

Cognitive Functioning among Older Adults in Selected Countries : In Search of a Better Way to Remeasure Population Ageing

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Abstract

One of the study's objectives was to apply a new indicator, the cognition-adjusted dependency ratio (CADR), to re-measure the level of population ageing in Japan and four other Asian countries: China, India, Malaysia, and Thailand. The new index was computed using the mean age-group-specific immediate recall scores, and the results were compared with those derived from the United States and other European countries. The analysis showed that Japan's pattern and level of age-related decline in cognitive functioning are highly comparable to those of many developed nations, particularly in Continental Europe. Among the other Asian countries, cognitive functioning for Malaysia shows a similar downward trend to countries in Southern Europe, although Malaysia has slightly lower scores than Southern Europe in all age groups. More importantly, the results based on CADR emphasised the need for refined approaches to studying ageing and cognition.

Introduction

Population ageing is becoming increasingly significant worldwide, with implications for economic and social systems. Since the 1960s, global and Asia's population growth have slowed due to declining fertility rates and there have been dramatic changes to the population age structure. The proportion of Asia's population aged 65 and over in the world's older population increased from 44% in 1950 to 57% in 2020, projected to reach 62% by 2050, with Japan having the highest proportion of individuals aged 65 and over (United Nations 2019). Asia's total dependency ratio peaked at 0.81 in 1966 and fell to 0.47 in 2015, indicating demographic shifts. However, there have been substantial inter-country differences in the trends and levels of population ageing within Asia in the past several decades (Lee and Mason 2011, Ogawa et al. 2021).

Conventional demographic indicators for measuring ageing such as age dependency ratio rely solely on chronological age, failing to account for cognitive abilities which could affect policymaking. This study explored a new approach incorporating cognitive variation into dependency ratios among older adults to better measure population ageing across Asia, in particular, Japan and four other Asian countries namely India, China, Thailand and Malaysia.

Data Description

The study employed multiple datasets to analyse cognitive abilities and their determinants among older adults in the five Asian countries. The datasets included Japanese Study on Aging and Retirement (JSTAR); China Health and Retirement Longitudinal Study (CHARLS), the Longitudinal Ageing Study in India (LASI) Pilot Survey; the Health, Aging and Retirement Thailand (HART) and Malaysia Ageing and Retirement Survey (MARS). Core questionnaires of these studies cover demographics, health status, chronic illnesses, lifestyle behaviours, cognitive testing and economic factors. Cognitive tests included immediate and delayed word recall tasks, verbal fluency, numeric ability, and basic computation.

Methodology

The new metric for assessing population ageing introduced in this study incorporated cognitive functioning as suggested by Skirbekk, Loichinger, and Weber (2012). Cognitive functioning is critical for maintaining independence and making informed decisions in older adults. Cognitive processes include thinking, knowing, remembering, judging, and problem-solving.

The study focused on immediate word recall as a key measure of cognitive functioning among older adults across the five Asian countries and compared with Western nations. In addition, the study employed the cognition-adjusted dependency ratio (CADR) to measure population ageing. CADR is based on mean age-group-specific immediate recall scores from these countries. Subsequently regression models were performed on adults aged 50-79 to examine the relationship between cognitive abilities and demographic, socioeconomic, and psychosocial factors.

Key Findings

Mean age-group-specific immediate recall scores decline with age in all five countries. Japan has the highest scores among Asian countries until the 70-74 age group, while India shows lower scores for older age groups. The cognitive performance of Thailand is the lowest among the five Asian countries, particularly in the 60-64 age group. Japan's CADR (0.22) is higher than the US (0.10) and Northern Europe (0.12), but comparable to Continental Europe (0.18) which include Austria, France, Germany and Switzerland. Malaysia follows a similar pattern of change to countries in Southern Europe (Greece, Italy, and Spain), although Malaysia has slightly lower scores than South-

ern Europe in all age groups. The results highlight significant differences between CADR and traditional dependency ratios, suggesting a need for new ageing metrics.

The study identified various factors associated with cognitive performance among older adults in five Asian countries. Age, education, self-rated health, and marital status are significant predictors of immediate recall scores. Education and good health are highly and positively associated with cognitive performance, while age negatively impacts cognitive abilities. Gender differences in cognitive performance were observed, with women generally performing better than men in most countries and that married older adults score higher in immediate word recall than their non-married respondents.

Policy Recommendations

The study explored a new approach which incorporated cognitive functioning into age-dependency ratios to measure the level of population ageing in a society which could shed a different light on policy-oriented research on ageing. The inter-country comparisons based on cognition-adjusted dependency ratios were found to be substantially different from the conventional old-age dependency ratios suggesting the need for refined approaches to studying ageing and cognition.

While mean age-group-specific immediate recall scores decline with age in all five countries, there were variations demographic and socio-economic factors. The study explored the long-term effects of health and education on cognitive performance. Excellent health and higher education levels were associated with better cognitive functioning in later life. The findings provided evidence of the enduring impact of healthy lifestyle and educational attainment on cognitive health and highlighted the importance of promoting healthy living and lifelong learning to acquire new knowledge and skills for older adults. The study highlighted the need for policies addressing gender inequality in education and health.

Another finding is the significance of marriage on cognitive functioning, married older persons have higher cognitive abilities than those never married. The findings highlighted the protective effects of social bonds on cognitive health. In view of the recent gradual shift from universal marriage to lifetime singlehood in Japan and other Asian countries, policymakers and researchers should pay more attention to Asia's changing marriage patterns in the years to come, particularly from a standpoint of cognitive performance among older adults. Overall, the findings have implications for improving cognitive health among older adults.

Conclusion

The study introduced a new index, cognition-adjusted dependency ratio using the mean age-group-specific immediate word recall scores among older adults were computed and compared across five Asian countries namely Japan, China, India, Malaysia and Thailand. Comparisons were also made between these countries and the US as well as developed European nations. The inter-country comparisons based on cognition-adjusted dependency ratio results were found to be different from the conventional old-age dependency ratios. Hence there is a need to raise awareness on innovative approaches to remeasure population ageing for formulation of more efficient and effective policies to cope with rapid population ageing in both developed and developing nations.

References

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