



How Does Frailty Affect Change in Communication Methods Among Older Adults During COVID-19?

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Background and Objectives

Frailty: A Global Concern

- ✓ Affecting millions of older adults worldwide
 - Increasing prevalence as the ageing population grows
- ✓ Impairs health + social connectivity
 - Adverse health outcomes: increased risks of falls, mobility decline, hospitalization, admission to long-term care, and mortality
 - Personal burdens: reduced quality of life, increased loneliness
- ✓ Reversible with early action
 - frailty is a dynamic and potentially reversible condition

COVID-19 Context

- ✓ Self-restraint disrupted routine activities
- ✓ Increased risk of isolation among frail older adults

Objective

- ✓ To clarify the relationship between frailty and communication methods
- ✓ To provide empirical evidence for developing interventions in preventing frailty progression and reducing isolation among ageing societies worldwide.

Data and Methods

Data: Secondary cross-sectional data from Sakai City, Osaka (2020), provided by the Longevity Support Division, Longevity Society Department, Health and Welfare Bureau of Sakai City, Osaka Prefecture, Japan. (N=6982)

Model: Multivariate probit model

- Simultaneously estimates multiple binary outcomes
- Accounts for correlations among outcomes

Descriptive Statistics

Dependent variables (6 dummy variables):

- Increased usage of video calls/telephone calls/ face-to-face interactions
- Decreased usage of video calls/telephone calls/ face-to-face interactions

Main independent variables: Frail (30%), pre-frail (36%), robust (34%)

Covariates: Female, age (65–69 y, 70–74 y, 75–79 y, 80+ y), years of education (up to 9 y, 10–12 y, 13+ y, others), economic status (experiencing poverty, average, wealthy), living alone, married

