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Primary care utilization among children with intellectual disabilities transitioning into adulthood

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Background: One of the most profound transitions in healthcare trajectories is when a person turns 18 years old and transfers from child to adult healthcare.

Methods: We included all children and adolescents living in Skåne in 2014 and turning 18 years old during the study period. The ID cohort (n=2 072) comprised those with diagnosis of ID and/or service and support for people with ID, and the general population (gPop) cohort the remaining 73 681 children and adolescents. Information on all healthcare contacts to physicians in public and privately organized primary care during the study period was collected from the Skåne Healthcare Register. For each person, the yearly number of healthcare contacts was calculated and related to the year when the person turned 18 years old.

Results: Prior to turning 18, 44-46% of the ID cohort and 44-50% of the gPop cohort had at least one yearly contact with primary care (RR 0.94-1.02, all non-significant). The year of turning 18, the number of people with at least one contact rose to 63% in the ID cohort, whereas it remained at 52% in the gPop cohort. After turning 18, the number with at least one contact decreased from 56% to 24% in the ID cohort and from 42% to 15% in the gPop cohort (RR 1.47-1.88, all significant).

Conclusions: The results show a change in healthcare utilization patterns after becoming of age. This implies a need for more in-depth research concerning the underlying mechanisms for transition into adult healthcare.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Low birthweight in patients with type 2 diabetes is associated with elevated risk of cardiovascular events and mortality

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Background: Low birthweight (BW) is a risk factor for type 2 diabetes (T2D) and cardiovascular disease (CVD). This study investigated whether lower BW increases CVD risk after T2D diagnosis.

Methods: Midwife records were evaluated for 8417 patients recently diagnosed with T2D. Patients were followed for the first occurrence of a composite CVD endpoint (myocardial infarction, coronary or peripheral revascularization, stroke, unstable angina, heart failure, or cardiovascular death), a three-component endpoint of major adverse cardiovascular event (MACE), and all-cause mortality. Ten-year risks were estimated by the Aalen-Johansen estimator considering non-CVD death as a competing risk. Hazard ratios (HRs) were determined by Cox regression. Models were controlled for sex, age, year at birth, family history of diabetes, and born-at-term status.

Results: A total of 1164 composite CVD endpoints, 931 MACEs, and 1094 deaths occurred during a median follow-up of 8.5 years. The 10-year standardized composite CVD risk was 18.5% in patients with a BW <3000 g compared with 15.4% in patients with a BW of 3000–3700 g, yielding a risk difference (RD) of 3.1% (95% CI 0.7–5.6) and an adjusted HR of 1.23 (95% CI 1.05–1.44). The 10-year MACE risk for BW <3000 g was similarly elevated (RD 2.4% [95% CI 0.1–4.7], HR 1.22 [95% CI 1.01–1.46]). The elevated CVD risk was primarily driven by stroke, peripheral revascularization, and CVD death. All-cause mortality showed no substantial difference.

Conclusions: Having a BW <3000 g is associated with higher CVD risk among patients with T2D, driven primarily by risk of stroke and cardiovascular death.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Sequences of sickness absence, disability pension, and unemployment four years before and five years after musculoskeletal diagnosis among Swedish twins

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Background: To investigate sustainable working life via identification of time-related sequences of sickness absence (SA), disability pension (DP), and unemployment (UE) four years before and five years after the first MSD diagnosis based on the Swedish register data. Other aims were to account for familial confounding and to examine the associations between sequences and sociodemographic characteristics.

Methods: Among 28 474 Swedish twins, the patterns of interruptions of working life four years before the first M00-M99 diagnosis (MSD) and five years after MSD diagnosis were investigated with a sequence analysis in a 7-element state space consisting of sustainable working life, unemployment (UE) >90 days, moderate SA/DP (30-179 days), almost full year of SA/DP (180-365 days), full year of SA/DP (≥ 365 days), death, and old-age pension.

Results: The six-cluster solution had the best fit to the data. Five clusters had varying patterns of interruptions of sustainable working life (clusters 2-6, $n = 537-1\ 949$ with SA/DP, UE, but also accounting death, and old-age pension) compared to the largest cluster with primarily sustainable working life ($n = 23\ 316$). Age, sex, and familial factors affected the likelihood of belonging to the clusters with SA/DP.

Conclusions: Most Swedish twins with or without MSD diagnosis have a sustainable working life, although MSD was both prevalent and a strong risk factor for belonging to the clusters with SA/DP. Thus, early prevention of MSD and prevention of recurrent or long sickness absences due to any cause would be merited while paying special attention to women also.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

The Effect of SARS-CoV-2 Genome Mutation on Viral Characteristics and Adaptive Immunity.

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Background: The widespread transmission of SARS-CoV-2 has resulted in millions of infections and significant mortality, providing the virus with numerous opportunities to mutate. These mutations could alter viral characteristics like transmissibility and pathogenicity. Despite effective treatments, infections persist, underlining the need for in-depth research into the mutations and their functional consequences.

Methods: Our approach began with the aggregation of mutation effect data from published studies into The Resource for Coronavirus 2019 (RCoV19) database. We then employed bioinformatics tools to predict the effects of amino acid substitutions in the structural proteins on transmissibility and pathogenicity. Furthermore, we analyzed the mutation effects on human immunity, including the neutralizing ability of polyclonal antibodies against the receptor-binding domain (RBD) and the binding affinity of T-cell epitopes to human leukocyte antigens.

Results: Our comprehensive analysis elucidated the relationship between various SARS-CoV-2 mutations and changes in viral characteristics. The study revealed that mutations within the RBD affect antibody neutralization across different lineages, and mutations in T-cell epitopes influence epitope-HLA binding affinity, indicating potential immune escape mechanisms.

Conclusions: The study provides extensive annotations of SARS-CoV-2 mutations, shedding light on the epidemiological traits and its ability to evade immunity. This enhanced understanding of viral evolution and host-pathogen interactions is crucial for managing the ongoing pandemic and developing strategies to mitigate the effects of future variants.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Measles vaccines and non-specific effects on mortality or morbidity. A systematic review and meta-analysis.

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Background: Since the 1980's countless research articles was published regarding the hypothesis of beneficial non-specific effects of the standard titre measles vaccine. The aim of this systematic review and meta-analysis of RCT's was to conclusively evaluate the hypothesis.

Methods: Systematic searches conducted on EMBASE and PubMed were repeated weekly from February 2022 to October 2022 and once more in August 2023. Screening was conducted by three independent authors. Data was extracted. Trials were included in meta-analysis only if they were original data or without overlapping populations.

Results: 23 articles were included in this systematic review.

TSA of two doses of measles vaccine vs only one dose showed no significant effect on mortality; risk ratio (RR) = 1.05 (95% C.I: 0.78 to 1.41), p = 0.76. For male sex the association was rejected: RR = 1.09 (95% C.I: 0.86 to 1.37), p = 0.47. For female sex the association was rejected: RR = 1.0 (95% C.I: 0.64 to 1.54), p = 0.99. For morbidity the hypothesis was rejected: RR = 0.94 (95% C.I: 0.80 to 1.10), p = 0.43. The rejection was sustained within both sex groups: females RR = 0.95 (95% C.I: 0.77 to 1.18), p = 0.6, and males RR = 0.92 (95% C.I: 0.83 to 1.03), p = 0.13.

Conclusions: Based on evidence from the highest level of evidence, this systematic literature review and meta analysis do not support the hypothesis of non-specific effects of standard-titre measles containing vaccines. TSA indicated that the meta-analysis included sufficient data to be conclusive.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Mental health, risk behaviors, and social factors in relation to adolescents' suicide ideation, -plans and -attempts

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Background: Although suicidality i.e., suicidal ideation, -plans, and attempts are relatively common, little is known about how adolescents with suicidality differ on other markers. This study aims to investigate differences in mental health and well-being, risk behaviors, and social factors among 18-year-old girls and boys who experienced different forms of suicidality during adolescence.

Methods: Among participants in the Danish National Birth Cohort 18-year-follow-up (N=47,852), experiences of suicidality during adolescence were defined with mutually exclusive categories as no suicidality, self-reported suicide ideation, -plans, -attempt, and hospital-recorded suicide attempt. Proportions with poor mental health and well-being (ten measures), risk behaviors (five measures), and social factors (three measures) were compared across suicidality groups with applied sample weights.

Results: Among girls and boys respectively, 28% and 24% had experienced suicide ideation only, 9% and 7% had experienced suicide plans, and 5% and 3% had experienced a self-reported or hospital-recorded suicide attempt. The proportion of adolescent with poor mental health and well-being gradually increased with more severe forms of suicidality i.e., from no suicidality to suicide ideation, -plans, and -attempt in both girls and boys. No notable differences were observed between adolescents with self-reported and hospital-recorded suicide attempt. Similar tendencies, although with more variation, were observed for risk behavior and social factors.

Conclusions: More than one third of adolescents have experienced some type of suicidality and they are struggling on multiple other aspects of mental health. Prevention strategies and clinicians should consider these accompanying problems when planning prevention strategies and treatment of suicidality among adolescents.

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Physical Activity and Risk of Spontaneous Abortion in a Danish Preconception Cohort

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Background: About 15-30% of all pregnancies end with spontaneous abortion (SAB), making it one of the most common pregnancy complications. The evidence on the extent to which physical activity (PA) influences risk of SAB is inconsistent. We evaluated the association between hypothetical replacement of pre-pregnancy sedentary time with different intensities of PA and the risk of SAB using data from a Danish preconception cohort.

Methods: We included 4,724 participants who conceived after entry in the SmartForældre.dk cohort from 2011 to 2023. Participants reported their PA levels at baseline and on bimonthly follow-up questionnaires during preconception. We used data from the most recently completed questionnaire prior to conception. Pregnancy outcomes were identified via follow-up questionnaires and Danish registries. We used Cox proportional hazards regression models to calculate hazard ratios (HR) and 95% confidence intervals (CI) with gestational weeks as the time scale. We used isotemporal substitution models to examine the effect of replacing durations of sedentary time with walking, moderate PA, and vigorous PA.

Results: The overall risk of SAB was 18% and median gestational age at loss was 7 weeks. The HRs for substitution of 30 minutes of sedentary time/day with 30 minutes of walking, moderate PA, or vigorous PA were 1.01 (95% CI 0.99-1.03), 0.98 (95% CI 0.89-1.09), and 0.91 (95% CI 0.79-1.04), respectively.

Conclusions: Replacing 30 minutes of sedentary time/day with walking or moderate PA had little association with risk of SAB. However, replacing sedentary time with vigorous PA was associated with a slightly lower risk of SAB.

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Time trends in incidence of postpartum depression and depression in women of reproductive age

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Background: Little is known about the time trends of postpartum depression (PPD) and whether they differ from time trends of depression among women in general.

Methods: Using Danish health registers, we identified a postpartum population from all women who had a liveborn child from 2000-2022. We sampled a background population by matching five women for each delivery on age and date of childbirth. Postpartum depression and depression in the background population were measured in two ways: Incident depression diagnosis or redeemed antidepressant prescription within 180 days from childbirth/matching. We described incidence rates from 2000-2022 using Poisson regression with a restricted cubic spline.

Results: The study population included 1,133,947 postpartum women (669,101 unique), matched to 5,669,735 women (1,165,505 unique). Overall IR per 10,000 person-years of diagnoses was 34.3 (95% CI: 32.8-35.9) for PPD and 18.9 (95% CI: 18.3-19.4) for depression. Both IRs increased similarly over time in the main analyses, but stratified analyses showed more pronounced PPD increases among primiparous and older mothers. Correspondingly, IR for prescriptions was 135.7 (95% CI: 132.7-138.8) for PPD and 209.8 (95% CI: 208.1-211.5) for depression, and both groups had fluctuating time trends.

Conclusions: Incidence rates of PPD and depression diagnoses increased over time, but stratified analyses showed more pronounced PPD increases among primiparous and older mothers. These findings could suggest either increased vulnerability or awareness over time in these groups. Fluctuating trends overserved from prescriptions were likely driven by external factors such as tendencies in drug prescribing and not a reflection of disease trends.

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TriplotGUI, a graphical user interface to interpret associations between multiple exposures, Omics and disease outcomes

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Background: Most observational epidemiology research studies associations between single exposure and outcome. Emerging exposure- and outcome-wide studies aim to more broadly identify potential risk factors and their health effects. Although omics technologies have permitted linking exposures to outcomes via molecular data, large-scale exploration of mediating mechanisms is frequently lacking. Likely because Omics data are often high dimensional and there is a lack of effective tools for direct interpretation of complex relationships between multiple exposures, Omics and outcomes. We therefore developed the TriplotGUI tool to advance exposome-risk assessment and facilitate the interpretation of such complex associations via metabolic regulation.

Methods: Omics variables-of-interest are reduced to components using PCA or WGCNA and are associated to both exposures and outcomes using linear models. Components are then investigated as potential mediators using “meet-in-the-middle” analysis, i.e. intersecting exposure-Omics and Omics-outcome associations, and mediation analysis. TriplotGUI supports both classical (Baron-Kenny) and counterfactual mediation, as well as adjustment for covariates.

Results: TriplotGUI co-visualizes Omics variable contributions, exposure-Omics and Omics-outcome associations as well as direct and indirect effects from mediation analysis. Centering the analyses around molecular data allows for simultaneous assessment of multiple exposures and outcomes.

Conclusions: TriplotGUI provides a flexible user interface that facilitates the integration of exposures, Omics and outcomes to untangle their complex relationships. Using synthetic and real-world data, we show that TriplotGUI can comprehensively analyze, visualize and interpret associations between multiple exposures and outcomes through molecular mediators. It can be installed conveniently as stand-alone application on secure environments and is therefore suited for GDPR.

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Prescribed pain medications and suicide risk: A nationwide nested case-control study.

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Background: Previous research suggests substantial psychiatric comorbidity as well as suicidal ideation and -behaviours in adults with chronic pain (i.e. persisting 3+ months). We attempted to estimate risks of completed suicide, including associations with prescribed analgesics, in such patients.

Methods: We conducted a sex and age-stratified risk set sampling study (nested case-control design) including linked data from nationwide Swedish Patient- (specialized inpatient and outpatient physician-based pain care), Prescribed Medication- (psychotropics and analgesics), and Cause of Death Registries for all incident suicide cases 2017-2021 (including undetermined intent; 4468 men, 1904 women) and 5 individually age- and gender-matched controls per case. Cox proportional hazard ratios (HR:s) were computed for cases vs. controls.

Results: Overall, having a pain disorder (17 classes; including nociceptive and neuropathic pain) diagnosed within one year prior to the suicide event was mostly weakly but significantly bivariately related to increased suicide risk. Prescribed analgesics were moderately-to-strongly positively related to suicide risk and so were concurrent treatment with psychotropic medications (neuroleptics, hypnotics, sedatives or antidepressants). In multivariate Cox regression models, controlling also for any diagnosed pain disorder and concurrent psychotropic medication, pharmacological pain treatment was reduced to a weak but significant suicide risk factor (1 yr: HR=1.37, 95% Confidence interval [95% CI] =1.25-1.49); 2 yrs: HR=1.12, 95% CI=1.03-1.22).

Conclusions: Although unmeasured confounding (concurrent psychiatric disorder) affecting the observed association cannot be excluded, our findings support improved vigilance regarding prescribed analgesic-related suicide risk. Better collaboration between primary care, psychiatry and pain clinics might help reduce pain and analgesic-related suicides.

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The joint association of insomnia disorder and lifestyle on the risk of activity-limiting spinal pain: the HUNT Study

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Background: Several lifestyle factors are individually associated with lower risk of chronic spinal pain, but it remains unclear whether the cumulative impact of multiple lifestyle factors modify the well-established association between insomnia disorder and risk of activity-limiting spinal pain.

Methods: We conducted a prospective study of 10,228 individuals who participated in two surveys over ~11 years and were free of chronic pain in the neck, upper back, and lower back at baseline. Adjusted risk ratios (RRs) were calculated for the risk of activity-limiting chronic spinal pain (i.e., pain that impairs daily activities at work or leisure time) at follow-up associated with the joint association of insomnia disorder and the combination of five lifestyle factors (body mass index, leisure time physical activity, alcohol consumption, diet, and smoking) at baseline.

Results: Our data indicate an additive interaction between insomnia disorder and lifestyle on risk of activity-limiting spinal pain, i.e., compared with participants without insomnia disorder and the best lifestyle score, participants with insomnia disorder and the worst lifestyle score had a RR of activity-limiting spinal pain of 3.57 (95% CI: 2.65-4.80); participants with insomnia disorder and the best lifestyle score had a RR of 1.56 (95% CI: 0.97-2.50); and those without insomnia disorder and the worst lifestyle score had a RR of 1.32 (95% CI: 1.12-1.55).

Conclusions: Poor lifestyle behaviour amplifies the adverse effect of insomnia disorder on the risk of activity-limiting chronic spinal pain.

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Occupational solar UV-exposure and the risk of malignant melanoma in Danish workers

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Background: Approximately 2,500 new melanoma cases are registered in Denmark each year, with melanoma being the most frequent type of cancer in the age group 15-34 years and a mortality of 5%. Solar ultraviolet (UV) radiation is recognized as the most significant risk factor for the development of melanoma, which means that outdoor workers are at particularly high risk. We aimed to analyze exposure-response relations and determine a possible threshold limit value for occupational solar UV radiation.

