Mental health and factors in reproductive age women with thyroid disorders in Dhaka City, Bangladesh

Tahmina Akhter (1)
Mithila Faruque (2), Halima Akter Sathi (3), Lingkan Barua (4), Palash Chandra Banik (5)

1 : Senior Research Fellow, Department of Noncommunicable Diseases (NCD), Faculty of Public Health, Bangladesh University of Health Sciences (BUHS)

Background : Thyroid disorders, particularly hyperthyroidism, can significantly impact mental health in women of reproductive age, leading to anxiety, depression, and other mood disturbances.

Objective : This study aimed to assess the mental health status of reproductive-age women with thyroid disorders and identify associated factors.

Methodology : A cross-sectional study was conducted in 2022 among 250 women aged 15–49 years, selected via convenience sampling from the Bangladesh Institute of Thyroid Medicine & Imaging Research (BITMIR). Data on socio-demographic characteristics, reproductive history, behavioral factors, and mental health (stress, anxiety, depression, and sleep patterns) were collected through face-to-face interviews using a semi-structured questionnaire. Stress, anxiety, and depression were assessed using the Perceived Stress Scale-4 (PSS-4) and Patient Health Questionnaire-4 (PHQ-4). Ethical approval was obtained from the Ethical Review Committee of Bangladesh University of Health Sciences.

Results : The mean duration of thyroid disorders among participants was 4.4 ± 3.7 years, with 76.4% diagnosed with hypothyroidism. The study found that 49.6%, 54.8%, and 62.8% of participants experienced anxiety, depression, and stress, respectively, while 83.2% reported poor sleep quality. Significant associations were observed between mental health outcomes and age group ($p= 0.001$), occupational status ($p = 0.001, 0.002$), early marriage ($p = 0.033, 0.021, 0.014$), and number of parities ($p = 0.030, 0.014, 0.016$).

Conclusion : The study revealed that nearly half of reproductive-age women with thyroid disorders experience mental health challenges, underscoring the need for targeted interventions. Raising awareness about mental well-being in this population is critical.

Keywords : Mental health, stress, anxiety, depression, associated factors, reproductive age, Bangladesh.

Durability of effectiveness of booster COVID-19 bivalent vaccine against all-cause mortality

Tsuyoshi Ogata (1)
Hideo Tanaka (2), Kana Kawachi (1), Sanae Hattori (3), Masahiro Ishikane (4)

1 : Itako Public Health Center of Ibaraki Prefectural Government
2 : Moriguchi Public Health Center of Osaka Prefectural Government
3 : Chikusei Public Health Center of Ibaraki Prefectural Government
4 : Disease Control and Prevention Center of Japan Institute for Health Security

Introduction : The follow-up period for evaluating the durability of vaccine effectiveness (VE) of bivalent vaccines against COVID-19-related death was relatively short in early report. This population-based cohort study aimed to evaluate the durability of VE of the COVID-19 bivalent (ancestral/BA.4-5) booster vaccine against all-cause mortality in older adults.

Methods : The study population was individuals aged 60 years or older in the jurisdiction of the Itako Health Center in Japan. From October 2022 to September 2023, the all-cause mortality rate in those who had received a third booster dose with bivalent vaccine (n = 30,557) was compared with those who had received two booster doses of monovalent vaccine more than 90 days previously (n = 34,075). The all-cause mortality rate for each time since vaccination category in the cohort was evaluated using Cox regression, with adjustment for sex, age, and municipality. We used calendar time as the underlying time scale and time since vaccination category was included as a time-varying variable.

Results : The total observation period was 5,691 and 17,804 person-years for the second and the third bivalent booster vaccine recipients, respectively. A crude HR of the third COVID-19 booster bivalent vaccine against all-cause mortality was 0.465 (95% confidence interval [CI] 0.400 to 0.541). The adjusted VE by time since vaccination was 79.8% (95% CI 73.4% to 84.6%) after 15–90 days, 69.3% (95% CI 58.8% to 77.1%) after 91–180 days, and 30.5% (95% CI −2.8% to 53.0%) after 181–270 days. During XBB-predominant period from April 2023 to September 2023, the adjusted VE of a third COVID-19 booster bivalent vaccine against all-cause mortality was 31.7% (95% CI -44% to 67.5%) after 15–90 days and 61.7% (95% CI 43.8% to 73.9%) 91–180 days after vaccination.

Conclusion : The COVID-19 bivalent booster vaccine was effective for at least 180 days after vaccination, before and during the SARS-CoV-2 Omicron XBB-dominant period.

Design thinking to assess a digital surveillance platform – i-gram Digital AMR Tool in Australia

Yukiko Ezure (1)
Teresa Maria Wozniak (2), Amalie Dyda (1), Caroline Chen (3,4), Lisa Hall (1)

1 : School of Public Health, Faculty of Health, Medical and Behavioural Sciences, The University of Queensland
2 : Australian e-Health Research Centre, CSIRO, Brisbane Australia
3 : Royal Melbourne Hospital Guidance Groups, Melbourne, Australia
4 : National Centre for Antimicrobial Stewardship, Department of Infectious Diseases, Univery of Melbourne, Melbourne, Australia

Background : Antimicrobial resistance (AMR) disproportionately affect Australia's regional and remote areas, which face limited healthcare resources, microbiology services, and diagnostic barriers. These regions lack access to local resistance data, hindering informed prescribing decisions. Strengthening AMR stewardship requires improved surveillance systems and digital tools as infrastructure is limited. To provide timely and customisable resistance and infection data for clinicians.

