Community social capital and the prevalence of polypharmacy among adults receiving public assistance in Japan

A multilevel cross-sectional study

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Conclusions

The greater community civic participation showed a lower excessive polypharmacy among public assistance recipients. (≥10 medications)

Social implication

Recipients' polypharmacy could be addressed by considering civic participation, which reflects the unique characteristics of each community. For example, district pharmacy associations and multiple adjacent pharmacies may encourage civic participation to benefit from burn medication costs.

Background

Polypharmacy is a global issue for public assistance recipients.

- Polypharmacy (PP), defined as the use of multiple medications, increases the risk of adverse drug events and hospitalization.
- Public assistance recipients (PARs) are susceptible to psychosocial stress and multimorbidity that increase the risk of PP.
- Community-level social capital may lower prevalence of PP by mitigating daily psychosocial stress among PARs.
- However, no studies have documented its impact on PP among PARs.

Objective **This study examined the association between community social capital and prevalence of PP in PARs.**

Methods

- Study design: cross-sectional study -

Participants (all seven residential areas in the city)

PARs in April 2021 : N = 11,967

Community-level
- Social capital data from 2019
- Health access data from 2020

- < 18 years old: N = 784
- Living outside of the city: N = 429
- No prescription usage or prescription for < 90 days in the fiscal year 2021: N = 4,458

Adults aged ≥ 18 years who were prescribed oral medications for ≥ 90 days
Analyzed population
N = 6,296 (mean age, sex [%]; 67.3 years, women [55.7%])

Outcome variable: PP among PARs

1–5 medications	6–9 medications	≥ 10 medications
None (reference)	PP	Excessive PP

Explanatory variable: community-level social capital among older adults (Saito et al., 2017)

Civic participation (weighting at least once monthly, %)

volunteer・sports・hobby・study or cultural・skills teaching

Social cohesion (weighting each reliable and fairly reliable, %)

community trust・norms of reciprocity・community attachment

Reciprocity (weighting of "yes", %)

received emotional support・provided emotional support・received instrumental support

Covariates

- Individual-level
  - age, sex, household composition, employment status, disability certificate, long-term care status, Charlson Comorbidity Index, health checkups, and number of different medical institutions visited in the fiscal year 2021
- Community-level
  - the number of medical institutions in 2020 (elementary school districts)

Statistical analyses

- Analysis-1 (Table 1)
  - percentage of PP and excessive PP prevalence by all age groups (≥ 18, 18–39, 40–64, ≥ 65)
- Analysis-2 (Figure 1)
  - adjusted odds ratio (aOR) and 95% confidence interval (95%CI) for PP and excessive PP were calculated by the multilevel multinomial logistic regression model
- Additional analysis (Figure 2)
  - analysis-2 for excessive PP stratified by age groups (18–39/40–64/≥ 65)

[Ethical Approval] This study was approved by the Ethics Committees of Osaka Medical and Pharmaceutical University (No. 2022-089), and International University of Health and Welfare (No. 23-Ig-129).

Results

PP and excessive PP prevalence; 69.5%

Table 1. Percentage of PP and excessive PP prevalence by all age groups

	All	Age groups		
	≥18 years (N = 6,296) N (%)	18–39 years (N = 247) N (%)	40–64 years (N = 1,597) N (%)	≥65 years (N = 4,452) N (%)
None	1,919 (30.5)	136 (55.1)	491 (30.8)	1,292 (29.0)
PP	2,508 (39.8)	84 (34.0)	561 (35.1)	1,863 (41.8)
Excessive PP	1,869 (29.7)	27 (10.9)	545 (34.1)	1,297 (29.1)

Greater community civic participation among older adults is associated with lower excessive PP among PARs.

