and hip fracture events over the 7.75 years were analyzed.

Results: The incidence rates of hip fracture were 12.86, 9.57, 806, and 7.39 per 1000 person-years in groups of the <18.5, 18.5-24, 24-27, and ≥ 27 kg/m² of baseline BMI, respectively. After multivariate adjustment, the risk of hip fracture was decreased among patients with BMI levels of ≥ 27 kg/m² compared with patients with BMI levels 18.5-24 kg/m² [hazard ratio (HR): 0.85, 95% confidence interval (CI): 0.74-0.97]. Significant linear trends across different BMI levels were observed ($p < 0.009$).

Conclusions: Patients categorized as BMI greater than 27 kg/m² exhibited a decreased risk of hip fracture, confirming an inversely relationship. The beneficial effect of BMI on hip fracture is supported by the findings of previous studies indicated that body weight exerts a positive effect of mechanical loading on bone formation.

Key words: obesity, hip fracture, body mass index