Social connection patterns and psychological well-being among older adults in Japan

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Introduction : Structural social connections—such as ties with family, friends, and community—are vital for well-being in later life. Their absence, known as social isolation, poses serious health risks, including loneliness and depression. While social connections are protective, their types and configurations may affect health and well-being differently. This study examines gender-specific patterns of structural social connections among older adults in Japan and their associations with loneliness and depressive symptoms.

Method : We extracted participants from Japan Gerontological Evaluation Study (JAGES) 2022 survey and stratified by gender (men: n = 42,387; women: n = 47,482) performing latent class analysis separately. Additionally, we examined the association of each social connection patterns with loneliness and depressive symptoms using modified Poison regression analysis.

Results : We defined that five-class model was optimal for both men and women. The characters of five latent classes and their respective numbers (men/women) were: class 1: *Active Social Engagement Group* (6,845/8,414), class 2: *Physically and Digitally Connected Interaction Group* (2,516/3,357), class 3: *Socially Integrated Group* (13,286/18,733), class 4: *Socially Disengaged but Familiarly Tied Group* (15,786/10,725), class 5: *Unpartnered and Living Alone Group* (3,954/6,253). Analysis of associations with loneliness and depressive symptoms revealed that class 5 in men and class 4 in women had significantly higher risk ratios for both outcomes.

Conclusion : From a structural standpoint, social connection patterns among older adults in Japan can be classified into five distinct categories for both men and women, with gender differences observed in their associations with loneliness and depressive symptoms. Future research and policy development should consider these gender-specific disparities to enhance social well-being among older adults.

Association between calcium intake and depressive symptoms: the Aidai cohort study

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Introduction and Objectives : Depression is a common mental health problem and causes less activity and quality of life. It is now becoming a preventive disease that should be dealt with. Although calcium intake was inversely related to the risk of depression in several epidemiological studies, studies focusing general Japanese population is limited. Using baseline data from the Aidai cohort study, we conducted the cross-sectional study to investigate this association.

Methods : Study subjects 10316 Japanese men and women aged 20-95 years. Calcium intake was assessed using a self-administered diet history questionnaire. Depressive symptoms were defined as a 20-item Center for Epidemiologic Studies Depression Scale (CES-D) score of ≥ 16. Adjustment was made for age, sex, smoking status, alcohol consumption, leisure time physical activity, education, income, working status, body mass index, hypertension, dyslipidemia, diabetes mellitus and history of depression.

Results : Prevalence of depressive symptoms was 14.86% (n=1533). Quartile of calcium intake was Q1 <487.9 mg, Q2 487.9-660.9 mg, Q3 660.1-803.2 mg, Q4 $\geqq$1035 mg respectively. Higher calcium intake was inversely associated with the prevalence of depressive symptoms. The adjusted odds ratio for the highest quartile compared with the lowest was 0.81(95%CI 0.68-0.96), with a significant liner trend (P for trend =0.006).

Conclusion : The present study found that higher calcium intake was inversely associated with depressive symptoms in Japanese adults.

Modelling age-specific chikungunya outbreak response immunisation strategies in Brazil

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Background : Two chikungunya vaccines, Ixchiq® (≥18 years) and Vimkunya® (≥12 years), are licensed. Brazil is the first endemic country to license Ixchiq®, but optimal age groups for vaccination remain unclear. Our aim is to model the public health impact of age-specific chikungunya outbreak response immunisation strategies in Brazil and infer broader implications for vaccine use case scenarios in outbreak prone regions.

Methods : Using an age-structured transmission model calibrated with Brazilian surveillance data (2022), we evaluated outbreak response vaccination strategies targeting ages 1-11, 12-17, 18-59, and ≥ 60 years for both vaccines. We predicted the epidemic size by calibrating reporting rates. We assessed vaccine impact by symptomatic cases, deaths, disability-adjusted life years (DALYs) averted, and number needed to vaccinate (NNV), under disease-blocking only and disease and infection blocking efficacy assumptions.