Methods: This study combines register data of the entire Danish workforce from 1977 to 2015 (DOC*X), with annual exposure data based on a newly developed European UV job exposure matrix and diagnoses of malignant melanoma from the Danish Cancer Register. Data was analyzed with multivariable logistic regression analyses, yielding IRR. All analyses were adjusted for age, decade, sex, smoking, heredity, immunosuppression and relevant medication and skin diseases.

Results: The study comprised of 2,954,758 workers with 11,681 malignant melanoma cases. We observed an increased risk of developing malignant melanoma with increasing cumulative exposure to occupational solar UV, IRR 1.14, 95% CI 1.10-1.18 per 10 SED/day-years increase in UV years. In this study, we could not confirm an increased risk for the suggested threshold value of 1.3 SED/day-year.

Conclusions: There is a strong dose-response relation between occupational solar UV-exposure and the development of malignant melanoma in Danish workers. This is contrary to WHO's systematic review published in 2023, which found no link between melanoma and occupational UV-exposure.

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School absence among children with juvenile idiopathic arthritis – a national register-based study

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Background: Juvenile idiopathic arthritis (JIA) is characterized by inflammation and pain potentially leading to school absence (SA). No study has investigated rates of different types of SA among children with JIA before and after diagnosis. We aimed to compare SA between children with and without JIA before and after diagnosis. Further, we studied whether socioeconomic status (SES) or sex modified the association.

Methods: A register-based, population wide longitudinal study was performed. We included children with at least five JIA diagnosis codes (DM08 and DM09) attending the Danish public schools from 0th to 10th grade from 2010-2019. Children with JIA were matched with 5 children with no diagnosis of JIA, same sex and attending same school and grade level on the month of the first diagnosis (index month). Using negative binomial regression, we compared rates of total SA, SA due to sickness, legal-, and illegal SA between children with and without JIA yearly five years before and after the index month. We further stratified our analysis on sex and SES.

Results: We included 716 children with JIA. Children with JIA had higher rates of SA each year after index with slightly decreasing rates. When evaluating the years before index children with JIA had significantly more total SA and sick absence the first two years before. Sex and SES did not modify the association.

Conclusions: Children with JIA showed higher rates of SA after diagnosis and the first two years before diagnosis. No differences between sex nor SES groups were found.

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Intelligence test score in relation to body mass index of young Danish conscripts during the development of the obesity epidemic

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Background: Previous studies of Danish conscripts born before 1960 showed an inverse J-shaped relation between intelligence test score and Body Mass index (BMI). Since the late 1980s, the prevalence of obesity (BMI of ≥ 30.0 kg/m²) in this population has tripled. We investigated the hypothesis that the higher prevalence of obesity has modified the relation between intelligence test score and BMI.

Methods: Two cohorts from two Danish regions comprised young men assessed for suitability for military service with data on weight, height, and intelligence test score compiled in The Danish Conscription Database (the early cohort born 1939-1959, n=258,882) and The Danish Conscription Registry (the late cohort, born 1983-2001, n=162,250). We assessed the relationship between intelligence test score and BMI for the two cohorts in regression models with BMI in linear, quadratic, and cubic terms adjusted for birth year, geographical region, and height.

Results: The mean (SD) intelligence test scores of the early and late cohorts were 39.4 (12.2) and 41.4 (9.3), respectively. The adjusted models showed an inverse J-shaped relation between intelligence test score and BMI in both cohorts. Intelligence test scores peaked at BMI 20 kg/m² and declined monotonically in both cohorts, until a score of 29 and 36 at BMI 40 kg/m² for the early and late cohorts, respectively.

Conclusions: Intelligence test scores are inversely J-shaped related to BMI, with markedly lower scores at higher BMI, and this pattern was essentially unchanged during the increasing prevalence of obesity.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

The bidirectional association between psychiatric disorders and sheltered homelessness

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Background: Psychiatric disorders and homelessness are related, but the temporal associations are unclear. We aimed to explore the intertwined nature of hospital-based psychiatric disorders and sheltered homelessness.

Methods: This population-based cohort study was conducted using the Danish registers e.g., the Danish Homeless Register and the Danish National Patient Register. The study cohort included all individuals aged 15 years or older, living in Denmark at least one day during 2002-2021 (born 1984-2006). First psychiatric diagnosis was used to define psychiatric disorder and first homeless shelter contact to define homelessness. Adjusted incidence rate ratios (IRRs) and cumulative incidences were estimated.

Results: Among 1,530,325 individuals accounting for 16,787,562 person-years at risk aged 15-38 years, 11,433 (0.8%) had at least one homeless shelter contact. Among 1,406,410 individuals accounting for 14,131,060 person-years at risk, 210,730 had at least one psychiatric disorder. People with any psychiatric disorder had increased risk of sheltered homelessness relative to individuals with no psychiatric disorder (IRR 9.2, 95% CI 8.8-9.6). Ten years after first psychiatric disorder, 3.0% (95% CI, 2.9-3.1) had at least one homeless shelter contact. Individuals experiencing homelessness had increased risk of any psychiatric disorder compared to individuals with no homeless shelter contact (IRR 7.0, 95% CI 6.7-7.4). Ten years after first homeless shelter contact, 47.1% (45.3-48.0) had received a hospital-based psychiatric diagnosis.

Conclusions: Strong bidirectional associations between psychiatric disorders and homelessness were identified. Health and social professionals should be aware of and address these high risks of accumulated psychiatric and social problems.

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Long-term exposure to air pollution and road traffic noise and incidence of dementia in the Danish Nurse Cohort

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Background: We examined association of long-term exposure to air pollution and road traffic noise with dementia incidence in the Danish Nurse Cohort.

Methods: Female nurses were followed for dementia incidence (hospital contact or medication prescription) from 1993/1999 until 2020. Air pollution and road traffic noise levels were estimated at nurses' residence and their associations with dementia were examined using Cox regression models.

Results: Of 25,233 nurses 1,409 developed dementia. Particulate matter with a diameter $\leq 2.5 \mu\text{m}$ ($\text{PM}_{2.5}$) was associated with dementia incidence, after adjusting for lifestyle, socio-economic status and road traffic noise [hazard ratio (95% confidence interval) 1.35 (1.15-1.59) per interquartile range of $2.6 \mu\text{g}/\text{m}^3$]. There was no association of $\text{PM}_{2.5}$ with dementia in physically active nurses. Association with road traffic noise diminished after adjusting for $\text{PM}_{2.5}$ [1.02 (0.93-1.11) per 7.6 dB].

Conclusions: Long-term exposure to air pollution increases risk of dementia, and physical activity may moderate this risk.

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Rates of major types of dementia in individuals with hospital-diagnosed infections and autoimmune diseases – a nationwide registry-based study

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Background: It has been long debated whether specific infections may be causally linked to dementia development, particularly Alzheimer's disease. Previous epidemiological studies have reported increased risk of dementia after infections, but weaker links were reported for autoimmune diseases. Evidence is scarce for whether the links may be modified by the dementia or exposure subtype. We aimed to investigate the association between infections and/or autoimmune diseases and rates of major types of dementias in the short- and long terms.

Methods: Nationwide nested case-control study of dementia cases: those diagnosed in memory clinics (MC) and outside memory clinics (non-memory clinic cases, NMC). Exposures were hospital-diagnosed infections and autoimmune diseases in the preceding 35 years. Conditional logistic regression yielded odds ratios, interpreted as incidence rate ratios (IRR).

Results: 26,738 individuals were MC and 12,534 were NMC cases. Following infection, the IRR for MC cases was 1.23 (95% CI 1.20–1.27) and 1.70 for NMC cases (1.62–1.76). IRRs attenuated in the long term and remained significantly increased for vascular dementia and NMC cases. IRRs for autoimmune diseases were overall statistically insignificant.

Conclusions: Autoimmune diseases were not associated with any type of dementia. All infections were associated with the risk of all dementias, and long-term risks were seen for NMC cases and for vascular dementia. This indicates that immunosenescence rather than de novo infection may explain the links. The study shows the potential impact of reverse causality in dementia research and how it can serve to further understanding on underlying mechanisms in investigated links.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Occupational respirable crystalline silica exposure and coronary artery calcification

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Background: Coronary artery calcification is a major feature of ischaemic heart disease. Occupational exposure to respirable crystalline silica has been related to increased risk of ischaemic heart disease. We examined if coronary artery calcification was associated with occupational respirable crystalline silica exposure.

Methods: Occupational exposure was assessed by linking the workers' occupational history with a quantitative job exposure matrix based on 23,640 personal measurements. Associations between cumulative respirable crystalline silica exposure ($\mu\text{g}/\text{m}^3\text{-years}$) and coronary artery calcification score (none=0; very low=1-9; low=10-99; moderate=100-399 and severe \geq 400) were analysed with ordered logistic regression among workers referred to a hospital for a cardiac CT scan between 2005-2018. Analyses were stratified by sex and adjusted for age (2-year intervals), cardiac symptoms, family history of coronary artery disease, smoking, body mass index, treatment for hypertension, hyperlipidemia and diabetes, marital status, yearly income, calendar year and employment status.

Results: A total of 24,344 workers were included. No coronary artery calcification was detected in 39 % of the participants, whereas 13 % had a score \geq 400. Increasing respirable crystalline silica exposure did not seem to be associated with an increasing risk of coronary artery calcification, OR 1.00 (0.99-1.00) $p=0.507$ for men and OR 1.00 (0.99-1.00) $p=0.147$ for women in the fully adjusted model.

Conclusions: These cross-sectional findings do not suggest that occupational respirable crystalline silica exposure contribute to ischaemic heart disease through coronary artery calcification.

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Shrunken Pore Syndrome in relation to Morbidity and Mortality in the Population-Based Malmö Diet and Cancer Cohort: A Generalized Propensity Score Approach

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Background: Glomerular filtration rate (GFR) is used to evaluate kidney function. Creatinine and cystatin C are the two substances that are used in practice to estimate GFR (eGFR_{CR} and eGFR_{CYS}). Agreement between the two is reflected by the eGFR_{CYS}/eGFR_{CR}-ratio. In most patients eGFR_{CR} and eGFR_{CYS} agree, however ratios <0.70 is observed and is strongly associated with mortality and morbidity. An explanation is a selective decrease in the filtration of substances of different mass, the corresponding condition is referred to as “Shrunken Pore Syndrome” (SPS). We aim to investigate the prevalence of SPS and its association with morbidity and mortality in the general population.

Methods: The study population consisted of 5061 individuals from the Malmö Diet and Cancer cardiovascular cohort (MDC-CC), with median follow-up of 25.3 years (IQR=5.7). The eGFR_{CYS}/eGFR_{CR}-ratio at baseline was categorized in four groups and used to estimate a generalized propensity score for SPS to adjust for confounding. Individuals were matched to create a quartet (one from each category) with similar scores. We related the eGFR_{CYS}/eGFR_{CR}-ratio to incident CVD, incident kidney disease, incident diabetes, and all-cause mortality using Cox proportional hazard models with shared frailty.

Results: SPS was present among 405 individuals (8%). Hazard ratio (HR) for all-cause mortality was 1.62 (95% confidence interval [CI] 1.31-2.02) when contrasting individuals with SPS compared to the reference group. No evident association between the eGFR_{CYS}/eGFR_{CR}-ratio and the other outcomes was found.

Conclusions: SPS was prevalent among middle-aged, generally healthy, individuals and led to markedly higher mortality during follow up.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Type 2 diabetes mellitus and age-related cognitive decline from young adulthood to late midlife. A longitudinal study based on the Danish Aging and Cognition cohort

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Background: It is widely assumed that type 2 diabetes mellitus (T2DM) accelerates the rate of cognitive decline. However, late-life cognitive function may depend on the initial level of cognitive ability and existing studies associating T2DM with more cognitive decline are not accounting for premorbid cognitive ability. To investigate the influence of T2DM on cognitive decline from young adulthood to late midlife.

Methods: The study included 4,807 men from the Danish Aging and Cognition cohort which is based on a late midlife follow-up examination – including a comprehensive questionnaire and intelligence test scores (IQ scores) on the military intelligence test – of men with IQ scores available from the mandatory draft board examination in young adulthood (mean age 20.4 years). T2DM was defined from questionnaire data. Cognitive decline was defined as the difference between draft board and follow-up IQ scores and men with significant decline were identified using the reliable change index. The associations between T2DM and cognitive decline was analysed in linear and logistic regression models.

Results: After adjustment for draft board IQ, retest interval, years of education, draft board BMI, and follow-up smoking status, men with T2DM had a mean decline of -7.96 IQ points (95% CI:-8.62,-7.29) which was 2.14 IQ points (95%CI:1.32,1.92) larger than the mean decline of men without T2DM. Moreover, having T2DM was associated with 1.59 times higher odds of having a significant decline in IQ.

Conclusions: The mean IQ decline was larger for men with compared to without T2DM, but the difference was moderate.

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Register research and multistate models: Practical tools in R

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Background: Epidemiological research based on registers will in frequently lead to definition of multistate model: data consists of a collection of dates of specific events over persons' life course.

Methods: Specification of states and transitions between them helps clarify quantities of interest in register-based studies, mainly at one of 3 levels:

- 1) Occurrence rates - the scale of the observed register data, time⁻¹ (events per person-time)
 - 2) State probabilities (survival function) - integral of rates w.r.t. time - requires an origin (such as date or age at diagnosis) - dimensionless
 - 3) Sojourn times (time spent in a state) - integral of state probabilities w.r.t. time - dimension time.
- The Epi package for R provides tools for representation of multistate models based on (event / date) data from registers.

Results: Lexis data frames represents follow-up in multistate models and allows analysis of transition rates with fully parametric intensity models (Poisson regression) or partial models (Cox regression), via simple specification of "from" and "to" states. Once models for all transition rates are defined, derived quantities can be computed by the provided simulation tools. An example model with number of vascular complications in diabetes patients will be used to illustrate the facilities for analysis of rates of complications and mortality rates.

Conclusions: Proper specification of states and transitions are required to pose and answer questions arising when analyzing follow-up data from registers. The Lexis machinery in the Epi package for R is a tool that facilitates this. For a comprehensive overview see <https://bendixcarstensen.com/PMM/>

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Occupational psychosocial and ergonomic strain during pregnancy and asthma in the offspring: A register-based study using Job Exposure Matrices

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Background: Previous studies show weak and inconsistent associations between maternal occupational psychosocial strain and asthma in offspring, while maternal ergonomic strain is associated with birth complications which can impact the development of the fetus' lungs. The aim of the study was to investigate maternal strain during pregnancy and the risk of asthma in the offspring.

Methods: Live- and firstborn singletons (1996–2018) and their mothers were identified from the DOC*X-Generation cohort. From the Danish International Standard Classification of Occupations job codes at conception were assigned each mother and linked with exposure estimates from job exposure matrices (JEMs) of psychosocial and ergonomic strain. Asthma in offspring were retrieved from the Danish National Patient Register. Poisson regression was used to estimate the association between maternal occupational strain and asthma in offspring adjusted for maternal asthma, age at conception, socioeconomic position, body mass index, and calendar year.

Results: In the study, 479,967 (51% male) mother-child pairs were included, of whom 5% of male and 3% of female offspring were diagnosed with asthma. Adjusted analyses showed little indications of increased risk of asthma among male offspring, whose mothers had low decision authority (HR: 1.08, 95% CI: 1.00–1.16) and high ergonomic strain (HR: 1.09, 95% CI: 1.02–1.16).

Conclusions: The use of registers and JEMs made it possible to explore mother-child pairs from all socioeconomic positions and ensured great statistical power. Lack of JEMs developed specifically on pregnant women and missing information on asthma diagnosed at general practitioner may have caused misclassification.

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Socioeconomic inequalities in excess mortality and life years lost associated with mental disorders: a nationwide cohort study in Denmark

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Background: Mental disorders are associated with elevated mortality rates and shorter life expectancy, but the role of socioeconomic position (SEP) in these associations is poorly understood.

Methods: We designed a cohort study including all persons living in Denmark on January 1, 2000 (approximately 5.3 millions) and followed them up until December 31, 2020. Information on mental disorders, individual SEP, and mortality was obtained from interlinked national registers. We estimated mortality rate ratios (MRRs), population attributable fractions (PAFs) of deaths and the average reduction in life expectancy as life years lost for each diagnosis according to SEP.

Results: Individuals with mental disorders had elevated mortality rates and shorter life expectancy compared to the general population regardless of SEP. Specifically, in the lowest SEP quintile, MRRs were 2.33 (95%CI 2.31–2.36) for all-cause mortality, 2.23 (2.20–2.25) for natural causes and 5.08 (4.89–5.29) for external causes of deaths, and PAFs (%) were 11.33 (11.16–11.49), 10.50 (10.34–10.67) and 28.11 (27.12–29.11), respectively; whereas the corresponding MRRs in the highest SEP quintile respectively were 2.62 (2.58–2.65), 2.51 (2.48–2.55) and 5.99 (5.66–6.33) and PAFs (%) were 3.89 (3.81–3.97), 3.65 (3.57–3.73), and 11.10 (10.46–11.78). People with mental disorders and belonging to the highest rather than lowest SEP quintile lost fewer years due to natural causes, whilst similar LYLs due to external causes. Results on specific diagnoses showed similar patterns.

Conclusions: This study comprehensively describes the influence of SEP on associations between specific mental disorders and cause-specific deaths, presenting both absolute and relative measures of mortality.

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Trends in first diabetic foot ulcer in a type-1 and type-2 diabetes population: A retrospective Danish register-based study

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Background: Recent years have seen a decline in the incidence for most diabetes complications worldwide. However, there is limited evidence about trends in diabetic foot complications in Denmark. This study aims to estimate the incidence of the first diabetic foot ulcer (DFU) occurrence in individuals with type-1 (T1D) and type-2 (T2D) diabetes at Steno Diabetes Center Copenhagen (SDCC), Denmark.