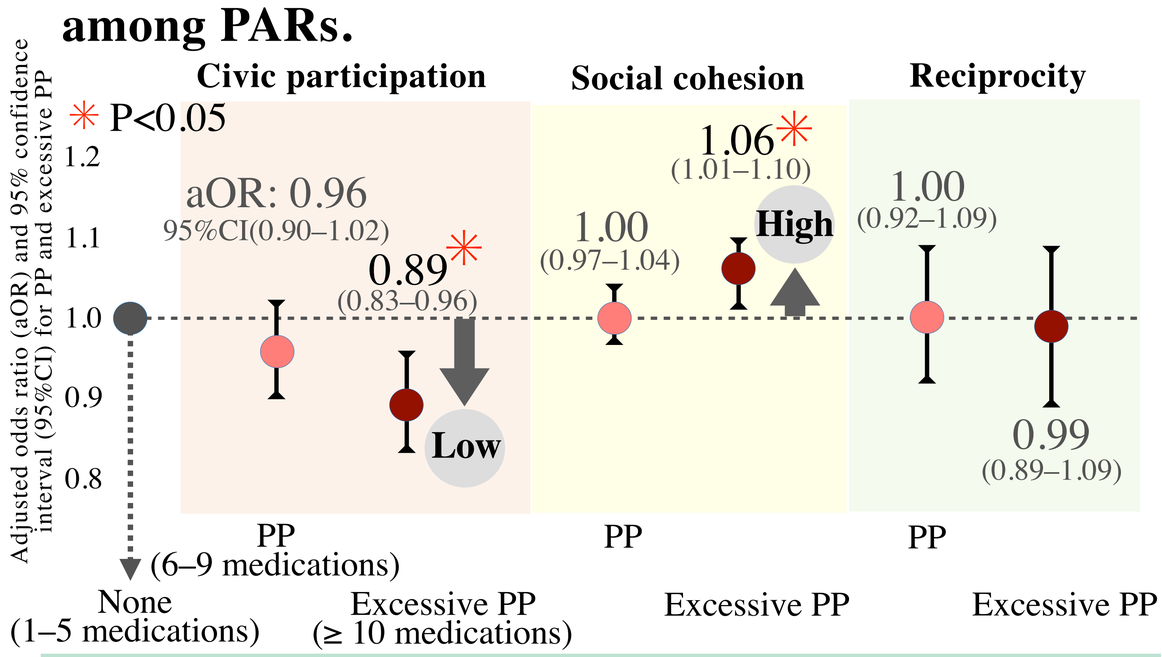

Figure 1. The association between community social capital and PP and excessive PP: the results of multilevel multinomial logistic regression model

Across age groups, greater community civic participation showed a lower excessive PP.

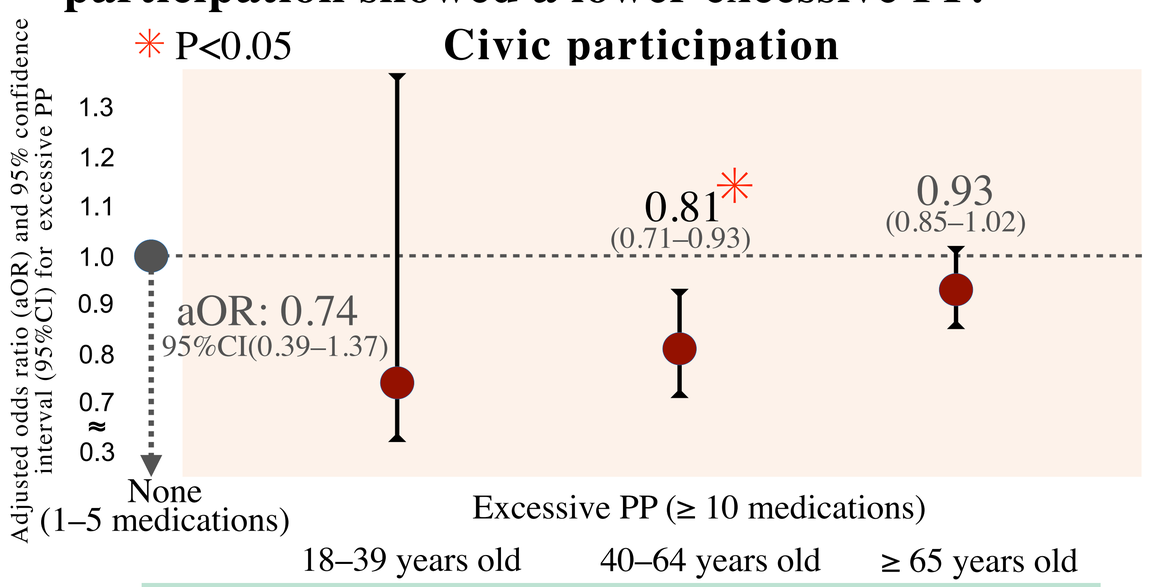

Figure 2. The association between community social capital and excessive PP: the results stratified by age groups

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