Results : Ixchiq® and Vimkunya® had comparable vaccine impacts. Vaccinating ages 1-11 had the lowest NNVs for both vaccines. Under current licensing constraints, vaccinating ages 18–59 with Ixchiq® (NNV: 1,396 [95% UI: 152–16,226]) and ages 12–17 with Vimkunya® (NNV: 780 [112–6,198]) were most efficient for averting a DALY under disease and infection blocking efficacy assumption. Vaccinating ages 1–11 required the lowest NNVs (Ixchiq®: 357 [55–2,343]), Vimkunya®: 377 [59–2,528]).

Interpretation : Under current licensure, the most efficient strategies are vaccinating 18–59 years with Ixchiq® and 12–17 years with Vimkunya®. As eligibility expands, prioritising 1–11 years could further reduce NNVs.

Mental health from early to mid-adulthood and physical function in mid-aged Australian women

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Background : Understanding the interconnectedness between physical and mental health is crucial for developing effective prevention strategies and promoting healthy ageing. However, early-adulthood associations between mental health and performance-based physical function are unclear. *Objectives:* To investigate associations between mental health across adulthood and midlife physical performance in Australian women.

Methods : 499 women from the Menarche-to-PreMenopause Study, a sub-study of the Australian Longitudinal Study on Women's Health, self-assessed their mental health every three years using the Short Form Health Survey (SF-36). Generalised estimating equation models were used to analyse the links between SF-36 mental health component summary (MCS) and four subscales from ages 18-23 to 40-45y and three performance-based physical function tests at age 41-48y (handgrip strength, chair rise, and standing balance). The lowest tertile of the sample defined worse performance.

Results : Low perceived mental health (MCS) across adulthood was associated with 86% increased odds of worse chair rise performance at midlife (OR: 1.86; 95% CI: 1.1-3.1). Women with low perceived energy and more tiredness (Vitality subscale) showed 1.9 higher odds of worse chair rise performance (95% CI: 1.1-3.0), while those repeatedly reporting mental health-related role limitations (Role-Emotional subscale) showed 1.4 higher odds (95% CI: 1.1-1.9) than those with normal scores. Limitations in social functioning (Social Functioning subscale) and anxiety/depression symptoms (Mental Health subscale) were not longitudinally associated with chair rise. Associations with handgrip strength and standing balance tests were non-significant.

Conclusion : Poorer mental health from early to mid-adulthood was associated with worse physical performance at midlife, particularly in the chair rise test.

Menstrual Disorders and Workforce Participation: A Prospective Longitudinal Study

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Background : Menstrual disorders affect a substantial proportion of reproductive-aged women and are associated with reduced quality of life and work performance. Despite this, there are limited longitudinal studies. This study aimed to examine the associations between menstrual disorders and workforce participation among Australian women.

Methods : This was a population-based, prospective longitudinal study using data from 11,152 women born between 1973-78 cohort who participated in the Australian Longitudinal Study on Women's Health (ALSWH). Data were collected through eight surveys conducted between 2000 and 2021. Workforce participation and self-reported menstrual disorders were recorded at each wave. Generalized estimating equations for multinomial responses were used to assess associations, stratified by age groups.

Results : The study revealed that women who experienced severe period pain had higher odds of being unemployed compared to full-time workers (AOR = 1.18; 95% CI: 1.01–1.36), while those with irregular periods were more likely to work part-time (AOR = 1.32; 95% CI: 1.08–1.61). Premenstrual tension was linked to lower odds of part-time versus full-time work (AOR = 0.74; 95% CI: 0.61–0.90). Age-stratified analysis revealed that women aged 41 and older who experience severe period pain or irregular periods were at a higher risk of unemployment compared to their younger counterparts.

Conclusions : Menstrual disorders significantly affect women's workforce participation, with impacts varying by age and symptom type. Addressing menstrual health through workplace policies, flexible work arrangements, and awareness initiatives could reduce gender inequities in workforce participation   and improve economic outcomes.

Keywords : Employment, menorrhagia, menstrual health, morbidity, workforce participation