Methods: A retrospective register-based study was conducted in individuals with T1D and T2D from the Capital Region of Denmark, visiting SDCC between 2019 to 2022. Of these, individuals with no prior occurrence of a DFU, who had a screening visit at the SDCC foot clinic at least once in the period and with vibration perception threshold (VPT) > 25 volt at the screening visit, were included and followed from 2019 until 2022. The outcome of interest was the first DFU. All individuals were followed until the first DFU occurrence, death or until the end of 2022.

Results: The study included a total of 3335 individuals, of whom 484 (14.5%) developed their first DFU during follow-up. The year-by-year incidence of the first DFU occurrence, following a year of the screening visit, was 7.5% in 2019, 5.4% in 2020, 7.2% in 2021 and 5.6% in 2022.

Conclusions: There was an overall declining trend in the first DFU incidence from 2019-2022 in T1D and T2D individuals at SDCC. Further description of population characteristics and detailed analysis is ongoing.

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Pubertal development and social anxiety disorder in adolescents

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Background: For decades, the onset of puberty has declined for girls and probably also in boys. Age at onset of puberty might be associated with social anxiety disorder (SAD), affecting 3-7% of males and 3-11% of females in early adolescence. We hypothesize that earlier puberty may elevate SAD risk due to increased self-awareness, fears of standing out, and hormonal changes.

Methods: The Puberty Cohort, a Danish National Birth Cohort subset (N=15,818), born from 2000-2003, with pubertal markers from age 11-18. Of these, 5,116 girls and 3,377 boys in the 18-year follow-up responded to the Spence Children's Anxiety Scale (SCAS). Logistic regression was used to relate pubertal timing to SCAS subscale scores for SAD using the 90-percentile, adjusted for maternal age at delivery, maternal worries in pregnancy, maternal psychiatric disease, parental socioeconomic status, adverse events and child emotional problems at age 7.

Results: In both genders, earlier breast, genital, and pubic hair development was associated with higher odds ratios (ORs) for SAD. Girls' pubic hair development showed an increased OR of 1.58 (1.08;2.30) for SAD, while boys showed an increased OR of 1.67 (1.05;2.66). Later development in girls had lower ORs, indicating potential protection, whereas boys showed increased ORs.

Conclusions: We found that earlier pubertal timing may be associated with higher risk of SAD in both sexes, particularly in relation to pubic hair development. Identifying altered puberty in adolescents is crucial for early intervention, considering the challenging nature of treating SAD, with a 50% remission rate.

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Assessment of adherence to Anti-Osteoporotic Medication (AOM) treatment in the Risk-stratified Osteoporosis Strategy Evaluation (ROSE) screening program: A ten-year follow-up study

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Background: The Risk-Stratified Osteoporosis Strategy Evaluation (ROSE) screening program offers a comprehensive approach to risk assessment and initiation of anti-osteoporotic medication (AOM). However, the screening program's feasibility depends on adherence to treatment. We aimed to investigate the impact of the ROSE screening program on long-term adherence to AOM treatment.

Methods: Women aged 65-80, residing in the Region of Southern Denmark 2010-2011, were randomized into a screening or a control group. Based on questionnaire data, women in the screening group with a 10-year fracture risk (FRAX) of $\geq 15\%$ were invited for DXA scanning, following standard AOM treatment in case osteoporosis was identified. We assessed initiation, the medication possession ratio (MPR), and persistence to AOM treatment by obtaining information on redeemed prescriptions and treatment assigned at a hospital from Danish nationwide registers. Survival analyses, with a maximum follow-up of ten years, were applied to evaluate differences between the groups.

Results: Among the 15,505 women eligible for the analyses, 971 (6.26%) initiated AOM within one year after the intervention. Significantly more participants in the screening group started on AOM (HR 5.14 (95% CI: 4.29; 6.16)) compared to controls, Figure 1. However, we found no differences in MPR and persistence rates during follow-up for those initiated treatment, Figure 2-3.

Conclusions: Non-adherence to treatment plans presents a significant challenge in osteoporosis management. The study demonstrates that the ROSE program increases initiation of AOM treatment and that screened exhibit similar levels of adherence once they have initiated medication compared to non-screened.

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Shorter time to cystoscopy after initiation of non-aspirin non-steroid anti-inflammatory drugs

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Background: Bladder cancer is the 10th most common cancer globally and the most common first sign of it is gross hematuria, which is evaluated by cystoscopy. Bladder cancer incidence is slightly reduced among individuals receiving NSAID treatment. However, NSAID treatment has antiplatelet properties and may cause hematuria, thereby possibly enhancing detection of early stage bladder cancers. In the present study, we investigated time to cystoscopy after first-time NSAID initiation.

Methods: We included all adult Danish residents redeeming two NSAID prescriptions within four months during 2005-2018. We defined the index date as four months after the first prescription. We predefined exclusion criteria as: aspirin prescriptions, blood thinner prescriptions, cystoscopy, hospital diagnosis of hematuria, any cancers, bleeding disorders or urological diseases requiring cystoscopic examination prior to the index date. We matched with unexposed individuals from the background population 10:1 on age, sex, calendar year and municipality with replacement. We computed hazard ratios (HR) and 95% confidence intervals (CI) using cox regression analysis. Assumptions were checked using log-minus-log plots.

Results: We included 171.993 first time NSAID initiators. Within one year of follow-up, 0.415% of NSAID exposed individuals received a cystoscopy; 0.259% of unexposed matches. This corresponded to an adjusted HR of 1.59 (95% CI: 1.47; 1.72).

Conclusions: In conclusion, we found a previously rarely acknowledged association between NSAID initiation and time to cystoscopy. Shorter time to cystoscopy may have implications for the association between NSAID treatment and bladder cancer incidence.

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Migraine and risk of atrial fibrillation. A 9-year follow-up based on the Trøndelag Health Study

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Background: To investigate association between primary headache disorders and the risk of atrial fibrillation in a population-based cohort study.

Methods: In a population-based 9-year follow-up design, we evaluated questionnaire-based headache diagnoses, including migraine and tension-type headache (TTH), collected in the Trøndelag Health Study (HUNT3) between 2006-2008, and the subsequent risk of AF in the period until December 2015. The population at risk consisted of 39,340 individuals ≥ 20 years of age without AF, who answered the headache questionnaire during HUNT3. Prospective associations were evaluated by multivariable Cox proportional hazard models with 95% confidence intervals (CIs).

Results: Among the 39,340 participants, a total of 1524 (3.8%) developed AF during the 9-year follow up, whereof 91% of these were ≥ 55 years. In the multivariate analyses, adjusting for known confounders, we did not observe any association between migraine or TTH and risk of AF. The adjusted hazard ratios (HRs) were 0.84 (95% CI, 0.64-1.11) for migraine, 1.16 (95% CI, 0.86-1.27) for TTH, and 1.04 (95% CI, 0.86-1.27) for unclassified headache. However, in sensitivity analyses using age ≥ 55 years as cutoff, a lower risk of AF was found for migraine (HR 0.53, 95% CI, 0.39-0.73). No significant difference was observed among men and women.

Conclusions: In this large population-based study, no increased risk of AF was observed among individuals with migraine or TTH at baseline. In fact, among individuals aged ≥ 55 years, migraine was associated with a lower risk for AF.

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Risk of stroke in patients with migraine. A register-linked HUNT study

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Background: The association between migraine and stroke remains unclear. The aim of this large population-based 15-year follow-up study was to investigate whether primary headache disorders, including subtypes of migraine, increase the risk of stroke.

Methods: This population-based 15-year follow-up study used baseline headache data from the third Nord-Trøndelag Health Survey (HUNT3) performed between 2006 and 2008. The HUNT3 headache data were linked to the Norwegian National Stroke Register that includes stroke diagnoses recorded from 2012 until December 2021. The association between stroke and headache status was investigated in individuals aged ≥ 20 years without stroke at baseline. Prospective associations were evaluated using multivariable Cox proportional hazard models with 95% confidence intervals (CIs). Separate sub-group analyses by age and sex were performed.

Results: Among 37,364 included participants, 1,095 (2.9%) developed stroke, whereof 13.4% were younger than 55 years. In the multi-adjusted model, reporting migraine with aura (MA) at baseline was associated with increased risk of stroke at follow-up (HR 1.55, 95% CI 1.16-2.08) compared with those without headache. The increased risk of stroke was most evident among individuals with MA who were less than 55 years old (HR 1.98, 95% CI 1.20-3.27) and among women (HR 1.64, 95% CI 1.12-2.41).

Conclusions: During 15 years of follow-up, individuals with MA were more likely to suffer from stroke compared to those without headache. The relationship with MA was even stronger in women, and for young individuals aged < 55 years.

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Association between use of furosemide and risk of Parkinson's disease

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Background: New treatments for Parkinson's disease (PD) are needed and drug repurposing may aid in this. Furosemide, a diuretic commonly used in heart and renal failure, was associated with lower risk of PD in French population. Confirmation of this association is important. We studied the association between furosemide use in a Finnish nationwide nested case-control study, and an indication-restricted case-control study among persons with heart or renal failure.

Methods: 19 568 PD cases and 130 156 sex, age, and region-matched controls from the register-based Finnish study on PD (FINPARK, diagnosed 1999-2015) were included. A case-control study restricted to those with heart failure and renal failure was conducted, including 1 222 PD cases and 4 766 controls, matched on age, sex, region and duration of heart or renal failure. Furosemide use was identified from Prescription register (1995-2015), and exposure to furosemide was determined as ever, at least 3, 5 or 8 years before the outcome.

Results: Regardless of the study population or exposure assessment period, furosemide use was not associated with risk of PD (e.g., OR 0.96; 95% CI 0.83-1.12 for furosemide use at least 5 years before the diagnosis in indication-restricted study and OR 0.99; 95% CI 0.93-1.06 in the entire FINPARK cohort).

Conclusions: Our nationwide indication-restricted case-control study of people with PD having heart failure and renal failure found no robust evidence on the association between the use of furosemide and risk of PD.

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Predicted Life Course of Individuals With Type 2 Diabetes and Nephropathy at Steno Diabetes Center Copenhagen from 2001 to 2020

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Background: Diabetic nephropathy (DN) is a frequent complication of type 2 diabetes (T2D) that leads to progressive kidney function loss, increased risk of kidney failure (KF), cardiovascular disease (CVD), and death.

Methods: Register-based study using data from the electronic health records at Steno Diabetes Center Copenhagen between 2001 and 2020. DN was defined as severely increased albuminuria. Transition rates between states (DN, CVD, KF, and death) were modelled using Poisson regression, adjusting for selected risk factors. These models were then used for predictions, using fixed sets of values considered “fair” or “poor” control of risk factors.

Results: 922 men and 368 women with T2D and DN were included. Men diagnosed with DN at age 65 years, with a fair risk factor control, spent in the following 10 years on average 8.7 years alive, of which 7.5 years complication-free; for women 9.0 years alive, 7.8 years complication-free. Men of the same age but with poor risk factor control spent on average 8.2 years alive, 5.9 years complication-free; for women 8.4 years alive, 6.1 years complication-free. For the same demographic, the probability of having developed KF after 10 years was 11.1% for men and 9.3% for women with fair risk factor control, and 23.0% for men and 18.8% for women with poor risk factor control.

Conclusions: Individuals with fair risk factor control (vs. poor control) lived several more years complication-free. Compared to women, men lived fewer years complication-free, and had lower survival rates for the same age and risk factor levels.

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Machine learning-based prediction of celiac disease diagnosis

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Background: Several biochemical abnormalities in celiac disease (CD) have been identified. These might be used in algorithmic risk-stratification hereby limiting diagnostic delay. We aim to develop a prediction model for having a positive CD antibody test based on routinely collected biochemical tests.

Methods: We will develop a prediction model using vast data from primary health care in the greater Copenhagen area from 2000-2016 including all individuals tested for CD in general practice. Positive CD-tests are defined by tissue transglutaminase antibody IgA or IgG \geq 7 kU/L and/or deamidated gliadin peptide antibody IgG \geq 10 kU/L. Two candidate sets of predictors are considered: 1. blood tests with known association to CD within 6 months of CD-testing, 2. all available blood tests measured within 5 years of CD-testing. With each set of predictors, we will develop and evaluate prediction models in a cross-validation framework. We will include a variety of modern machine learning methods including SuperLearner coefficients that minimize the non-negative log likelihood loss function. Accuracy is assessed using ROC curve methodology. Additionally, we will consider the costs and resource constraints of using the model in clinical practice.

Results: 38,963 individuals are included in the dataset comprising a total of 43,431 CD-tests (1.5% positive). At NordicEpi2024, we will present the algorithm capable of identifying patients for further CD-screening.

Conclusions: A prediction model for CD is being developed relying on a sample of 38,963 individuals with 1.5% positive CD-tests. The model has the potential to reduce the diagnostic delay in CD.

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Risk of psychiatric hospitalization and suicide attempts in Danish patients with continuation and maintenance Electroconvulsive Therapy

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Background: Electroconvulsive therapy (ECT) is highly efficacious in acute neuropsychiatric conditions. Despite its effectiveness, relapse rates post-ECT remain high. Evidence suggests that continuing ECT [cECT] or maintenance ECT [mECT], can reduce this risk. However, existing evidence derived from small observational studies or randomized trials may not fully represent real-life ECT patients. This study investigates psychiatric hospitalization and suicide attempts among patients receiving c/mECT in a large Danish cohort.

Methods: Patients initiating ECT between January 1st 2003 and December 31st 2022 were included. An algorithm to identify types of ECT was constructed. Using logistic regression, associations of baseline characteristics with c/mECT patients versus acute ECT only were analyzed. Separate adjusted Cox proportional hazard regression models were applied to explore the associations of c/mECT versus aECT with suicide attempts and psychiatric hospitalization.

Results: Among 19,444 patients, 7.7% received c/mECT. C/mECT patients were less likely male (Odds ratio [OR] 0.66; 95%CI 0.59-0.74), more often diagnosed with schizophrenia (OR 2.14; 95%CI 1.86-2.46), or schizoaffective disorder (OR 2.42; 95%CI 1.90-3.09), had lower educational levels (OR 1.35; 95% CI 1.21-1.51, and more often lived in rural municipalities (OR 1.25; 95%CI 1.10-1.43). C/mECT was associated with a higher rate of hospitalization in the first year of follow-up (aHR 1.19; 95%CI 1.07-1.32) but not in later years (aHR 0.92; 95%CI 0.76-1.11). No association was found with suicide attempts.

Conclusions: C/mECT patients exhibited higher rates of hospitalization within the first year of ECT compared with aECT patients. There was no difference in suicide attempt rate between the groups.

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Prevalence and incidence of cardiovascular disease in the Danish diabetes population – a register-based cohort study from 1996 to 2022

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Background: With an increasing number of people living with diabetes it is important to monitor the burden of diabetes complications. The aim was to examine trends in prevalence and incidence of cardiovascular disease (CVD) among people with type 1 diabetes (T1D) and type 2 diabetes (T2D) in Denmark as a prototype for analysis of all relevant diabetes complications.

Methods: We included persons diagnosed with T1D or T2D based on national registers from 1996 through 2022. Information on CVD was extracted from the National Patient Register and defined as first date of atrial fibrillation, heart failure, hypertension, ischemic heart disease or myocardial infarction. The population was followed from diabetes diagnosis until date of CVD, death, emigration, or end of follow-up, whichever occurred first. We used Poisson models for incidence rates and binomial regression for prevalence, separately for diabetes type and gender with age and calendar time as time scales.

Results: The diabetes population as of January 1, 2020, was 315,827 (30,718 T1D and 285,109 T2D). The prevalence of CVD increased some 5%/year for both T1D and T2D, plateauing from 2016. The incidence rates of CVD decreased with 0.6 %/year in T1D and 1.5 %/year in T2D. At age 65 in 2019 the incidence rates were approximately 6%/year, a little higher for men than women and for T1D compared to T2D.

Conclusions: During the study period incidence of CVD declined, while prevalence increased until 2016 and plateaued among both the T1D and T2D population, indicating improvement in diabetes management.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Trajectories of sustainable working life among individuals with or without common mental disorders - a Swedish twin cohort study

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Background: Research is scarce on factors influencing a sustainable working life, i.e., few or no interruptions from paid work due to sickness absence, unemployment, or disability pension among those with common mental disorders (CMD). We aimed to identify patterns of sustainable working life among twin pairs discordant for CMDs and investigate the role of baseline sociodemographic factors for the resulting patterns.

Methods: A total of 5529 CMD-discordant twin pairs, aged 18-59 years at baseline in 1998 (50% women), were followed annually for work life status using Swedish national registers until 2020. Group-based trajectory modelling was applied to identify distinct trajectory groups. Multinomial regression analyses were run to estimate Risk Ratios (RR) with 95% Confidence Intervals (CI).

Results: For individuals with CMDs, three trajectories were the best-fitting model while for their co-twins without CMDs two trajectories were the best-fitting model. Sustainable working life was the largest trajectory group in both analyses (71% of those with CMDs; 83% of those without CMDs). Among those with CMDs, 14.5% showed a decreasing sustainable working life trajectory. High education was associated with lower and being single (with or without children) with higher likelihood of belonging to trajectories with more interruptions in paid work.