Methods : Using the double diamond model (Discover, Define, Develop, Deliver), we conducted a mixed-methods study. The first diamond comprised an initial workshop (n=10) and two-stage Delphi survey (n=11) to understand current practices and establish consensus on antibiogram requirements. The second diamond involved platform refinement and usability evaluation through scenario-based workshops with AMS teams. Data analysis was guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) framework.

Results : Participants (60% pharmacists, 80% ≤10 years AMS experience) revealed whilst 66% use antibiograms for empiric treatment, only 8% use them consistently. Accessibility emerged as the primary barrier (70%). The Delphi survey identified infection type and treatment efficacy as critical factors to include for decision making around prescribing. Usability evaluation demonstrated dual-purpose functionality supporting both point-of-care decisions and AMR surveillance activities.

Conclusions : Co-design digital AMR tools using design thinking enhance usability and acceptance. Key success factors in our project included addressing accessibility barriers, incorporating dual clinical and surveillance functionality, and engaging end-users throughout development. This study provides practical insights for implementing digital AMS tools in remote healthcare settings, ultimately strengthening antimicrobial stewardship programmes through improved access to local resistance data.

Multiple Time Scale in Survival and Time-to-Event Analysis

Noriko Tanaka (1)
Makiko Mieno (2), Kazutaka Doi (3)

1 : Dept. Biometry and Genetics, Institute of Biomedical Sciences, Fukushima Medical University
2 : Dept. Medical Statistics, Center for Information, Jichi Medical University
3 : Dept. Charged Particle Therapy Research, QST Hospital, National Institutes for Quantum Sciences and Technology

In Epidemiological studies, survival and event history analyses often involve multiple relevant time scales, as the hazard of an event can depend on various temporal dimensions simultaneously. For instance, mortality after a cancer diagnosis is influenced by both time since diagnosis and attained age. Complications of chronic diseases like diabetes may depend on both age and disease duration. Incidence of hospital-acquired infections can be highly dependent on time spent in the hospital and also vary over calendar time due to changing prevalence or interventions. Breast cancer incidence is affected by age and time since first childbirth. Failing to account for these multiple scales can lead to biased estimates and incorrect inferences. Several statistical methodologies have been developed to address the complexity of multiple time scales in survival analysis. Methodologies like Lexis diagrams, piecewise constant hazards, additive models with smoothing, multi-state models and Bayesian approaches offer powerful tools to capture the complex temporal dependencies influencing event probabilities. However, the sophisticated analysis of survival and event history data necessitates careful consideration and appropriate modeling of multiple underlying time scales. The choice of the most relevant time scales and the method for combining their effects are critical to deriving unbiased and interpretable results. We illustrate the various approaches to estimate smoking effect on mortality influenced by both time since diagnosis and attained age using the data from a prospective autopsy cohort study.

Association of glomerular hyperfiltration with factors related to diabetes and nativity among Asians

Shino Oba (1,2,3)

1 : Gunma University Graduate School of Health Sciences
2 : Gunma University Interfaculty Initiative in Public Health
3 : Gunma University Center for Food Science and Wellness

Objectives : glomerular hyper filtration is observed in the natural history of chronic kidney disease (CKD). The prevalence of CKD is higher in Asians than that in Whites in the United States (US). The aim of the study is to explore the association of glomerular hyperfiltration with factors related to diabetes and nativity status among Asians in the US.

Methods : non-Hispanic Asian adults (20-60 years) (n=1877) participating in the 2011-2018 National Health and Nutrition Examination Survey were analyzed. Individuals who had reduced kidney function were excluded from the study. Estimated glomerular filtration rate (eGFR) using CKD-EPI2021, and glomerular hyperfiltration was defined as an eGFR above the age- and sex-specific 95th percentile by sex (Ren Fail 2012; 34:1084-90). Demographic characteristics including nativity status was identified from a questionnaire, and data in laboratory tests were available. Logistic regression was utilized to assess the association after adjustment for multiple factors including age, gender, BMI and physical activity levels.

Results : 107 individuals were classified as hyperfiltration. Individuals with diabetes were more likely to have hyperfiltration comparing to those with normal glucose tolerance (odds ratio (OR) = 4.56, 95% confidence interval (CI): 2.45-8.48). Individuals with hypertension were more likely to have hyperfiltration comparing to those with normal blood pressure (OR = 2.34 95% CI: 1.36, 4.01). Foreign born individuals who were in the US less than 10 years (OR = 2.26, 95% CI: 1.26, 4.08), and in the US between 10-19 years (OR = 1.85, 95% CI: 1.01, 3.38) were more likely to have hyperfiltration comparing to US born individuals.

Conclusions : Among Asian adults without kidney function decline, those with diabetes, with hypertension and the foreign-born individuals staying in the US less than 20 years were likely to have hyperfiltration.