Results

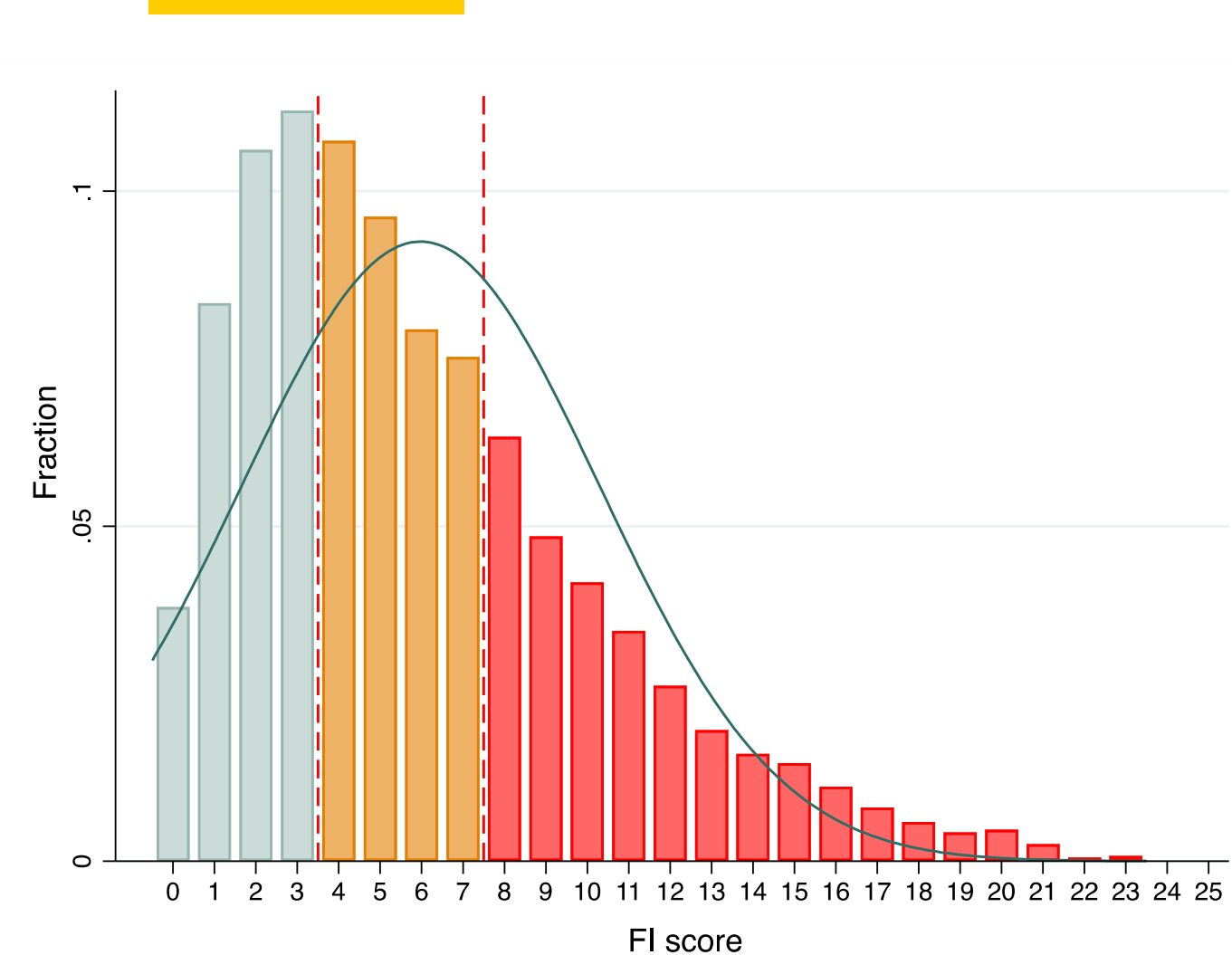


Figure 1. Normalized distribution of frailty index (FI) scores

Increased choice among communication methods	
Increased usage of telephone calls × Increased usage of video calls	Corr. (Std. err.)
Increased usage of face-to-face interactions × Increased usage of video calls	0.341 ***
Increased usage of face-to-face interactions × Increased usage of telephone calls	0.039
Increased usage of face-to-face interactions × Increased usage of telephone calls	0.060
Increased usage of face-to-face interactions × Increased usage of telephone calls	0.050
Increased usage of face-to-face interactions × Increased usage of telephone calls	0.079
Likelihood ratio test	
chi2(3) = 67.404 Prob > chi2 = 0.0000	
Decreased choice among communication methods	
Decreased usage of telephone calls × Decreased usage of video calls	Corr. (Std. err.)
Decreased usage of face-to-face interactions × Decreased usage of video calls	0.158 ***
Decreased usage of face-to-face interactions × Decreased usage of telephone calls	0.056
Decreased usage of face-to-face interactions × Decreased usage of telephone calls	0.050
Decreased usage of face-to-face interactions × Decreased usage of telephone calls	0.043
Decreased usage of face-to-face interactions × Decreased usage of telephone calls	0.217 ***
Likelihood ratio test	
chi2(3) = 49.672 Prob > chi2 = 0.0000	

Table 1. Estimated Correlation (Rho) Matrix and Estimated Standard Errors.

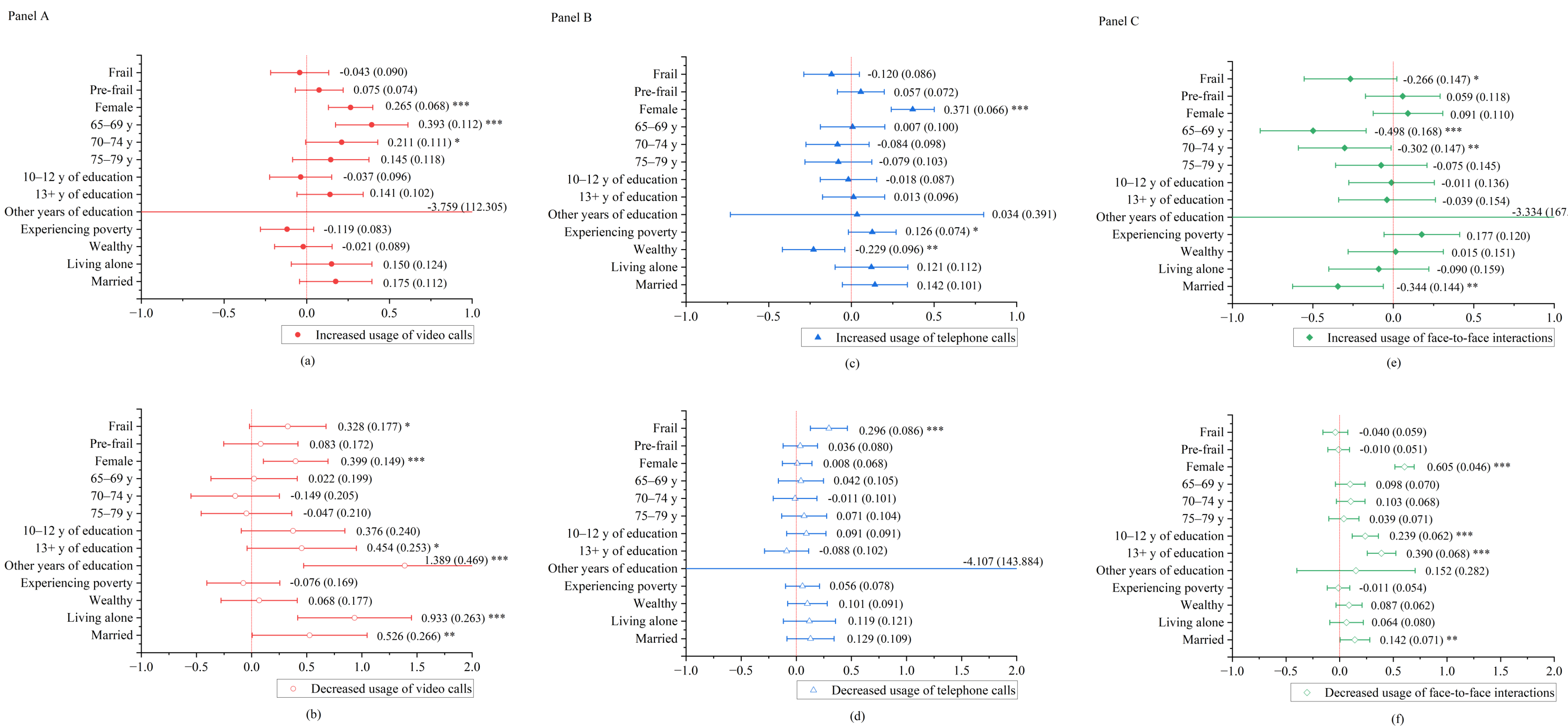


Figure 2. Coefficient estimates from the multivariate probit model Note: *** $p < .01$, ** $p < .05$, and * $p < .1$.

- Frail older adults were more likely to reduce both face-to-face interactions and digital communication, indicating higher risk of social isolation.
- Younger age groups adopted video calls more frequently.
- Older adults in poverty were more likely to increase telephone calls.
- Decrease in telephone calls was positively correlated with fewer face-to-face interactions, suggesting that telephone calls act as a bridge rather than a substitute for in-person contact.

Discussion and Conclusion

- ✓ Frail older adults reduced the usage of all communication methods, increasing the risk of social isolation.
- ✓ Older adults living in poverty were more likely to use conventional communication tools.
- ✓ These findings highlight the need for interventions that address physical/mental, technological, and economic barriers to communication among frail older adults, especially during health crises.