Conclusions: Individuals with CMDs tend to have decreasing or no sustainable working life over time, in contrast to those without CMDs. Although a sustainable working life was prevalent regardless of CMDs, those with CMDs should be identified early for preventive actions and support to remain in paid work.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Infertility in the Capital Region of Denmark: Prevalence and population characteristics

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Background: Infertility is a disease defined by failure to achieve a pregnancy within 12 months of trying. The aim of this study was to assess the prevalence of infertility in persons aged 25-44 years in the Capital Region of Denmark, and to describe characteristics of persons with infertility.

Methods: Life-long experience of infertility was assessed in the Danish Capital Region Health Survey 2021, including 56,245 participants from the general population aged ≥ 16 years (response rate 54.9%). In this study, only persons aged 25-44 years who had tried to have children (thus knowing their fertility) were included, resulting in 8,203 participants. Characteristics of persons with infertility were assessed using national registries (socio-demographics) and questionnaire data (health status). Descriptive analyses and multivariate logistic regression models weighted for survey design and non-response were performed.

Results: Among persons aged 25-44 years, who had tried to have children, 20% had experienced infertility. Among those, 44% did not achieve the children they wanted. Infertility was most common among women (22%) and persons aged 35-44 years (21%). No associations were observed between infertility and ethnicity, education, and employment status. Persons with infertility were more likely to have poor physical and mental health.

Conclusions: Infertility is very common in the general population and is associated with unmet fertility desires as well as poor mental and physical health. These findings highlight the importance of focusing on and prioritizing treatment and prevention of infertility and emphasize the need for further research in and continued monitoring of infertility.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

The association between vitamin K status and cardiovascular disease risk factors in an adult Danish population.

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Background: Vitamin K is an activator of the potent vascular calcification inhibitor, Matrix Gla Protein (MGP). We aimed to investigate the association between the circulating inverse marker of vitamin K status, dephosphorylated-undercarboxylated MGP (dp-ucMGP), and cardiovascular disease (CVD) risk factors.

Methods: A population-based study consisting of data from 4,092 randomly selected individuals aged 24-77. Data was collected via health examinations including biochemical measurements and questionnaires. The vitamin K status was assessed using dp-ucMGP, an inverse marker of the vitamin K status. The association between vitamin K status and CVD risk factors was determined using multivariable regression with log₂ transformed dp-ucMGP-values as exposure variable.

Results: Lower vitamin K status (higher dp-ucMGP) was associated with a significantly increased BMI +0.18 SD (95% CI: +0.15-0.21SD), fat percentage +0.18SD (95% CI: +0.15-0.21 SD) and waist circumference +0.22SD (95% CI: +0.18-0.25SD) as well as increased HbA1c +0.04SD (95% CI: +0.008-0.07 SD), LDL-levels +0.03SD (95% CI: +0.005-0.06SD), and lower eGFR -0.11SD (95% CI: -0.15-(-0.09)SD) per doubling of dp-ucMGP.

Conclusions: In this cross-sectional population-based study, lower vitamin K status was associated with increased BMI, fat percentage and waist circumference as well as higher HbA1c-levels, LDL-levels and lower eGFR. These findings suggest a potential preventive role of vitamin K in the CVD pathogenesis.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Social characteristics and social benefit use among premenopausal breast cancer survivors in Denmark: a population-based cohort study

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Background: In 2020, one million women aged <55 were diagnosed with breast cancer globally. The impact of breast cancer and its treatments on these women's ability to work and need for social benefits may differ by social characteristics. We evaluated social benefit use following breast cancer by education and cohabitation.

Methods: We conducted a population-based cohort study, including women aged 18-55 diagnosed with non-metastatic breast cancer in Denmark during 2002-2011. Statistics Denmark provided information on cohabitation, education, and social benefit use from one year pre-diagnosis to 10 years post-diagnosis. We calculated weekly proportions self-support, unemployment, disability pension, flexi jobs and sick leave according to education and cohabitation.

Results: Of 5345 women, 81.8% were self-supporting, 4.5% received disability pensions, 1.6% had flexi jobs, 3.6% were on sick leave and 5.5% were unemployed pre-diagnosis. Ten years post-diagnosis, these were 69.0%, 13.0%, 10.5%, 3.4% and 2.0% of 3663 survivors. Disability pensions and flexi jobs increased from 12.1% to 26.4% and 2.8% to 13.5% in women with short education, from 3.7% to 12.1% and 1.7% to 11.8% in women with medium education, and from 0.7% to 5.9% and 0.9% to 6.5% in longer educated. Disability pensions increased more in women living alone (7.8% to 19.9%), than in cohabiting women (3.6% to 11.3%).

Conclusions: Use of social benefits reflecting lost ability to work were highest in less educated women, and in women living alone. Awareness of these groups is crucial when tailoring efforts to support work participation in cancer survivors.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Individual and environmental determinants of body mass index trajectories: results from a longitudinal Swedish study

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Exposure to natural environments is thought to benefit mental and physical health, but current evidence is mixed, and underlying mechanisms remain unclear. Considering the joint biodiversity, climate, and health crises, a better understanding of the interplay between individuals and their environment is imperative. This study aimed to 1) identify Body Mass Index (BMI) trajectories in the Scania Public Health Cohort (SPHC), 2) characterise trajectories in terms of sociodemographics, lifestyle, health and living environments, 3) study the associations between BMI trajectories and green qualities of the environment. The SPHC was established in southern Sweden in 2000. Participants (n=13 581 at baseline, 18-80 years old) responded to four surveys (2000-2016), including sociodemographic, lifestyle and health questions. Residential coordinates were linked to the Scania Outdoor Environment Database comprising perceived sensory dimensions. The Scania Green Score (SGS) was computed by summing up three greenness-related dimensions. Sex-specific BMI trajectories, identified using group-based trajectory modelling, were compared using adjusted multinomial regression. Five BMI trajectories were identified with similar shapes in men and women. Two trajectories started in the normal/overweight categories and were relatively stable over time, while the other three were close to or above the commonly used threshold for obesity. Overall, non-obese trajectories were associated with more favorable socioeconomic and lifestyle factors. The SGS varied geographically across Scania, but little differences were observed between trajectories for the selected environmental characteristics. For this population, our findings suggest that lifestyle and socioeconomic factors are more important than outdoor environment features for the long-term body-weight and obesity development.

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Population-representative estimates using inverse probability weights in an updated case-cohort design: Future directions and applications of the iPSYCH2015 sample

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Background: Genetic and epidemiological methods have developed over the past decades with the increasing number of genetic samples available from disease cases and controls. We aim to demonstrate that population-representative inference can be obtained for secondary phenotypes from a highly selected and complex case-cohort sample of patients with psychiatric disorders.

Methods: From the iPSYCH2015 sample we identified genotyped cases with five major psychiatric disorders (n~85,000) and randomly selected subcohortees (n~51,000) from the Danish general population until 2015, all born in Denmark 1981-2008. Through linkage to Danish nationwide registers, with extended follow-up until 2021, we identified secondary phenotypes in the iPSYCH2015 sample, including other psychiatric, neurological and general medical conditions. We propose baseline-fixed inverse probability weights and estimated weighted age-specific incidence rates and absolute risks in the iPSYCH2015 sample compared to estimates obtained in the random sub-cohort only and in the full population cohort (n=1.7 mill.). In the iPSYCH2015 sample with extended follow-up, we identified secondary phenotypes including hospital-treated substance use disorder (n~18,700) and epilepsy (n~4,800).

Results: Weighted incidence rates and cumulative incidence at age 40 years from iPSYCH2015 were analogous to full population cohort estimates for both substance use disorder (1.89 vs. 1.90 per 1000 person-years, 8.67% [95%CI: 8.30-9.03] vs. 8.79% [8.71-8.87])) and epilepsy (0.78 vs. 0.75 per 1000 person-years, 2.26% [2.11-2.42] vs. 2.22% [2.19-2.26])

Conclusions: This study demonstrates the great potential and extended applications of the iPSYCH2015 sample for future genetic epidemiological studies of primary and secondary phenotypes including substance use disorder and epilepsy.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

The 1919-21 influenza pandemic in Greenland

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Background: In Alaska, the 1918-20 influenza pandemic was devastating, with mortality rates up to 90% of the population, while in other arctic regions in northern Sweden and Norway mortality was considerably lower. We investigated the timing and age-patterns in excess mortality in Greenland during the period 1918-21 and compare these to other epidemics and the 1889-92 pandemic.

Methods: We accessed the Greenlandic National Archives and transcribed all deaths from 1880 to 1921 by age, geography, and cause of death. We estimated monthly excess mortality and studied spatial-temporal patterns of the pandemics and compared to other mortality crises in the 40-year period.

Results: The 1918-21 influenza pandemic arrived in Greenland in the summer of 1919, one year delayed due to ship traffic interruptions during winter months. We estimated a total of 697 (95% CI: 637-756) excess deaths between 1919 and 1921, corresponding to 5.2% of the Greenland population. There was substantial variability between counties (range, 0.1% to 11%). We did not see the typical pandemic age-pattern of high young-adult mortality, possibly due to high baseline mortality in this age-group or remoteness.

Conclusions: Despite substantial mortality, the mortality impact of the 1919-21 influenza pandemic in Greenland was not standing out relative to other mortality crises, or of similar devastation reported in Alaskan populations.

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Prevalence and characteristics of users of oral nicotine products according to smoking status in the general population in Denmark

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Background: Oral nicotine products e.g., snus, chewing tobacco, and tobacco-free nicotine pouches gain increasing popularity. The aim of the study was to estimate the prevalence of use of oral nicotine products in the Capital Region of Denmark in 2021, to describe associations with socio-demographic characteristics and to explore if smoking status moderated these associations.

Methods: The study was based on the Danish Capital Region Health Survey 2021 including 56,245 persons aged ≥ 16 years old (response rate 54.9%) which included self-reported information on use of oral nicotine products and smoking status. Information on socio-demographic characteristics were assessed in national registries. Descriptive analyses and multivariate logistic regression models including interaction terms with smoking status and weighted for survey-sampling and non-response were performed.

Results: In total, 3.5% used oral nicotine products. Men showed higher odds of using oral nicotine products compared with woman (OR=3.70) while there were no associations with education and occupational affiliation when adjusted for sex and age. The associations with age and place of residence were moderated by smoking status. Among smoking participants, young persons aged 16-19 years showed the strongest association with use of oral nicotine products (sex-adjusted OR=21.71) while persons aged 20-24 years showed the strongest association in non-smoking participants (OR=11.08).

Conclusions: Especially men and young age were strongly associated with use of oral nicotine products. For age, the association was moderated by smoking status. Interventions should address these high-risk groups and pay attention to smoking status.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Social characteristics and adherence to adjuvant endocrine therapy in premenopausal breast cancer patients

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Background: Social characteristics including cohabitation/marital status and socioeconomic position (SEP)—education level, employment status, and income—influence breast cancer prognosis. We investigated the impact of these social characteristics on adherence to adjuvant endocrine therapy from treatment initiation to five years after diagnosis.

Methods: We assembled a cohort of premenopausal women diagnosed in Denmark with stage I-III, estrogen receptor positive breast cancer during 2002–2011. We ascertained pre-diagnostic social characteristics from national registries. AET adherence was based on information from the Danish Breast Cancer Group and operationalized as (1) adherence trajectories (from group-based trajectory modelling) and (2) early discontinuation. We computed odds ratios (OR) and associated 95% confidence intervals (95%CI) estimating the association of cohabitation and SEP with AET adherence.

Results: Among 4,353 patients, we identified three adherence trajectories—high adherence (57%), slow decline (36%), and rapid decline (6.9%). Compared with cohabiting women, those living alone had higher ORs of slow (1.26, 95%CI=1.08, 1.46) or rapid decline (1.66, 95%CI=1.27, 2.18) versus high adherence. The corresponding ORs for women not working versus employed women were 1.22 (95%CI=1.02, 1.45) and 1.76 (95%CI=1.30, 2.38). For early discontinuation (17%), the ORs were 1.48 (95%CI=1.23, 1.78) for living alone and 1.44 (95%CI=1.17, 1.78) for women not working.

Conclusions: In conclusion, adherence to AET was lower among women living alone or unemployed than cohabiting or employed women and may contribute to their poorer breast cancer prognosis. These women may benefit from support programs to enhance AET adherence.

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Distinguishing characteristics of web-based and paper-based respondents in The Danish Capital Region Health Survey

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Background: This study aims to investigate the potential impact of adopting web-only surveys on the representativeness of survey participants by examining the sociodemographic characteristics of participants in the Danish Capital Region Health Survey (DCRHS) who respond online versus those who respond using a paper-based questionnaire.

Methods: The study utilizes data from the DCRHS including participants invited by a mixed-mode approach and given the choice to respond to a web-based or paper-based questionnaire in 2021 (N=53,874) and 2017 (N=51,902). Information on age and sex was obtained from national registers.

Results: The proportion of paper respondents decreased significantly from 18% in 2017 to 16% in 2021. In both years, women had higher odds of responding on paper compared with men (OR=1.20; 95% CI: 1.16-1.24). In 2017, the highest prevalence of paper respondents was observed among participants aged ≥ 80 (29%) and 16-24 years (21%). In 2021, the highest prevalence was likewise observed among participants aged ≥ 80 (28%) but with the second highest among the 65-79 years age group (17%). The decrease in paper responses from 2017 to 2021 varied across age groups, with a greater decrease among younger participants than among older participants.

Conclusions: This study highlights the potential risk of excluding a significant proportion of elderly citizens from large population surveys if the web-based response option is the only option provided. Elderly individuals are less likely than younger individuals to switch to digital responses, emphasizing the importance of considering alternative modes of data collection to ensure representativeness in survey samples.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Sleep disorders and sleep disturbances in persons with multiple sclerosis: A population-based matched case-control study in Denmark

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Background: Adverse sleep is common in multiple sclerosis (MS). There is a lack of population-based studies including adequate control groups. The prevalence of sleep disorders and other sleep disturbances was hypothesized to be higher in persons with MS than in controls without MS.

Methods: We conducted a population-based matched case-control study linking individual-level data from the Danish MS Registry (n=21,943 persons with MS) and the Danish Population Registry (n=109,715 matched controls) with information on sleep disorders from the Danish National Patient Registry and other sleep disturbances assessed by dispensed prescription medication from the Danish National Prescription Registry.

Results: Prevalence of diagnosed sleep disorders in terms of central hypersomnia (0.15% (persons with MS) vs. 0.06% (controls)), sleep disturbances (1.05% vs. 0.70%), and sleep movements (0.22% vs. 0.13%) and other sleep disturbances identified by dispensed central acting (10.73% vs. 1.10%) and hypnotic use (30.65% vs. 20.13%) medication was statistically significantly higher among persons with MS when compared to matched controls. There was no statistically significant difference in the prevalence of sleep apnea and parasomnia between the two groups. Stratified for sex, results for differences between persons with MS and controls were similar.

Conclusions: In this registry-based study, we found that the prevalence of several sleep disorders was higher in persons with MS than in matched controls, that is those reflecting insomnia and daytime symptoms including hypersomnia. Other sleep disturbances identified by dispensed prescription medication was markedly higher in persons with MS than matched controls.

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Social inequality in mental health among Danish 15-year-olds

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Background: In Denmark, adolescents' use of medication, mental disorder diagnosis, and self-reported poor mental health have increased during the last decades. A social gradient in mental health is well-known. However, little is known about the changes over time in the association between social status and mental health in adolescents.

Methods: In two cohorts, depressive symptoms were measured with a 4-item version of the Center for Epidemiological Studies-Depression scale in 2004 and 2017. Subjective social status (SSS) was measured with the MacArthur Scale and socioeconomic status (SES) was measured as parents' educational level and household income.

The prevalence of depressive symptoms was stratified on SSS and SES, and the association between SSS and depressive symptoms was analysed with logistic regression.

Results: The prevalence of depressive symptoms increased from 2004 to 2017 in females (39% to 62%) and males (30% to 44%). Adjusted analyses showed a higher odds of reporting depressive symptoms among those rating middle SSS compared with low SSS (2.61(95% CI: 1.90; 3.57) in 2004 and 2.26(95% CI: 1.88; 2.71) in 2017) and high SSS (0.79(95% CI: 0.64; 0.98) and 0.68(95% CI: 0.61; 0.75)). Further adjusted analyses, including register data on SES, medication use and mental disorder diagnosis, will be conducted before the conference.

Conclusions: The prevalence of depressive symptoms in two different cohorts increased from 2004 to 2017, especially among females. A strong association was found between SSS and depressive symptoms. Further associations between social status and mental health are yet to be explored.

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Use of antipsychotic medication, benzodiazepines, and psychiatric hospitalization in cannabis-related versus cannabis-unrelated schizophrenia – a nationwide, register-based cohort study

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Background: Evidence suggests that cannabis may be a causal factor for development of schizophrenia. We aimed to investigate whether use of antipsychotic medication, benzodiazepines, and psychiatric service use differs among patients with schizophrenia depending on whether psychosis was precipitated by a diagnosis of cannabis use disorder (CUD).

Methods: We utilized the nationwide Danish registries to identify all individuals with an incident diagnosis of schizophrenia from 1995 to 2016. We also collected information on whether first CUD diagnosis preceded schizophrenia and thusly defined a group of potentially cannabis-related schizophrenia. We compared the cannabis-related schizophrenia group both with all non-cannabis-related patients with schizophrenia and with non-cannabis-related patients with schizophrenia that were propensity-score matched to cases using a range of potentially confounding variables.

