Tuber crops consumption and increased incidence of solitary thyroid nodules among women living in Karunagappally, Kerala, India.

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Background : The prevalence of solitary thyroid nodules (nodules) is higher among the residents of Kerala's coastal region. Diet may contribute to the development of nodules, which can turn malignant by interfering with thyroid hormone production and function. The purpose of this study is to find potential dietary factors related to thyroid diseases/ nodules among women in Karunagappally, India.

Methods :A questionnaire survey regarding the frequency of the dietary intake was performed along with clinical diagnostic procedures of thyroid diseases in 2012 among asymptomatic and voluntary participating women in Karunagappally.

Results : Among the 524 subjects, 75 (14%) were detected with nodules and 145 (28%) with thyroiditis. The logistic regression analyses, adjusting for age and education, revealed that a higher frequency of intake of goitrogenic food, such as cruciferous vegetables and tuber crops such as roots and tubers, was positively associated with the risk of nodules (*P for trend* 0.024 and 0.002, respectively), and though not statistically significant, tapioca also increased the risk. Consumption of the following meats and seafood at least once a week was significantly associated with the risk of nodules, with odds ratio magnitudes of around two: chicken, mutton, beef, shell, mussel, crab, and sepia. While considered to be a risk factor for other cancers, frequent pickle intake showed a protective role against both the nodules (*P for trend* 0.022) and thyroiditis (*P for trend* 0.017).

Conclusion : The results obtained show dietary factors might be related to the risk of solitary thyroid nodules among women in Karunagappally.

Efficient Classification of DNA Methylation Sites Associated with Environmental Exposures

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Background and Aim : DNA methylation (DNAm) plays a key role in mediating environmental effects on children's health. Analysis of DNAm requires screening 850,000 CpG sites influenced by environmental factors, but linear regression-based approaches are commonly applied due to computational burden. However, considering the complex CpG distribution, we propose a statistical approach without assuming regression structure to efficiently extract meaningful methylation patterns. This study aims to clarify the biological mechanisms by which maternal tobacco smoking influences offspring health via DNAm.

Methods : Umbilical cord blood collected at birth was analyzed using the Illumina HumanMethylationEPIC BeadChip (850K array). Participants were drawn from the Hokkaido Environment and Children's Health Study, an ongoing birth cohort since 2001. Among those with stored cord blood, 218 children classified as obese at age 12 and 282 age-matched controls were included. Genome-wide methylation levels were measured at 850,000 CpG sites. Basic statistics were calculated for CpG site distribution, and features were extracted. Gaussian Mixture Models (GMM) were fitted to identify distribution structures of CpG sites. The accuracy of classifications from GMM was examined in relation to maternal smoking using the Matthews correlation coefficient for a 2×2 table consisting of GMM classification and obesity labels.

Results : Previous studies identified CpG sites associated with maternal smoking through standard regression-based EWAS. Using the same data, our method extracted CpG sites partially overlapping with those detected by existing approaches.

Conclusions : Our findings demonstrate that the proposed method can efficiently identify biologically relevant CpG sites associated with maternal smoking, providing a complementary perspective to regression-based EWAS and advancing understanding of environment–epigenome interactions.

Modeling the impact of public health and social measures on COVID-19 in Japan 2020-2021

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Introduction : Published studies have shown that human mobility and SARS-CoV-2 transmission are positively linked. Japan called for restrained contact and avoidance of unnecessary outings by declaring the state of emergency. We aimed to evaluate the effectiveness of public health and social measures (PHSM) implemented in Osaka, Japan, in 2020-2021 by employing a counterfactual mathematical model.

Method : A mechanistic susceptible-infectious-recovered (SIR) model was developed to describe the transmission dynamics of SARS-CoV-2 during the first five epidemic waves. The census and published transmission parameters, including the basic reproduction number and duration of infectiousness, were used to simulate the baseline scenario. The reproduction number was then modified by the implementation of PHSM, which were triggered when hospitalized COVID-19 cases exceeded a certain threshold value.

Results : The epidemic size continued to grow with each epidemic wave. The simulated baseline infected and hospitalized cases were contrasted against the observed infected and hospitalized cases to evaluate PHSM. The rising threshold values for triggering PHSM were observed.

Conclusion : Empirical data showed a delayed start of PHSM and progressive rise in epidemic peaks in Osaka from 2020-2021. Multiple factors, including societal and cultural factors that govern the people's risk recognition and value judgments, could have influenced the delayed interventions.

A salmonellosis outbreak presumably caused by an asymptomatic food service worker in Korea, 2025

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Objectives : An epidemiologic investigation was conducted after an outbreak of salmonellosis was identified in three families who dined at a single restaurant on May 8, 2025.

Methods: A case series investigation was conducted, and human specimens were collected from cases and food service workers. Environmental samples were collected from cooking utensils and stored side dishes in use in the restaurant at the time of the field investigation. The detected pathogens were subjected to PFGE (Pulsed Field Gel Electrophoresis) to compare genotypes.

Results: Seven of the nine restaurant patrons were confirmed as cases. *Salmonella* Enteritidis was confirmed in five of the seven cases and one asymptomatic food service worker, and the detected *S.*Enteritidis was confirmed to be the same genotype, SEGX01.049, by PFGE. No pathogen was identified in the environmental samples.

Conclusions: This outbreak was identified as an outbreak caused by *S.* Enteritidis of the SEGX01.049 genotype. The asymptomatic food service worker with the same genotype did not participate in the cooking process, but only in the dishwashing process. Given the absence of a history of consumption in the restaurant, the possibility of an outbreak of Salmonella infection through contaminated utensils by an asymptomatic cook cannot be ruled out. To prevent future outbreaks caused by asymptomatic food service workers, proper hand hygiene and increased infection prevention education for food service workers are needed.

Negative associations “life with ikigai” with metabolic syndrome and metabolic phenotypes

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Background : The impact of a “life with *Ikigai*” on health remains largely unexplored. We examined the association between a “life with *Ikigai*” and the risk of metabolic syndrome (MetS) and metabolic phenotypes (MetP: comprising metabolically healthy normal weight (MHNW), metabolically unhealthy normal weight (MUNW), metabolically healthy obesity (MHO), and metabolically unhealthy obesity (MUHO)).

Methods : In the Shizuoka-Sakuragaoka J-MICC Study, 2,971 men and 2,291 women aged 35-79 were eligible to for the study, and responded to a self-administered questionnaire using a 5-point scale (“not at all” to “very much”) for life with Ikigai. MetS cases and MetP cases were defined separately based on the criteria of National Cholesterol Education Program Adult Treatment Panel III and the Joint Interim Statement Criteria 2009. With “neither” or MHNW as the respective reference groups, the odds ratios (ORs) for MetS and MetP were calculated using multivariable and multinomial logistic regression models.

Results : For the risk of MetS, a significant negative trend was found only in men. Regarding the risk of MetP, each OR of MUNW, MHO and MUHO was significantly the lowest in men with “very much”, and a significant negative trend was found only for MUHO. Controversially, in women, both ORs of MUNW and MUHO were just significantly higher in women with “not at all / not very much”.

Conclusion : Our findings indicate that a “life with *Ikigai*” is negatively associated with tthe risk of MUHO in MetP, rather than MetS, and that this association exhabits gender differences among middle-aged and elderly Japanese men and women. This study is a cross-sectional study; therefore, it should be noted that causal relationships are not evident.