# Comparison of clinical effect of living alone between urban area and rural area in patient with acute coronary syndrome

M. Takeuchi[1], T. Dohi[1], N. Takahashi[1], H. Endo[1], H. Wada[2], S. Doi[1], Y. Kato[1], M. Ogita[2], I. Okai[1], H. Iwata[1], S. Okazaki[1], K. Isoda[1], S. Suwa[2], K. Miyauchi[1], T. Minamino[1]

*[1]Juntendo University Graduate School of Medicine, Department of Cardiovascular Biology and Medicine, Tokyo, Japan; [2]Juntendo University Shizuoka Hospital, Department of Cardiovascular Medicine, Izunokuni, Japan*

**Funding Acknowledgement:** Type of funding sources: None.

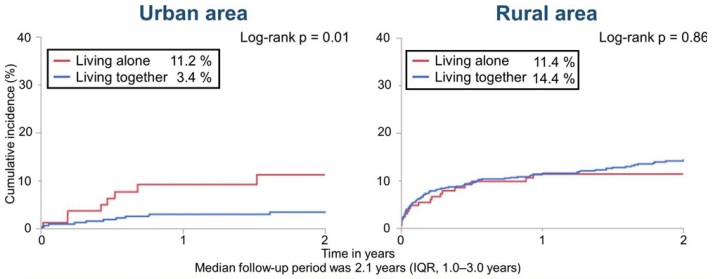
**Background and objective:** Living alone is reported as an independent risk factor for worse clinical outcomes after percutaneous coronary intervention (PCI) for acute coronary syndrome (ACS). Manifestations of psychological stress such as depression and anxiety in patients living alone is thought to be associated with subsequent cardiovascular events. The impact of living alone on the psychological factors of patients may be differ depending on their living environment. However, comparison of the effects of living alone in different living environment on the prognosis of patients with ACS has not been reported.

**Purpose:** The aim of the present study was to compare the clinical effect of living alone on clinical outcomes in patients with ACS between urban area and rural area.

**Methods:** Data from a multi-center, observational study of consecutive patients who underwent emergency PCI for ACS between January 2012 and December 2016 were analyzed. The primary endpoint was major adverse cardiac and cerebrovascular events (MACCE). MACCE was defined as composite of cardiovascular death, ACS, and stroke.

**Results:** In this study, 1349 patients were enrolled and divided into two population according to their living environment: urban area population (n=417), and rural area population (n=932). In urban area population, 87 patients (20.9%) were living alone, and 330 (79.1%) were living together. In rural area population, 169 (18.1%) were living alone, and 763 (81.9%) were living together. There are no significant differences in baseline characteristics between the living alone group and the living together group in both urban area population and rural area population. During a median follow-up period of 2.1 years, Kaplan-Meier curves showed the living alone group had higher risk of MACCE than the living together group in urban area population (log-rank, p=0.01). On the other hands, there are no significant differences in the incidences of MACCE between two groups in rural area population (p=0.86). After adjustment for other covariates, the living alone was significantly associated with MACCE (hazard ratio [HR], 2.83; 95% confidential interval [CI], 1.16–6.91; p=0.02) compared with the living together group in urban area population. However, in rural area population, the living alone group was not significantly associated with MACCE (HR, 1.02; 95% CI, 0.66–1.57; p=0.92) compared with the living together group.

**Conclusion:** Living alone was significantly associated with worse clinical outcomes after emergency PCI of ACS in urban area but not in rural area.




| Cox regression analysis for MACCE<br>Living alone vs Living together | | | |
|---|---|---|---|
| | HR | 95%CI | p |
| **Unadjusted** | 2.88 | 1.23-6.75 | 0.02 |
| **Adjusted** | 2.83 | 1.16-6.91 | 0.02 |

| Cox regression analysis for MACCE<br>Living alone vs Living together | | | |
|---|---|---|---|
| | HR | 95%CI | p |
| **Unadjusted** | 1.04 | 0.68-1.59 | 0.86 |
| **Adjusted** | 1.02 | 0.66-1.57 | 0.92 |

Adjusted for age, sex, hypertension, dyslipidemia, diabetes mellitus, chronic kidney disease, family history of CAD, current smoker, hemoglobin

Figure 1