Results: We included 35,714 people with incident schizophrenia, including 4,116 (11.5%) that were cannabis-related. In the unmatched-comparison analyses, there were no clear differences over time in use of antipsychotics and benzodiazepines related to whether the diagnosis of schizophrenia was cannabis-related. After propensity-score matching, use of antipsychotics and benzodiazepines was significantly lower among cannabis-related cases of schizophrenia. In the unmatched comparison, the cannabis-related group had significantly more days admitted than the non-cannabis-related group. This was markedly attenuated after propensity-score matching.

Conclusions: Our findings indicate the importance of considering cannabis-related cases of schizophrenia as a potentially distinct disorder in terms of prognosis. It is unclear, however, if these differences are due to different biological types of schizophrenia being compared or if they rather indicate behavioral differences such as reduced adherence and treatment-seeking.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Perceived parental normalization, neutralization, and glorification of alcohol use – validity of concepts and relation to adolescents' alcohol use

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Background: The aim of this study was to test whether the concepts normalization, neutralization, and glorification apply as dimensions to adolescents' perception of their parents' attitudes to their own alcohol use. Second to develop a scale measuring perceived parental alcohol attitudes- based on the concepts; third to test validity of the scale, and fourth to test whether the scale is associated with adolescents' alcohol use.

Methods: Validity of the concepts normalization, neutralization, and glorification and wording of 15 initial items was tested in 10 interviews with young people. A scale of nine items were sent to 2,716 participants aged 15-17 years in the §Alkohol survey and 84% answered all items in the scale. Construct validity was tested in exploratory and confirmatory factor analysis and association with alcohol use was tested in a logistic regression and negative binominal regression models.

Results: Face validity interviews showed that items on neutralization were found to be difficult to answer. The best goodness of fit in the confirmatory factor analysis was found for a model with two factors (normalization and glorification). A clear dose-response association was found between the scale and frequent binge drinking and weekly alcohol consumption. The higher the scale score the lower the weekly alcohol intake and lower odds of frequent binge drinking.

Conclusions: The concepts normalization and glorification were found valid for young peoples perceived parental attitudes to their alcohol use. A scale of seven items measuring these concepts was associated with weekly alcohol intake and odds of frequent binge drinking.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

High exposure to perfluorinated substances and health effects in women

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Background: There is limited evidence on the association between perfluorinated substances (PFAS) and health effects in women, mostly from studies at background exposure. In 2013, very high drinking water contamination with PFAS, was discovered in one out of two waterworks in Ronneby, Sweden. This gave an opportunity to study these health effects with a wider exposure range.

Methods: Two populations were studied: A) 29,856 women residing in Ronneby 1985-2013 and B) 27,292 women with childbirth 1995-2013 in Blekinge. Diagnoses were retrieved from national health registers. Individual exposure was based on yearly address and water distribution data. In A, educational level was used as an indicator of socioeconomic position while B had more confounder data. Here we report findings, contrasting the exposed vs the never exposed groups. Risk was calculated as hazard ratio (HR) and odds ratio (OR) with 95% confidence intervals (CI).

Results: Cancer: Cervix (HR=0.91; CI 0.51-1.61), uterus (HR=0.89; CI 0.60-1.34), ovarian (HR=1.24; CI 0.78-1.96) and breast (HR=0.95; CI 0.79-1.13). Benign diseases: Polycystic ovarian syndrome (PCOS) (HR=1.43; CI 0.99-2.05), uterine leiomyoma (HR=1.13; CI 0.91-1.41) and endometriosis (HR=0.93; CI 0.65-1.34). Pregnancy complications: Gestational hypertension and preeclampsia (OR=0.80; CI 0.63-1.03), and gestational diabetes (OR=1.03; CI 0.67-1.58).

Conclusions: Our findings do not support an increased risk for female cancers and pregnancy complications after PFAS exposure. PCOS was associated with PFAS exposure, suggesting a possible endocrine disruptive effect. This longitudinal study with wide exposure range of PFAS provides important information in addition to previous studies at background exposure levels.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Is exposure to traffic-related air pollution associated with onset of asthma among children and adolescents in Greater Copenhagen?

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Background: Air pollution is inevitable and associated with impairment of respiratory health. Evidence on air pollution and asthma is diverging in investigated pollutants, study design and included age groups. This study will add to the evidence on nitrogen dioxide (NO₂), black carbon (BC) and ultrafine particles (UFP) and include the adolescent population.

The aim of this study is to investigate the association between traffic-related air pollution (TRAP) and onset of asthma among children and adolescents by using proximity to polluted streets as a proxy for TRAP.

Methods: Asthma cases and exacerbations were identified from hospital admission and prescriptions among all children and adolescents in Greater Copenhagen in 2017-2021. NO₂, BC and UFP were mapped on all streets in Greater Copenhagen. Levels were assigned to residential addresses by shortest distance and applied as individual exposure. Associations between exposure to TRAP and asthma were analyzed using Poisson regression, presented as incidence rate ratios (IRR) with 95% confidence interval (CI), and adjusted for a priori confounder selection.

Results: A total of 568,586 children and adolescents residing in Greater Copenhagen in 2017-2021 were included. The mean values of NO₂, BC and UFP on road segments were 8-62 µg/cm³, 0.6-3.4 µg/cm³ and 3280-67100 UFP/cm³, respectively. Estimates on associations are under preparation.

Conclusions: The results will add to our knowledge of TRAP's effect on children's respiratory system in different age groups, including adolescents. The study will, to our knowledge, be the first register-based epidemiologic study to use Google on-road exposure data in a Danish setting.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Latent class analysis to find reasons for non-participation in colorectal cancer screening

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Background: This analysis aims to identify the reasons influencing individuals' decisions to decline participation in the Faecal Immunochemical Test within the free Danish screening program for colorectal cancer (CRC).

Methods: In 2019, a cross-sectional representative survey involving 15,072 Danish citizens aged 50 to 80 years was conducted through a web-based questionnaire administered by Statistics Denmark. Of the 6,807 respondents (45% response rate), 177 were excluded due to ongoing treatment for colorectal disease. Latent class analysis was used to explore the reasons behind individuals' choices to reject CRC screening. This approach allowed participants to articulate multiple reasons for their decision regarding screening.

Results: Among those declining screening, common reasons included forgetting to participate or concerns about the test's discomfort. For individuals intending to decline screening, the most frequently cited reason was a perceived low risk for CRC.

Conclusions: Latent class analysis is well suited to present the choice of different reasons in a population sample. Addressing common reasons for non-participation, such as forgetfulness or concerns about the test procedure, could be improved through stronger endorsement and communication from GPs.

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Incidence, Prevalence, Sex Ratio, and Mean Age of the Danish Multiple Sclerosis Population: from 1950 to 2023

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Background: The rising life expectancy and advancements in treatment suggest a potential ageing trend in the multiple sclerosis (MS) population. However, evidence supporting this hypothesis is lacking. Our study aimed to ascertain whether the mean age of the MS population has indeed increased and to examine the trends in incidence, prevalence, and sex distribution, all influencing the mean age.

Methods: We linked data from the Danish Multiple Sclerosis Registry to the Population Statistics Registry, Danish Cause of Death Registry, and Historical Migration Registry. We calculated mean age, age distribution, incidence, prevalence, and sex distribution annually from 1950 to 2023.

Results: The mean age of the Danish MS population increased until the late seventies, stabilized until approximately 1990, and experienced a slight decline until 2005, followed by a subsequent rise to its peak in 2023. In 1975, females constituted 58.7% of the MS population, increasing to 65.7% by 2000 and 68.5% in 2023. Crude incidence remained stable until 1975, steadily rising to more than 2.5 times in 2000. Despite fluctuations, it maintained relative stability from 2000 until 2022, showing a slight decrease in 2022 compared to the preceding two decades. Both crude and sex-specific prevalence exhibited an upward trend, particularly prominent among females, exacerbating sex disparities.

Conclusions: This study is the first to show that the mean age of the Danish MS population has increased, although less convincingly than hypothesized. The female proportion has grown alongside prevalence, while incidence may have stabilized in the last decades.

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Modelling Post-Pandemic Respiratory Syncytial Virus (RSV) Paediatric Admissions Patterns in Wales, UK

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Background: Respiratory Syncytial Virus (RSV) is a single-stranded RNA virus and a major cause of hospitalisations. 92% of hospitalisations occur in the paediatric population, with ~1400/year in Wales. In the Northern Hemisphere, the RSV season is typically between October and March. Following the introduction of Non-Pharmaceutical Interventions (NPIs) in response to the COVID-19 pandemic, disruptions in seasonality have been observed. Calibration of our RSV model, using paediatric admission data from Public Health Wales, previously revealed three out-of-season outbreaks (Autumn 2020, Autumn 2021 and Summer 2022) consistent with ‘divorce effects’ and predicted a surge of admissions in Winter 2023.

Methods: We have used an age-structured deterministic SE2I2R model with time-dependent contact rates to project future (2024) trends in seasonality and age-dependent susceptibility in Wales. The transmission process is linked to a clinical events model to allow comparison to data on cases, admissions, intensive care admissions, bed occupancy and deaths. The model is calibrated using Welsh demographics, social contact surveys, admissions data from Public Health Wales and a severity index of NPI impact based on the pandemic response of the devolved Welsh Government.

Results: Model projections closely anticipated the Winter 2023 RSV peak. We will present an analysis of the projections across the first half of 2024 and describe how the model is used as the basis for RSV medium term projections (MTPs), calculated on a regular basis for the Welsh Government.

Conclusions: MTPs based on transmission models provide a useful tool to inform admissions pressure planning across healthcare services.

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MULTIMORBIDITY ACROSS SOCIOECONOMIC STRATA AND THE ROLE OF LIFESTYLE CHOICES IN THE UK BIOBANK COHORT

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Background: Multimorbidity, referring to the co-presence of at least two chronic health conditions, has emerged as a significant public health concern in the context of an aging population. Socioeconomic status (SES) plays a pivotal role in shaping lifestyle choices, which in turn contribute to the overall risk of multimorbidity. We aimed to investigate the relationship between SES and multimorbidity, and the extent to which lifestyle factors mediate this SES-multimorbidity association.

Methods: We used data from the UK Biobank, a prospective population-based cohort study (n=502,369, median age of 58 years [range 37–73], 46% male). Lifestyle factors included current smoking, lack of physical activity, sleep problems, and obesity. A lifestyle score was created, with 1 point assigned for each unhealthy lifestyle factor (range, 0-4, with higher scores denoting a more unhealthy lifestyle). Multivariable logistic regression was conducted to investigate associations between SES and multimorbidity risk, followed by an examination extent of mediation by the lifestyle factors.

Results: Lower SES was associated with a higher risk of developing multimorbidity (OR=2.13, 95% confidence interval (CI): 2.09, 2.18). All lifestyle factors were associated with multimorbidity, and having all four unhealthy lifestyle factors showed a 7.8-fold greater multimorbidity risk (OR=7.84, 95%CI: 7.07, 8.68). The SES-multimorbidity risk was attenuated after adjusting for the lifestyle factors (OR=1.90; 95% CI: 1.86, 1.95). The proportion of multimorbidity risk explained by the total lifestyle index was 21%.

Conclusions: Our study underscores the association between lower SES and an increased risk of multimorbidity, with lifestyle factors playing a significant mediating role.

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Types of dietary carbohydrates and sugars, cardiometabolic risk factors, and risk of diabetes: a cohort of men and women from the general Danish population

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Background: Positive associations between sugar-sweetened beverages and added sugars with cardiometabolic disease have been observed, but studies on individual sugars are still limited. This study aims to examine the prospective association between types of dietary carbohydrates and sugars and the risk of diabetes. Further, it explores the cross-sectional associations between these nutrients and several cardiometabolic risk factors.

Methods: 42,836 participants from the Danish Health Examination Survey (2007-2008) were eligible for this study. Dietary information was obtained using self-reported food-frequency questionnaires at baseline. Cox proportional hazard models were applied to estimate HRs and 95% CIs. Multiple linear regression analysis was used to assess the association between types of carbohydrate intake and cardiometabolic risk factors.

Results: During a median follow-up of 4.9 years, 970 participants were diagnosed with diabetes. Participants with a high intake of fiber and fructose showed a lower risk of diabetes compared to those with a low intake. In addition, fiber and fructose high consumption was favorably linked to lower triglyceride levels, waist to hip ratio and body mass index (BMI), and better aerobic fitness. Fructose intake was further associated with lower glycated hemoglobin and cholesterol concentrations. Total carbohydrates, starch, total sugar, glucose, lactose, maltose and added sugar intake were not associated with the risk of diabetes.

Conclusions: A lower risk of diabetes and healthier metabolic status were found among participants with higher intake of dietary fiber and fructose.

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Patterns and Mortality Burden of the 1889 pandemic in Copenhagen: Was it influenza?

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Background: Quantitative studies of past pandemics are critically needed for pandemic preparedness. While mortality estimates are available for the 1918, 1957, 1968 and 2009 pandemics, the 1889-1892 “Russian flu” pandemic lacks characterization and historical health context. Detailed vital statistics records from 19th Century Copenhagen provide a unique opportunity to quantify the impact of this pandemic.

Methods: We used multiple regression to estimate weekly excess mortality due to influenza, measles, pertussis, diphtheria, and diarrhea in Copenhagen from 1889 – 1899. Influenza transmissibility (R) was computed for each wave of the pandemic based on early epidemic growth.

Results: The 1889-1892 pandemic killed 0.4 percent of the Copenhagen population with most deaths occurring in the 3rd wave in 1892 and among elderly over 65 years. The substantial reproduction number estimated for the first wave ($R \sim 2.3$) is consistent with pandemic spread; also, lower R in the two subsequent waves ($R \sim 1.3$ in last wave) is consistent with build-up of population immunity.

Conclusions: The mortality burden of the 1889 pandemic was similar to that of the 1918 pandemic. However, the 1889 impact was less notable compared to the high background mortality level of the 19th Century before the epidemiological transition in Denmark. The 1889 pandemic age pattern was curiously different from other influenza pandemics where an age shift to younger ages were a typical pattern, especially in 1918 and 2009. This, taken together with other clinical evidence, opens the question whether this pandemic was indeed influenza or perhaps instead a coronavirus pandemic.

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Post-marketing safety of ustekinumab based on 13-year follow-up in Danish register-based patient data

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Background: Psoriasis, a chronic inflammatory skin disorder affecting a substantial proportion of the Danish population, often necessitates systemic treatment involving monoclonal antibodies like ustekinumab. This 13-year retrospective study, based on Danish national register data, aimed to investigate the enduring safety profile of biological agents used in psoriasis treatment.

Methods: Using comprehensive Danish national register data, this study scrutinized patients diagnosed with psoriasis or psoriatic arthritis who received biological treatment Ustekinumab was compared with other biological treatments for psoriasis, including interleukin (IL)-23, IL-17, tumor necrosis factor α inhibitor medicine groups (TNF α), and non-biological systemic treatment (non-bio) from the drug-introduced year in Denmark (2018 for IL-23 and 2015 for IL-17) or 2009 to 2021. Outcomes encompassed malignancies, cardiovascular events, serious infections, and hypersensitivities. Propensity score matching and Cox proportional hazards regression models were employed to analyze two estimands: intention-to-treat (ITT) and continuous-index-treatment (CIT).

Results: Ustekinumab users exhibited a distinctive descriptive profile, characterized by the lowest mean age and a higher proportion of males. Hazard ratios varied among biological treatments, with ustekinumab showing no discernible safety signals compared to other comparator groups, while indicating a higher risk of serious infections compared to IL-23 treatment.

Conclusions: Ustekinumab showed a favorable long-term safety profile. These findings highlight ustekinumab's enduring safety advantages in the context of biologic treatments for psoriasis.

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Increased incidence of depression in individuals with perceived annoyances in their indoor environment at home: A Danish register-based cohort study

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Background: Exposures from the indoor environment can cause multiple annoyances that might increase the risk of depression. This study examines the association between perceived annoyances in the indoor environment at home and incident depression in Denmark.

Methods: This cohort study is based on data from the Danish Health and Morbidity Survey in year 2000. Based on 13 questions, perceived annoyances were derived via a Latent Class Analysis that grouped individuals with similarities in their annoyance pattern regarding indoor annoyances from noise, low light levels, odour, and thermal discomfort. Individuals had either few, moderate, or many annoyances. Individuals were followed up to 19 years after inclusion through national registers. Associations between perceived annoyances and rates of incident depression were analysed by a generalized linear model with a Poisson distribution. Incidence rate ratios (IRRs) were adjusted for age, sex, educational level, cohabitation status, smoking status, years lived in residence at baseline, interview season, and calendar year.

Results: Of the eligible 15,166 individuals free of depression (aged ≥ 16 years), a total of 2,139 (14.1%) developed depression during follow-up. The incidence rate per 10,000 person-years was 241, 171, and 154 for many, moderate, and few annoyances. Individuals with many and moderate annoyances had an adjusted IRR of 1.56 (95% CI: 1.28-1.87) and 1.14 (95% CI: 0.94-1.36) compared with individuals with few annoyances.

Conclusions: The results indicate that individuals with moderate and many perceived annoyances in the indoor environment at home have a higher incidence rate of depression than individuals with few annoyances.

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Positive leadership behaviours and risk of treatment for depression and anxiety: a prospective study of 59,743 Danish employees

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Background: Few prospective studies have examined whether the behaviours of leaders are associated with employees' risk of developing clinical mental disorders. In this study, we investigated whether low level of positive leadership behaviours was associated with an increased risk of medical treatment for depression and anxiety.

Methods: The study population was derived from the Work Environment and Health in Denmark study, a survey sent out four times, biennially from 2012 to 2018. We merged data from the survey with data from national health registers. We included 59,743 participants who were employed, had a leader, had no missing on key variables, and no previous history of treatment for depression or anxiety. Positive leadership behaviours were measured using an 8-item index, categorized into four groups. Treatment included redeemed prescription for antidepressants or anxiolytics and treatment at a psychiatric hospital for either depression or anxiety. We conducted a time-to-event analysis and estimated hazard ratios (HR) using a Cox-proportional hazards model. The analyses were adjusted for demographic variables, job type and sector, adverse life events and childhood adversities.

Results: In the adjusted model participants reporting medium low and low levels of positive leadership behaviours had a risk of receiving treatment for anxiety or depression that was 1.43 (HR: 1.43 (95%CI: 1.20;1.70) and 2.05 (HR: 2.05 (1.56;2.69) times higher, respectively, as compared to participants reporting high levels of positive leadership behaviours.

Conclusions: We conclude that low levels of positive leadership behaviours are associated with an increased risk of treatment for depression or anxiety.

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Social inequity in utilization of the national emergency number (1-1-2)

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Background: In Denmark, the options when falling ill or becoming injured are to visit the general practitioner, call the non-urgent out-of-hours services, or in life- or limb-threatening emergencies to call the Emergency Medical Services by the national emergency number (1-1-2). Socioeconomic status may affect the threshold for calling for help. The aim of this study is to identify differences in utilization of the national emergency number according to educational level and ethnicity.

Methods: The study is based on a nationwide register-based cohort of the general Danish population aged 25 years or older in 2017-2019. Information about acute unplanned contacts to the national emergency number in 2017-2019 was identified from the Danish Prehospital Electronic Medical Record. The associations between

1. Educational level and utilization of the emergency number
2. Ethnicity and utilization of the emergency number

were analyzed using adjusted logistic regression, presented as odds ratios (OR) with 95% confidence intervals (CI) and stratified by year.

Results: In 2017 the study included 4,009,264 individuals aged 25 years or older of which 4.4 % called the emergency number at least once. In all three years we found statistically significant higher odds of calling the emergency number with decreasing educational level. Further, in all three years we found statistically significant higher odds of calling the emergency number among descendants and immigrants compared to Danes.

Conclusions: There is social inequity in utilization of the national emergency number according to educational level and ethnicity.

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Wellbeing during the COVID-19 pandemic among Danish adults with and without a preexisting mental health condition

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Background: Emerging evidence has shown deteriorations in mental health as a response to the COVID-19 pandemic. A particularly vulnerable group is people with preexisting mental health conditions. The objective was to assess wellbeing during the COVID-19 pandemic among Danish adults with and without a mental condition, and whether wellbeing varied by sociodemographic characteristics.

Methods: Data was derived from online surveys collected in May 2020 (n=3134), January 2021 (n=1170), and January 2022 (n=1174), which constituted the Danish part of the Collaborative Outcomes study on Health and Functioning during Infection Times (COH-FIT). Descriptive statistics assessed the prevalence of low wellbeing (≤ 50 point, WHO-5) at four different time points. Logistic regression evaluated changes in wellbeing after the pandemic compared to before. Analyses were stratified according to preexisting mental health condition and further on sex, age, educational level, and occupation.

Results: A higher proportion reported low wellbeing during the pandemic compared to before, especially in the initial phases. This applied for respondents with a mental health condition (Before: 24%; May 2020: 60%; January 2021: 47%; January 2022: 41%) and for those without (Before: 12%; May 2020: 28%; January 2021: 19%; January 2022: 17%). Low wellbeing was also more frequent among young people.

Conclusions: The COVID-19 pandemic had a negative impact on wellbeing in the Danish population. This was especially pronounced among those with a preexisting mental health condition and among young people. These findings provide a basis for identifying vulnerable groups that require specific attention in case of similar future events.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Life years lost associated with specific mental diagnoses in the region of Catalonia

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Background: Evidence suggests that people with mental disorders died 7–10 years earlier than people without such disorders, with physical diseases and suicide accounting for the majority of premature mortality. To calculate the excess of life years lost (LYLs) for different mental disorders according to all-cause mortality and for each specific cause of death in males and females.

Methods: We analyzed data from adults who had been treated by the Catalan health service from January 1st 2005, to December 31st, 2016 and who had at least one of the specific ICD-9 diagnosis codes in the registers of general hospitals, outpatient mental health care, psychiatric hospitals and outpatient care. Eleven categories of mental disorders were created, and for the reference population, we used data from Catalonia in 2005. For each group of mental disorders, excess LYLs were obtained for all-cause mortality and for each specific cause of death in males and females.

Results: The study comprised 355,540 females and 182,529 males with mental diagnoses. The disorders associated with the most excess LYLs were alcohol and drug dependence and abuse, and schizophrenia. Cardiovascular diseases and cancer were the natural causes contributing more to excess LYLs. In addition to this, suicide also contributes substantial LYLs to most mental disorders, especially affective disorders.

Conclusions: Our findings confirm that people with mental disorders die earlier than the general Catalan population, and natural causes are the primary contributors, indicating the need for better management of comorbid medical conditions in this population.

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Trajectories of physical activity before and after a breast cancer diagnosis in persons with type 2 diabetes and the risk of breast-cancer mortality

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Background: We identified physical activity (PA) trajectories before and after a breast cancer diagnosis in women with type 2 diabetes, explored trajectory determinants, and the risk of breast cancer mortality.

Methods: Women (n=3012) with diabetes, who had a breast cancer diagnosis (from 2004-01-01) were included. Data were from the Swedish National Diabetes Register and National Cancer Register. Annual (2004-2020) self-reported PA (frequency of walking 30min or equivalent) was used, excluding the year immediately before and after the cancer diagnosis. Group-based trajectory modelling, multivariable logistic regression, and Cox proportional hazards model, adjusted for confounders, were employed.

Results: Five trajectories emerged pre-cancer: very-low maintainers (active <1d/wk: 9.1%), low maintainers (1-2d/wk: 24.5%), average maintainers (3-5days/wk: 45.5%), high maintainers (7d/wk: 17.3%), increasers (3.6%). Over an average of 5.9 (range:1-16) yrs, 154 breast cancer deaths occurred. Compared to the pre-cancer average maintainers, those in the low PA trajectories before diagnosis had an increased risk for breast cancer mortality, whereas those who were increasers or in the high PA trajectories had a reduced risk (high maintainers: Hazard Ratio 0.35, 95% confidence interval 0.12-1.00). Three PA trajectories were identified post-diagnosis: low (19.4%), average (57.8%), high (22.7%). Different determinant profiles were identified, and pre-cancer increasers had a 50% probability of being in the post-cancer high PA trajectory.

Conclusions: Women with diabetes have different PA trajectory determinants. Daily physical activity before a breast cancer diagnosis may protect against breast cancer death, and having high PA prior to a cancer diagnosis may allow for being active after cancer diagnosis.

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Polygenic Prediction of Comorbidity Burden in Individuals with Anorexia Nervosa

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Anorexia nervosa (AN) is a serious eating disorder associated with high morbidity and mortality. Psychiatric and medical comorbidities are observed frequently among individuals with AN, and comorbidity burden (i.e., number of comorbidities) has recently been shown to be associated with increased risk of readmission and mortality. In this study, the genetic underpinnings of psychiatric and medical comorbidities were examined in AN using Danish registers. The study population consisted of 7110 individuals who were born in Denmark between May 1, 1981, and December 31, 2009; received an AN diagnosis by December 31, 2016; followed until December 31, 2018; and were included in the Danish sub-cohort of the Anorexia Nervosa Genetics Initiative or the Eating Disorder Genetics Initiative studies. Comorbidity information was obtained from the Danish National Patient Register and the Danish Psychiatric Central Research Register, and polygenic scores for 422 phenotypes were calculated using LDpred2-auto and meta-PRS. Using logistic regression adjusted for birth year, year of AN diagnosis, and ancestry, distinct genetic associations involving psychiatric, socioeconomic, smoking, and exercise-related phenotypes emerged in relation to comorbidity burden in AN. Our findings could serve as a step toward identifying distinct clinically relevant phenotypes within AN through genetic burden, elucidating the biological mechanisms, and developing prediction models toward personalized precision medicine.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Time trends of haematolymphoid tumours classified according to the WHO classification, 5th edition

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Background: Epidemiological studies of cancer often rely on mortality and cancer registry incidence data coded according to the international classification of diseases (ICD). Exploring time trends and the impact of long follow-up, different exposure time windows and long latencies often imply follow-up periods that cross several revisions of the ICD. For haematolymphoid tumours, this may be a particular challenge because improvement in the understanding of the diseases has led to major changes in the diagnostic classification over past decades. The most up-to-date hierarchical classification of haematolymphoid tumours is the WHO classification of haematolymphoid tumours, 5th edition, from 2022. We aim to analyse time trends 1943-2022 of haematolymphoid tumours originally classified by ICD-7 to ICD-11 aligning them with the 2022 hierarchical WHO classification.

Methods: We will map each ICD revision to the 2022 WHO classification and tabulate time trends of mortality and incidence in the Danish and the US general population. Data is retrieved from the Danish Health Data Authority (DK) and the CDC WONDER database (US).

Results: Ongoing analyses will reveal temporal trends presented at the conference.

Conclusions: Organizing ICD revisions into the latest WHO hierarchical classification facilitates the analysis of haematolymphoid tumour time trends based on an up-to-date understanding of these diseases, which can be useful for descriptive and analytical epidemiological studies.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Panum and the cholera in Bandholm - a containment campaign revisited

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Background: In 1850, the first outbreak of cholera in Denmark occurred in Bandholm, and the physician Peter L. Panum was sent to contain it. Panum immediately introduced various measures to combat the spread of cholera and treat the infected. These included opening a field hospital, mandating quarantine for suspected cases, and a set of guidelines for hygiene around patients. Shortly after Panum's arrival, the spread of disease abated. A few weeks later, the epidemic ended. Nonetheless, the possibility that Panum was instrumental in containing the outbreak has so far received little attention.

Methods: By reexamining his observations using modern mathematical-epidemiological methods, we investigate whether Panum's measures had an effect on the epidemic. We fit an SIR model to available case counts to see whether there is a discontinuity in the growth of the number of infected after Panum's arrival. Similarly, we examine whether the difference in CFR before and after Panum's arrival is statistically significant. Finally, we attempt to trace the spread of the disease through the contact network outlined by Panum.

Results: The epidemic trajectory exhibits a clear discontinuity and the CFR significantly decreases after the introduction of mitigation measures. Furthermore, the total number of cases appears to be much smaller than expected for an unmitigated outbreak. Panum's notes are detailed enough that an approximate infection network can be constructed.

Conclusions: Panum might have played a greater pioneering role in epidemiology than he is usually credited for. Most likely, his efforts also greatly mitigated the cholera outbreak in Bandholm.

The poster will be displayed on June 13th, 2014, during "Coffee and poster viewing" at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Screening-specific bias are neglected in studies of colorectal cancer screening – a review of recent literature

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Background: Observational studies face distinctive biases when evaluating the benefits of early colorectal cancer (CRC) diagnosis identified via screening. Screening-specific biases, including lead-time, length-time, and healthy-user bias, can lead to misinterpretation of results. We aimed to evaluate the current literature for these biases in studies comparing survival or mortality for screen-detected and non-screen-detected CRC.

Methods: A systematic search of PubMed and Embase for observational studies published in 2003-2023, yielded 930 records. After removing 209 duplicates, screening titles and abstracts, followed by full-text reading, 23 papers were included in the final review.

Results: Of the 23 studies, two employed ecological designs, thus avoiding screening biases by design. The remaining studies were cohort studies estimating survival since date of diagnosis or surgery, and its reciprocal, the cumulated mortality proportion (e.g. 30-day mortality equals one minus 30-day survival) which are especially prone to screening biases. Healthy user bias was discussed in eight papers, length time bias in seven, and lead time bias in five. Few adjusted for factors related to healthy-user and length-time bias, and one study applied correction factors for lead time and length time.

Conclusions: Only one third of the included studies discussed screening specific biases, and few applied adjustment or correction methods. Even corrections of effect estimates rely heavily on assumptions about CRC pathogenesis. Thus, the majority of the included studies are at risk of overestimating the benefits of screening. In conclusion, we found that recent literature neglects and underestimates screening specific biases.

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The Association between Caregiving Patterns and the Burdens and Benefits of Caregiving

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Background: Several studies have documented the burdens of caregiving among family and other unpaid caregivers of older adults. Little is known about the benefits of caregiving among these helpers. Using a previous typology of care types, we examine whether caregivers providing different types of care report different burdens and benefits.

Methods: Using data from the 2015 and 2017 rounds of the National Health and Aging Trends Study (1423 care recipients) and the National Study of Caregiving (2146 caregivers), we assess caregiving burden in the domains of financial, emotional, and physical difficulties and caregiving benefits, including increased confidence, ability to deal with difficult situations, and closeness to the care recipient. Care types were defined in terms of caregiving intensity, regularity, and specific care activities.

Results: Results of the logistic regression models show that caregivers in care types that provide more hours of care and help with mobility, self-care, and household tasks had 2 to 4 times higher odds of experiencing physical burden. Yet, they were also twice (OR=2.16; 99% CI=1.11, 4.20) as likely to report that caregiving increased their ability to deal with difficult situations.

Conclusions: The type of care provided has distinct implications for caregiving-related burdens and benefits. Findings suggest that physicians should periodically assess the type of care provided to their patients to gauge anticipated burdens or benefits caregivers might. Findings also have implications for caregiving interventions, which should identify coping strategies that reduce burdens and increase benefits for caregivers.

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Surgery for chronic diverticular disease - incidence and predictors

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Incidence of diverticular disease (DD) is increasing, especially in younger persons, and recurrence is frequent. Regimens of surgical treatment in recurrent or chronic disease have changed towards an individualized approach. This study investigates the incidence of surgery in patients with chronic DD and explores predictors of surgery.

This cohort study used Danish national health care data to identify all patients with chronic DD in 1996-2021. Index date was date of second hospital contact due to DD. Incidence of surgery due to DD was calculated as cumulative incidence proportions (CIP), treating death as competing risk. Predictors for surgery was explored in a Cox proportional hazard model.

A total of 38,905 patients were diagnosed with chronic DD. Incidence rate of surgery was 6.7 per 100,000 person-years (95% CI: 6.6-6.9). The overall 10-year CIP of surgery was 16% (elective 10%, emergency 6%). The incidence of surgery overall decreased with higher age (HR 0.44 (95% CI 0.40; 0.49) in age 80+ compared to < 50) and over the study period (HR 0.78 (95% CI 0.72; 0.85) in 2015-2021 compared to 1994-2000). Comorbid patients were less likely to undergo surgery as compared to those with little or no comorbidity (HR 0.83 (95% CI 0.76; 0.90)).

Incidence of surgery in chronic DD have decreased over recent decades. Patients with chronic DD that undergo surgery are most likely to undergo elective surgery. Patients were less likely to undergo surgery if they were old or comorbid.

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Sexual harassment and violence in workplace or academic environment and association with health outcomes – A nationwide study of women

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Background: Sexual harassment and violence against women in working or academic environments are pressing global issues with scarce knowledge on its health implications. Existing research is limited to specific occupations which calls for comprehensive, population-based studies. The aim was to assess the associations between sexual harassment and violence in working or academic environments and mental and physical health outcomes in a nationally representative sample of Icelandic women aged 18-69.

Methods: Participants were 15,812 women (mean age 44.5 years) in the Stress-And-Gene-Analysis cohort who answered questions about sexual harassment/violence in their working or academic environments. Poisson regression was used to assess associations between sexual harassment/violence and validated measures of current mental and physical health outcomes.

Results: Exposure to sexual harassment/violence was associated with an increased prevalence of probable depression (Prevalence Ratio (PR) 1.49 [95% confidence interval (CI) 1.40–1.59]), general anxiety (PR 1.48 [CI 1.39–1.58]), social phobia (PR 1.58 [CI 1.47–1.71]), self-harm (PR 1.64 [CI 1.48–1.83]), suicidal ideation (PR 1.56 [CI 1.44–1.68]), suicide attempts (PR 1.99 [CI 1.62–2.44]), binge drinking (PR 1.10 [CI 1.01–1.20]), sleep problems (PR 1.41 [CI 1.33–1.49]), physical symptoms (PR 1.58 [CI 1.47–1.69]), and sick leave (PR 1.20 [CI 1.12–1.28]). These prevalence elevations were particularly pronounced among exposed women aged 18-34.

Conclusions: Sexual harassment/violence was associated with numerous self-reported health outcomes. This underscores the need for targeted interventions to promote workplace safety and to mitigate adverse health implications among workplace harassment/violence survivors.

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Unveiling Post-COVID Conditions Among Individuals with Intellectual Disabilities: evidence from Sweden

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Background: COVID-19 has disproportionately affected individuals with intellectual disabilities (PwID), putting them at risk for post-COVID conditions (PCC). Yet, there is limited research on PCC among PwID. This study seeks to outline and characterize the risks and prevalence of PCC among individuals with intellectual disabilities in Sweden.

Methods: PwID residing in the two largest Swedish regions (Västra Götaland and Stockholm) as of January 1, 2020, were identified using national registers and primary healthcare databases, relying on pertinent ICD-10 diagnoses. Post-COVID conditions (PCC) were defined as the initial primary or secondary ICD-10 diagnosis U09.9 within 28 days after COVID-19 infection. Sociodemographics, comorbidities, prescription medications, and vaccine uptake were outlined for PwID with and without PCC.

Results: Among 83290 PwID (mean age 37.2±12.9), 247 (0.3%) had been diagnosed with PCC. PwID with PCC, compared to those without PCC, exhibited a higher female prevalence (59.1% vs. 39.4%), had received at least two doses of the COVID-19 vaccine (71% vs. 61%), and demonstrated a higher prevalence of pre-existing comorbidities, including thyroid disease (10.9% vs. 4.8%), obesity (15.4% vs. 8.4%), diabetes (15.4% vs. 8.4%), hearing loss problems (8.5% vs. 5.8%), generalized anxiety disorder (8.9% vs. 3.9%), depression (23.5% vs. 9.6%), PTSD (9.7% vs. 2.6%), bipolar disease (6.5% vs. 1.9%), and eating disorder (4.9% vs. 1.9%). Additionally, prior prescription medication use, including antidepressants, neuroleptics, tranquilizers, and antiepileptics, was more prevalent among PwID with PCC.

Conclusions: The findings provide insight into how COVID-19 affects PwID, including comorbidities, vaccinations, and treatment, despite the low PCC occurrence among PwID.

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Survival of critically ill COVID-19 patients in Sweden during the first two-and-a-half years of the pandemic

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Background: To examine the survival trend among critically ill COVID-19 patients during the first two-and-a-half years of the pandemic and investigate potential predictors across different variants of concern periods.

Methods: A prospective cohort study conducted in adult COVID-19 patients admitted to Intensive Care Units (ICUs) in Sweden from Mar 6, 2020, to Dec 31, 2022 (N=8975), followed them to the first of: outcome (COVID-19-related death), emigration date, death unrelated to COVID-19, or end of follow-up (31 Dec 2022). Data sourced from the Swedish Intensive Care Register, linked to national registers. Survival probability and predictors of COVID-19 death were estimated using Kaplan-Meier and Cox regression analysis.

Results: The survival rate among ICU patients appears to have changed over time, notably improving in the Omicron period across all age groups ($p < 0.005$). Men, older age (40+), low income, and those with comorbid chronic heart disease, chronic lung disease, impaired immune disease, chronic renal disease, stroke, and cancer, and who required invasive or non-invasive respiratory supports, developed septic shock, or suffered organ failures had higher risk of death after adjustment ($p < 0.05$). Foreign-born patients, booster vaccine recipients, and steroid users exhibited better survival (aHR=0.87, 95%CI 0.80-0.95; 0.74, 0.65-0.84 and 0.91, 0.84-0.98, respectively). Observed associations were similar across different variant periods.

Conclusions: In this nationwide Swedish cohort, ICU survival rates changed over time with an improvement in the survival probability for all age strata during the omicron period compared to other periods. Moreover, mortality predictors remained consistent across different variant periods.

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High risk HPV types approaching extinction in vaccinated birth cohorts

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Background: HPV vaccination is key in the World Health Organizations strategy to eliminate cervical cancer as a public health problem. Since school-based HPV vaccination initiation in 2012, consecutive birth cohorts of women with high vaccination coverage have been entering the cervical screening program. We evaluate the impact HPV vaccination on the HPV16/18 prevalence among women attending cervical screening in Stockholm.

Methods: All HPV-based primary cervical screening tests from 2014-2023 in the Stockholm region were identified in the Swedish National Cervical Screening Registry and exports from the screening laboratory information system. HPV vaccination coverage by birth cohort was estimated from data from the Public Health Agency of Sweden. The HPV16/18 prevalence stratified by birth cohort and year was estimated using the HPV genotyping results from the screening tests.

Results: From 2014-2020 the HPV16/18 prevalence was highest in the youngest birth cohorts, decreasing over time from 3.9% to 2.4% (HPV16) and from 2% to 1.2% (HPV18) among the birth cohort aged 30. Among the 1999 and 2000-born women previously eligible for school-based vaccination where the vaccination coverage was 82 and 83%, the HPV16 prevalence was 0.7% (36/4928) and 0.5% (19/3511) respectively, whilst the HPV18 prevalence was 0.2% (10/4928) and 0.09% (3/3511).

Conclusions: HPV18 is almost disappearing among the youngest birth cohorts entering the cervical screening program, with HPV16 infection becoming rare. HPV vaccination in Sweden has successfully decreased HPV16/18 circulation to near elimination among women born in 1999 and younger, however HPV16/18 infection continues to be present among older birth cohorts.

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Trends and predictors of COVID-19 vaccination uptake among foreign-born persons in Sweden

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Background: Differences in COVID-19 vaccination uptake have been reported among different sociodemographic groups, especially for immigrant populations. This study aimed to assess determinants of COVID-19 vaccine uptake in Sweden's immigrant populations and how they changed over time.

Methods: Data were acquired from the nationwide linked database of the SCIFI-PEARL project. The study population included adult residents in Sweden on 27 December 2020. Immigrant groups were defined by continent of birth with Nordic-born further separated from other European-born. A descriptive analysis was performed to assess changes in vaccination uptake over the study period, until 14 November 2022. Cox regression was used to assess the relative vaccination uptake over 8 successive 3-month intervals, with multiple predicting factors including age, sex, region of birth, disposable income, employment status, attained education level.

Results: All immigrant groups had a slower and lower final overall vaccination uptake than the Swedish-born population: the Nordic countries except Sweden population had the highest uptake (86.1%), and the Europe except Nordics population had the lowest uptake (62.9%). All immigrant populations exceeded the Swedish-born population towards the end of the follow-up, except the European- and Oceanian-born populations. Increasing age, female gender, higher disposable income, employment, and higher education positively affected vaccination uptake across all populations.

Conclusions: Inequalities in vaccination uptake were observed among different immigrant populations compared to the Swedish-born population. The vaccination coverage gap between the Swedish- and foreign-born populations was somewhat reduced in April 2021, potentially contributable to the vaccine campaigns using multiple languages.

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Infection-related hospitalization before and after Alzheimer's disease diagnosis

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Background: There is a lack of studies on the incidence and temporal changes of infections in relation to Alzheimer's disease (AD) diagnosis. We studied the incidence of infections requiring hospitalization in persons with and without AD five years before and after AD diagnosis.

Methods: We performed a register-based study utilizing the Medication Use and Alzheimer's Disease cohort with 70,718 community-dwellers diagnosed with AD between 2005-2011 and an equal number of age-, gender- and region-of-residence-matched comparison persons. Infection incidence and annual hospital days were calculated yearly during the follow-up.

Results: During the follow-up, half of the AD cohort was hospitalized due to infections compared to 34 % of the non-AD cohort. Hospitalization increased substantially one to two years before AD diagnosis. At the time of AD diagnosis, the incidence of hospitalization due to infections was higher (15/100 person-years, py) in the AD cohort than in comparison persons (9/100 py) and the accumulation of hospital days in the AD cohort was higher (incidence rate ratio [IRR] 1.21, 95% confidence interval [CI] 1.11-1.32). The most common infection diagnoses in both cohorts were pneumonia, pyelonephritis, and urinary tract infections.

Conclusions: Compared to matched comparison persons, the higher hospitalization rate due to infections, also for milder infections, could be caused by systemic inflammation related to AD, delirium symptoms associated with infections, and caregiver burden. The prevention of infections should be a part of the good care of cognitive disorders throughout the disease.

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The Association of Childhood Epilepsy with School Well-being in Denmark

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Background: Epilepsy affects 0.5 to 1% of all children and is associated with increased risk of learning difficulties and psychiatric comorbidity. In this nation-wide study, we examined the association of childhood epilepsy with wellbeing across all grade levels in Danish public schools.

Methods: This is a cohort study of children attending Danish public primary and lower secondary schools in 2015-2019 utilizing data from the Annual National Surveys on Wellbeing in School Children. Epilepsy status was identified using diagnostic information (ICD-10: G40) from the Danish National Patient Register. Five dimensions of wellbeing (e.g., social and academic wellbeing) were dichotomized to compare responses in schoolchildren with and without epilepsy.

Results: From 2015 to 2019 there were 2,412,740 assessments of wellbeing in 766,740 children (49% girls) in Danish public primary and lower secondary schools (mean age 10.4, SD 2.8). This includes 22,030 assessments of 7,350 children with epilepsy. Preliminary findings indicate that children with epilepsy have increased odds of reporting poor overall wellbeing (OR 1.30, 95%CI 1.23-1.38), when adjusted for grade level compared to children without epilepsy, but also of specific dimensions of poor well-being (e.g., loneliness: OR 1.27, 95%CI 1.24-1.31).

Conclusions: Results of this study allows comparison of wellbeing in public schoolchildren with epilepsy and their peers and how this varies across certain factors such as gender, age of disease onset, clinical characteristics, and pharmacological treatment. The findings contribute to the insights into the educational challenges, wellbeing, and overall quality of life of school aged children with epilepsy.

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Medication Use in Severe Anorexia Nervosa: a Danish Register-based Study

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Background: Anorexia nervosa (AN) is a severe psychiatric disorder characterised by notably high mortality and a complex clinical course. Severe AN (S-AN) represents a clinically significant subgroup with a prolonged illness duration and poor outcome. Previous research reported an increased odds of prescription medication among AN patients compared to the age-matched controls; however, pharmacological prescriptions for S-AN have yet to be examined. This study aims to explore the patterns of medication use in S-AN and examine variations in prescriptions among S-AN patients with different comorbidity.

Methods: Utilising Danish registers, our study sample comprises ~7,600 individuals diagnosed with AN between 1991 and 2011 and assigned to S-AN or non-S-AN groups based on their AN Clinical Severity Index scores. First, using prescription indicators variable, logistic regression is used to compare medication use between groups. Second, hierarchical analysis identifies the common comorbidity patterns among S-AN patients, forming k groups for between-group comparisons using chi-square tests with Benjamini-Hochberg correction.

Results: Preliminary findings reveal an increased odds of pharmacotherapy among S-AN patients across various medication classes, including alimentary tract, anti-infective drugs, and psychotropic medications. Notably, the highest odds for specific prescriptions were observed for minerals (OR=10.88, $p < 0.001$), and bisphosphonates (OR=5.84, $p < 0.001$). Conversely, we observed significantly lower rates of contraceptive prescriptions in S-AN patients compared to non-S-AN patients.

Conclusions: Our preliminary results emphasise the need for further investigation into specific medications in S-AN patients. This study also sheds light on the complexity of S-AN, particularly regarding medication patterns, and highlights the importance of considering distinct comorbidities.

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Metabolic Syndrome in Fasting and Non-Fasting Participants: The UAE Healthy Future Study

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Background: Metabolic syndrome (MetS) is a multiplex of risk factors that predispose people to the development of diabetes and cardiovascular disease (CVD), two of the major noncommunicable diseases that contribute to mortality in the United Arab Emirates (UAE). MetS guidelines require the testing of fasting samples, but there are evidence-based suggestions that non-fasting samples are also reliable for CVD-related screening measures. In this study, we aimed to estimate MetS and its components in a sample of young Emiratis using HbA1c as another glycemic marker. We also aimed to estimate the associations of some known CVD risk factors with MetS in our population.

Methods: The study was based on a cross-sectional analysis of baseline data of 5161 participants from the UAE Healthy Future Study (UAEHFS). MetS was identified using the NCEP ATP III criteria, with the addition of HbA1c as another glycemic indicator to identify the glycemic component of MetS.

Results: The age-adjusted prevalence of MetS was estimated as 22.7% in males and 12.5% in females. MetS prevalence was not statistically different after substituting FBG by HbA1c ($p > 0.05$). Age, increased BMI, and family history of any metabolic abnormality were consistently strongly associated with MetS.

Conclusions: MetS is highly prevalent in our sample of young Emirati adults. Our data showed that HbA1c may be an acceptable tool to test for the glycemic component of MetS in non-fasting samples. We found that the most relevant risk factors for predicting the prevalence of MetS were age, BMI, and family history.

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The association between domain-specific physical activity and redeemed musculoskeletal pain-relief medication among blue-collar workers: A study of objective device-based measurements embedded with Danish registers

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Background: Musculoskeletal pain often leads to prescribed pain-relief medication usage, requiring caution due to potential side effects. Instead, physical activity (PA) is recommended for musculoskeletal pain relief. However, recommendations do not differ between domain-specific PA. Although, leisure-time PA has been found to promote musculoskeletal health, high occupational PA has been identified as a risk factor for musculoskeletal pain (“The PA paradox”). Therefore, we investigated the association between domain-specific PA and risk of redeemed musculoskeletal pain-relief medication.

Methods: Physical behavior data (sedentary, standing, light PA and moderate-to-vigorous PA) were collected from 956 workers using a thigh-worn accelerometer. Redeemed musculoskeletal pain-relief medication was retrieved from the Danish National Prescription Registry during 4 years of follow-up. The association between occupational and leisure-time PA and the number of redeemed musculoskeletal pain-relief medication was analyzed using a generalized linear model adjusted for potential confounders.

Results (Preliminary): During follow-up, 53% of the sample had redeemed a musculoskeletal pain-relief medication prescription. In the occupational domain, a 20 minutes increase in moderate-to-vigorous PA substituting sedentary behavior was associated with 1.01 (95% CI 1.25 - 0.77) higher risk of redeemed musculoskeletal pain-relief medication. On the contrary, within the leisure domain, a 20 minutes increase in moderate-to-vigorous PA instead of being sedentary was associated with 0.93 (95% CI 1.18 - 0.68) lower risk of redeemed musculoskeletal pain-relief medication.

Conclusions: Leisure-time PA was associated with less musculoskeletal pain-relief medication, while occupational PA was associated with more musculoskeletal pain-relief medication. These findings corroborate “The PAparadox” as relevant for pain medication use.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Utilization of drugs with weight loss effect in Norway 2017-2023

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Background: A paradigm shift in obesity treatment has occurred by drugs used for diabetes. We describe use of anti-obesity drugs and reimbursement changes in Norway from 2017 to 2023.

Methods: We identified adults (18-79 years) using glucagon-like peptide 1 receptor agonists (GLP-1 RAs) in absence of a diabetes indication (liraglutide: Saxenda[®], semaglutide: Ozempic[®] without reimbursement and Wegovy[®]) and bupropion-naltrexone (Mysimba[®]) in the Norwegian Prescribed Drug Register. Total population numbers obtained from Statistics Norway. We calculated quarterly prevalence by sex and age-groups. Additional analyses to explore reimbursement changes.

Results: Prevalence of anti-obesity drug use showed a strong sex and age gradient with a predominance in women and in the age-groups 40-49 and 50-59 years. Following reimbursement changes in 2020, anti-obesity drug use increased. After changes in 2023, there was a shift in patients' and doctors' drug preferences. In Q4 2022, GLP-1 RA liraglutide peaked with prevalence 0.67% (1.01% in women, 0.35% in men), and decreased to 0.40% in Q2 2023. Use of semaglutide [Ozempic[®] "off-label" (as anti-obesity drug, without reimbursement)], also peaked in Q4 2022 (0.53% prevalent users, 0.84% in women, 0.23% in men). After introduction of semaglutide with obesity indication (Wegovy[®]) in Q1 2023, the number of Ozempic[®] users stabilized. Bupropion-naltrexone also peaked in Q4 2022 (0.53% prevalent users, 0.84% in women, 0.23% in men) and then decreased in 2023.

Conclusions: Use of anti-obesity drugs in Norway increased steeply in recent years, especially in middle-aged women. Use of glucose-lowering drugs for weight reduction may impact future diabetes incidence and prevalence.

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Telomere length and fecundability in the Norwegian Mother, Father and Child Cohort Study

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Telomeres are regions of repetitive DNA sequences at the chromosome ends, acting as protective caps. Telomere length (TL) is largely determined at birth but is known to shorten with age. A number of factors have been linked to shorter TL, including advanced chronological age and higher risk of age-related diseases, such as cardiovascular disease. Studies have also suggested that short TL is associated with a shorter reproductive window and lower fertility. We examined the relationship between TL and fecundability, defined as the probability of achieving a pregnancy, in women and men from the Norwegian Mother, Father and Child Cohort Study (MoBa). We hypothesised that women and men with shorter telomeres had lower fecundability and a higher risk of conceiving through assisted reproductive technologies (ART). We examined the association between fecundability and TL in 901 women and 895 men who had naturally conceived pregnancies, and in 346 women and 341 men who conceived through ART. Preliminary results showed no associations between TL and fecundability in women or men who conceived naturally, and we found no association between TL and ART among women. For men who conceived through ART, preliminary results could indicate an association between telomere length and ART (odds ratio, 1.16; 95% confidence interval, 0.99-1.38) but our further analyses examining the role of male factor infertility in ART and including genotype data will clarify this. If a relationship between TL and male factor infertility is established, TL could act as a molecular marker for infertility in men.

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The association between endometriosis and years of working life lost: a Danish population-based cohort study

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Background: Endometriosis is a chronic gynaecological disease estimated to affect 10% of women in reproductive age. Among these women, chronic and severe pain affect everyday life including mental, physical, and social well-being. Previous studies of questionnaire data and smaller samples have found that endometriosis negatively affect working life, productivity, and sick leave. The main aim of this study is to estimate the association between endometriosis and working years lost based on register data.

Methods: This population-based study included information on all women aged 18-65 living in Denmark 1991-2021. Information on diagnoses of endometriosis was obtained from the National Patient Registry. Based on cumulative age-specific rates of retirement, we estimated working years lost decomposed into disability pension, voluntary early retirement, or death. Questionnaire data of women aged 26-51 in Denmark in 2023 were used for additional investigation of working life and sick leave.

Results: Pre-liminary results indicate that for younger women, slightly more working years are lost for women with endometriosis compared to the general population of women. Detailed results will be available for the conference. Based on questionnaire data, women with endometriosis report to be less frequently working or enrolled in education (74.1% (68.4%-79.2%) with endometriosis, 82.7% (81.8%-83.7%) without), have more sick days (4-28 days last 4 weeks: 16.2% (11.6%-21.8%) with endometriosis, 7.9% (7.2%-8.7%) without), and less productive because of health issues (all or most of the time: 18.2% (13.8%-23.4%) with endometriosis, 10.5% (9.8%-11.3%) without).

Conclusions: Our study find that workforce participation is reduced among women with endometriosis in Denmark.

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Antidepressant use and ovarian cancer risk: evidence from nationwide studies including more than 14,000 cases from Denmark and Sweden

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Background: Given the existing body of evidence regarding the link between antidepressant use and ovarian cancer risk is equivocal, we aimed to investigate this research question by conducting two nationwide nested case-control studies among the Danish and Swedish population.

Methods: Altogether, 14,121 women with epithelial ovarian cancer (30-84 years old) (Denmark: 8,976 diagnosed 2000-2019, Sweden: 5,145 diagnosed 2010-2018) were randomly age-matched with 564,840 female controls (359,040 from Denmark, and 205,800 from Sweden) using risk set sampling. We used conditional logistic regression to estimate odds ratios (OR) with 95% confidence intervals (CI) and combined the estimates based on the fixed-effect assumption. We also investigated potential effect modification by well-established ovarian cancer risk factors.

Results: Antidepressant use was associated with a reduced risk of ovarian cancer (OR=0.92, 95%CI: 0.88-0.96), particularly in postmenopausal women (OR=0.91, 95%CI: 0.87-0.95) and long-term users (OR=0.90, 95%CI: 0.85-0.95). The effect was most pronounced in serous ovarian tumors (OR=0.90, 95%CI: 0.86-0.95) but observed in other subtypes as well, although not statistically significant. Among different types of antidepressants, selective serotonin reuptake inhibitors in general and citalopram in particular exhibited a noteworthy reduction in ovarian cancer risk (OR=0.89, 95%CI: 0.82-0.96). Additionally, use of oral contraceptives and hormone replacement therapy individually modified the association between antidepressant use and ovarian cancer risk.

Conclusions: Use of antidepressant was associated with a decreased ovarian cancer risk. Given the morbidity and mortality associated with ovarian cancer, and increasing use of antidepressants, these findings may be of cancer prevention significance.

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Prevalence of psychotropic medication discontinuation in pregnancy in Norway

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Background: People who use medication to manage mental health conditions often discontinue once they become pregnant, or when planning pregnancy. We aimed to assess the prevalence of discontinuation of psychotropic medication around start of pregnancy in recent years to inform healthcare providers about the extent to which this could be a consideration in pre- and postnatal care.

Methods: We used data from the Medical Birth Registry of Norway, 2016-2020 (N=279,027 births) linked with the Norwegian Prescribed Drug Registry. We excluded 252 births with a missing or invalid gestational age (<154 or >308 days). Medications of interest included antidepressants, ADHD medication, antipsychotics (excluding lithium and prochlorperazine), and mood stabilizers (lithium or antiepileptics used for psychiatric indications based on reimbursement codes). We defined “quit recently” as those with prescription fills in the 3 months before pregnancy or first trimester, and no fills later in pregnancy.

Results: We included 274,532 pregnancies (278,775 births; 225,531 individuals). Among 7192 antidepressant users 62% quit recently. For ADHD medication, 81% of 1443 users quit recently. For antipsychotics and mood stabilizers, 66% of 1971 and 38% of 767 quit recently. Across all these medication groups, 62% of 10,146 users quit recently.

Conclusions: One of every 27 pregnant people recently filled a prescription for antidepressants, antipsychotics, ADHD medication or mood stabilizers and faced the decision to quit or continue in pregnancy. It is important for clinicians to consider how well pregnant people are coping with changes to their medication and whether they need extra support during pregnancy and postpartum.

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Influenza among older adults in the Netherlands

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Background: Individuals with comorbidities have increased risk of influenza and higher vaccine uptake. Therefore, adjusting for comorbidities is important when estimating vaccine effectiveness (VE). We investigated using imputed comorbidity status for VE estimations in older adults (≥65 years) in the Netherlands.

Methods: A cohort of older adults (n=2448) reported influenza-like-illness (ILI) symptoms in the 2012/2013 season, whereupon samples and questionnaires were collected. Additionally, samples and questionnaires were obtained from 339 randomly selected healthy participants (14%). Missing comorbidity status was imputed using a model with age, sex and vaccination status obtained from the randomly selected participants. We estimated adjusted hazard ratios (aHR) for symptomatic influenza virus infection using Cox models in calendar time, considering vaccination as time-varying exposure, and adjusting for comorbidity. A model for ILI due to other pathogens was used as a control.

Results: ILI was reported at least once by 11% of participants, of which 18% had no pathogens detected, 37% were influenza virus positive and 57% had another respiratory pathogen. The aHR for comorbidity was 1.55 (1.02-2.34) against influenza, and 1.15 (0.82-1.61) against other pathogens. The HR of influenza vaccination against influenza was 0.73 (0.49-1.10) unadjusted and 0.66 (0.44-1.01) after adjusting for comorbidity status. Against other pathogens the HR was not significant.

Conclusions: We show that when comorbidity status is incomplete, imputation should be considered. We show that influenza vaccines protect against ILI caused by influenza, but not by other pathogens. These estimates are in line with previously reported results from this project using test negative design.

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Pregnancies and Childbirths in Military Women deployed to International Peacekeeping Operations – a register based study

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Background:

Women deployed to International Peacekeeping Operations (INTOPS) can be exposed to biological, chemical or psychological factors that may decrease their chances of becoming pregnant or give birth to healthy children. This project aims to study reproductive health in Norwegian INTOPS-women.

Methods: Using the Norwegian Armed Forces Health Registry and the Medical Birth Registry of Norway (MBRN), we compared pregnancies and births between 2,218 women deployed to INTOPS and 1,151,331 civilians.

Results: Of all INTOPS-women, 1,393 (62.8%) were registered in the MBRN with 2,883 pregnancies between 1969 and 2021. Near 15% (n=323) had born a living child prior to a deployment; 24 gave birth in the same year as INTOPS, 2,273 pregnancies and 2,243 liveborn were registered 1-24 years after INTOPS; 48 women had a pregnancy both prior to and after INTOPS-deployment.

Mean age at first delivery was 29.8 years. Registrations of gestational diabetes mellitus (1.2%) and preeclampsia (4.5%) was equal to civilian rates, but the risk of having gestational diabetes mellitus in the first pregnancy was lower among INTOPS-women compared to civilian women of the same age. Compared to the civilian population, INTOPS-women's first-born was somewhat larger (mean birthweight 3452 g/length 49.9 cm), but mean gestational age (39.3 weeks) did not differ nor did the prevalence of congenital malformations (4.8%).

Conclusions: Of the women deployed to INTOPS, 63% had a registered pregnancy. Their age at first delivery, risk of gestational diabetes mellitus and infants' birthweight differed from civilians, but registrations of preeclampsia and congenital malformations were similar.

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The effect of COVID-19 infection on long-term sick-leave in the Danish population - A register based matched cohort study

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Background: A large number of SARS-CoV-2 infected persons experienced prolonged symptoms after the acute phase (post COVID-19 condition). We aimed to investigate whether COVID-19 infection increased the risk of long-term sick-leave among COVID-19 positives in the Danish labour market compared to COVID-19 negatives.

Methods: In a national, register-based cohort study, we identified persons from the workforce tested positive for COVID-19 in Denmark from March 2020 to December 2021. We compared these in a matched design with persons tested negative, matching on time, sex, age and main industry using conditional logistic regression. We furthermore identified referral to hospital, including intensive care. The outcome was long-term sick-leave derived from a register of public transfer incomes. We adjusted for previous labour market participation, vaccine status, comorbidity and educational level. We stratified the result on gender, age and main industry.

Results:

Most COVID-19 infected persons from the workforce were not on long-term sick-leave following infection, but compared to persons tested negative, we found an increased risk of long-term sick leave. This risk was higher for women compared to men and for middle-aged, compared to younger and older persons. Furthermore, the risk was highest in industry, in trade and transport, in public administration, education and health and in culture and arts but lowest in agriculture, forestry and fishing.

Conclusions:

Long-term sick-leave following infection from COVID-19 is rare in persons from the workforce, but the risk of long-term sick-leave is increased in some subgroups.

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Trends in sepsis mortality in cancer patients. A nationwide register-based study in Norway.

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Background: Sepsis is a leading cause of death worldwide. Cancer patients represent a substantial proportion of sepsis hospitalizations and have an increased risk of dying from sepsis. Recent advances in the treatment of both cancer and sepsis could potentially impact sepsis mortality in this population. Thus, the aim of this prospective nationwide register-based study was to investigate in-hospital sepsis mortality in patients with and without cancer over a 14-year period from 2008 through 2021.

Methods: ICD-10 diagnostic codes and discharge status in all patients ≥ 18 years admitted to Norwegian hospitals with a first episode of sepsis from 2008 through 2021 were retrieved from the Norwegian Patient Registry. We used logistic regression to estimate in-hospital mortality for sepsis patients with and without cancer and odds ratio (OR) with 95% confidence interval (CI). Models included year of hospitalization, age, sex, and comorbidity.

Results: Among 222 832 patients hospitalized with a first sepsis episode, 37 701 (16.9%) had cancer. The overall adjusted in-hospital mortality for cancer patients with sepsis was 22.3%, compared to 12.0% in the group without cancer (OR: 2.16, 95% CI: 2.10-2.23). The mortality decreased in both groups during the study period, but the decline was stronger in the no-cancer group (14.9% to 10.9%) compared to the cancer group (21.9% to 18.8%).

Conclusions: Despite improvements in cancer treatment, cancer patients continue to experience high sepsis mortality. Our data suggest that cancer patients may have gained less benefit from the advances in sepsis treatment and survival than other sepsis patients.

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NORDic Dataset for aSThma Research (NORDSTAR) – a Nordic research collaboration platform

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Background: Real-world evidence derived from data collected in routine clinical care is increasingly important for decision-makers in payer and regulatory environments. Nordic health data has several characteristics that enable a globally unique research environment. How can Nordic observational data be used to create globally relevant evidence for decision makers in asthma?

Methods: Data collected from Nordic countries (Denmark, Sweden, Norway, Finland) for more than 20 years, encompassing >3 million asthma patients, provided the basis for the research platform. Patients were included based on asthma diagnoses and/or dispensed respiratory drugs. A multinational, three-party research collaboration known as NORDSTAR was initiated and comprised of academic asthma researchers in the Nordic Severe Asthma Network (NSAN), pharmaceutical industry sponsors, and Nordic data experts at Quantify Research. The NORDSTAR platform has investigated a variety of outcomes relevant to patients, clinicians, and decision-makers including severe asthma prevalence, management, and clinical trajectories.

Results: Completed NORDSTAR studies found similarities in severe asthma prevalence across the Nordics countries, recognizing unmet needs for severe asthma management in primary care. Further, four clinically distinct longitudinal trajectories of severe asthma were identified, highlighting varied patterns of disease progression and the potential for early intervention to modify disease progression. NORDSTAR research has been globally impactful due to its ability to address research questions that are difficult to answer in other settings.

Conclusions: The NORDSTAR research platform illustrates how a multi-party, public-private partnership built around unique Nordic data and can create impactful research to meet the needs of healthcare practitioners and decision makers globally.

The poster will be displayed on June 13th, 2014, during “Coffee and poster viewing” at 15:00 - 16:15, Chr. Hansen Auditorium, building 34.

Prevalence and predictors of hearing aid use and benefit

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Background: Understanding the utilization and benefits of hearing aids is crucial for effective treatment. This study aimed to assess the prevalence and determinants of hearing aid usage and benefit in Norway, while also exploring potential changes across birth cohorts.

Methods: Analyzing two extensive cross-sectional surveys covering 63,182 adults from 1996-1998 and 2017-2019 (the HUNT study), we employed multivariable regression models to investigate independent factors associated with hearing aid usage and benefit. Variables included demographic factors, hearing-related metrics, established risk factors for hearing impairment, and variations across birth cohorts.

Results: Nationally weighted data showed an increase in hearing aid adoption from 4.2% in 1997 to 5.8% in 2018, particularly among individuals with significant hearing loss (≥ 35 dB), which rose from 46% to 64%. The majority of users reported experiencing some (47%) or considerable (48%) benefit from their hearing aids. Factors influencing hearing aid usage included younger age, presence of tinnitus, early-onset hearing loss, higher education, marital status, parenthood, noise exposure, ear infections, and head trauma. Perceived hearing aid benefit correlated with younger age and female gender, while tinnitus distress was associated with reduced benefit.

Conclusions: Our study reveals a temporal increase in self-reported hearing aid usage, yet adoption rates and perceived benefits remain lower among older adults. Marital and parental status positively influenced hearing aid adoption. Customized strategies are needed to address demographic disparities, alongside innovations in hearing rehabilitation programs.

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Sex-based survival disparities in a real-world cohort treated with pembrolizumab for non-small cell lung cancer

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Background: Innate differences in the female and male immune systems have led researchers to hypothesize that there could be sex-based differences in the effectiveness of immune checkpoint inhibitors (ICI) for anticancer treatment.

Aim: To determine whether there was a sex-based survival difference among those treated with pembrolizumab for non-small cell lung cancer (NSCLC), and whether there were sex-based disparities in the survival benefit associated with pembrolizumab relative to chemotherapy for NSCLC.

Methods: This population-based cohort study included 1242 female and 1570 male patients diagnosed with stage IIIB/C or IV NSCLC in Norway and who received first-line pembrolizumab monotherapy during 2017–2021 or first-line platinum-based chemotherapy during 2012–2016. Potential sex-based disparities in survival differences among pembrolizumab users, and survival benefits relative to chemotherapy, were evaluated using lung-cancer specific survival. Patients were followed-up until the end of 2022 for survival outcomes.

Results: The unadjusted median survival for pembrolizumab users was 13.3 months for females and 14.8 for males, compared to 7.6 and 6.6 months for female and male chemotherapy users. After adjustment, there was no significant sex-based survival difference between females and males treated with pembrolizumab. Males derived a significantly larger survival benefit from pembrolizumab versus chemotherapy than females, but this was because males had a poorer prognosis than females when treated with chemotherapy.

Conclusions: Results from our real-world cohort do not support the hypothesis that sex influences the effectiveness of first-line treatment with ICI monotherapy for NSCLC.

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Who are the vulnerable lung cancer patients at risk for not receiving first-line curative or palliative treatment?

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Background: To identify non-small-cell lung cancer (NSCLC) patients in need of comprehensive support, we examined the association between patient and disease-related factors of vulnerability related to not receiving guideline-recommended treatment.

Methods: We identified 14,597 non-small-cell lung cancer (NSCLC) patients with performance status <3 during 2013–2018 in the Danish Lung Cancer Registry. Multivariate logistic regression models were used to estimate Odds Ratios (ORs) and 95% confidence intervals (CIs) for receiving guideline-recommended treatment according to stage, comorbidities, age, performance status, long distance to hospital, cohabitation status, education and alcohol abuse.

Results: 21% of stage I-IIIa NSCLC patients did not receive curative treatment while 10% with stage IIIB-IV did not receive any oncological therapy. Factors associated with reduced likelihood of receiving curative treatment included: advanced stage (OR=0.45; 95% CI=0.42-0.49), somatic comorbidity (OR=0.72; 95% CI=0.63–0.83), age > 80 years (OR=0.59; 95% CI=0.55-0.64), performance status=2 (OR=0.33; 95% CI=0.28-0.39) and living alone (OR=0.79; 95% CI=0.69-0.90). Results were similar for stage IIIB-IV NSCLC patients, although a statistically significant association was also seen for long distances to the hospital (OR=0.71; 95% CI=0.58-0.86).

Conclusions: Several factors are associated with not receiving guideline-recommended NSCLC treatment with age, performance status, comorbidity and stage being most predictive of no treatment receipt. Efforts should be made to develop support for vulnerable lung cancer patients to improve adherence to optimal first-line therapy.

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Mental Health Consequences of Economic Shocks: A Case Study of Danish Mink Farmers and Their Families

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Background: On November 4, 2020, the Danish Government issued a directive mandating the culling of all minks in Denmark due to concerns about the transmission of SARS-CoV-2 to humans. This paper evaluates whether the shutdown of an entire industry, where all minks were euthanized within two weeks and it became illegal to farm mink in Denmark, affected the mental health of persons working with mink farming and their families.

Methods: Persons working with mink farming and their family (mink population) were identified from the Danish occupational registers and the Civil Registration System. Information on redemption of relevant medication prescribed to treat depression was retrieved from The Danish National Prescription Register. Changes in redemptions of anti-depressive medication for the mink population and the matched population was compared before and after the directive in a difference-in-difference analysis using a repeated measures logistic regression model.

Results: The likelihood of redemptions of anti-depressive medication increased among in the mink population after the directive to cull off all minks in Denmark was given. This impact was statistically significant. The results were driven by increased relative risks among persons employed on mink farms and farm owners. Further, change in the likelihood of redemptions of anti-depressive medication after the directive appeared to increase more per month in the mink population although the differences were not statistically significant.

Conclusions: The results found for in this paper could be transferable to persons in other occupations facing similar consequences from implementation of structural policies.

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