18. JAHRESTAGUNG DGEPI

EPIDEMIOLOGIE IM WANDEL – INNOVATIONEN UND HERAUSFORDERUNGEN


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26.–28. SEPTEMBER 2023 | WÜRZBURG

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DG. Epi DEUTSCHE GESELLSCHAFT FÜR EPIDEMIOLOGIE

THEMENÜBERSICHT | VORTRÄGE

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VS2	AG-SESSION – AG8 KREBSEPIDEMIOLOGIE (1/2)
VS3	AG-SESSION – FREIE THEMEN/NACHWUCHSGRUPPE EPIDEMIOLOGIE
VS4	AG-SESSION – AG4 EPIDEMIOLOGISCHE METHODEN + AG9 STATISTISCHE METHODEN IN DER EPIDEMIOLOGIE (1/2)
VS5	AG-SESSION – AG15 HEALTH GEOGRAPHY
VS6	AG-SESSION – AG7 EPIDEMIOLOGIE DER HERZKREISLAUF- UND STOFFWECHSELERKRANKUNGEN (2/2)
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VS9	AG-SESSION – AG12 ERHEBUNG UND NUTZUNG VON SEKUNDÄRDATEN (AGENS)
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VS12	AG-SESSION – AG16 SOZIALEPIDEMIOLOGIE (1/2)
VS13	AG-SESSION – AG1 INFEKTIONSEPIDEMIOLOGIE (2/2)
VS14	AG-SESSION – AG14 NEUROLOGISCHE UND PSYCHIATRISCHE EPIDEMIOLOGIE (1/2)
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VS18	AG-SESSION – AG17 EPIDEMIOLOGIE DES ALTERNS
VS19	AG-SESSION – AG10 UMWELTMEDIZIN, EXPOSITIONS- UND RISIKOABSCHÄTZUNG
VS20	AG-SESSION – AG5 ERNÄHRUNGSEPIDEMIOLOGIE
VS21	AG-SESSION – AG2 PÄDIATRISCHE EPIDEMIOLOGIE

THEMENÜBERSICHT | POSTER

PS1	POSTERSESSION – AG6 GENETISCHE EPIDEMIOLOGIE + AG10 UMWELTMEDIZIN, EXPOSITIONS-UND RISIKOABSCHÄTZUNG + AG11 PHARMAKOEPIDEMIOLOGIE
PS2	POSTERSESSION – AG4 EPIDEMIOLOGISCHE METHODEN + AG12 ERHEBUNG UND NUTZUNG VON SEKUNDÄRDATEN (AGENS)
PS3	POSTERSESSION – AG8 KREBSEPIDEMIOLOGIE (1/2)·
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PS6	POSTERSESSION – AG8 KREBSEPIDEMIOLOGIE (2/2) + AG3 EPIDEMIOLOGIE DER ARBEITSWELT
PS7	POSTERSESSION – AG5 ERNÄHRUNGSEPIDEMIOLOGIE + AG17 EPIDEMIOLOGIE DES ALTERNS
PS8	POSTERSESSION – FREIE UND FACHÜBERGREIFENDE THEMEN
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THEMENÜBERSICHT | WORKSHOPS

NAKO	NAKO WORKSHOP
WS1	WORKSHOP 1 – CAREER PERSPECTIVES FOR EPIDEMIOLOGISTS
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WS3	WORKSHOP 3 – INTERVENTION STUDIES
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WS5	WORKSHOP 5 – LOVE YOUR DATA!
WS6	WORKSHOP 6 – DISTRIBUTED ANALYSIS OF SENSITIVE DATA
WS8	WORKSHOP 8 – FEDERATED DATA ANALYSIS OF PERSONAL HEALTH RELATED DATA USING DATASHIELD
WS9	WORKSHOP 9 – USING NATURAL EXPERIMENTS AMONG MIGRANTS TO ADVANCE UNDERSTANDING OF CONTEXTUAL HEALTH EFFECTS
VS10	WORKSHOP 10 – HOW TO ENSURE AND MEASURE PUBLIC HEALTH IMPACT OF MODELLING OF INFECTIOUS DISEASE DYNAMICS
WS12	WORKSHOP 12 – PLANETARE GESUNDHEIT IN DER DGEPI

VORTRÄGE

26. SEPTEMBER 2023
11:00 AM – 12:30 PM

VS1 | AG-SESSION – AG7 EPIDEMIOLOGIE DER HERZKREISLAUF- UND STOFFWECHSELERKRANKUNGEN (1/2)

VS1-01

PLASMA ZINC AND COPPER/ZINC RATIO IN THE GENERAL POPULATION: A CROSS-SECTIONAL ANALYSIS OF ANTHROPOMETRIC AND METABOLIC CORRELATES.

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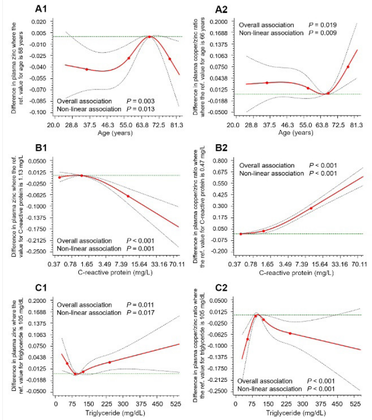
INTRODUCTION
Adequate zinc (Zn) and copper (Cu) concentrations are important for human health. We aimed to identify anthropometric and metabolic correlates of Zn and the copper/zinc ratio (Cu/Zn).

METHODS
In a community-based sample (n=894, 43% females, age: 61±12 y), plasma Zn and Cu were measured by inductively coupled plasma-mass spectrometry. Body mass index (BMI), waist circumference (WC), waist-to-hip-ratio (WHR), C-reactive protein (CRP), triglyceride (TG), high-density (HDL) and low-density lipoprotein (LDL) cholesterol concentrations were assessed. Non-linear associations of anthropometric and metabolic traits (exposure) with Zn and Cu/Zn (outcome) were assessed using restricted cubic splines regression adjusted for potential confounders. Linear associations were assessed in multivariable-adjusted regression models. In subsamples, subcutaneous (SAT) and visceral (VAT) adipose tissue (n=569) and liver fat (LF) (n=567), derived by magnet resonance imaging, were assed for non-/linear associations with Zn and Cu/Zn.

RESULTS
BMI, WC or WHR were not associated with Zn and Cu/Zn in non-/linear models. Each 1-SD-increment in LDL was associated with an increase in Zn by 1.81 µg/L (95% CI: 0.96; 2.66) (*P*<0.001), while each 1-SD-increment in HDL was associated with an increase in Cu/Zn by 1.99 (95% CI: 0.26; 3.75) (*P*<0.05). The associations of age with Zn and Cu/Zn were inversely U-shaped and U-shaped, respectively (Fig. A1, A2). The association of CRP with Zn was reverse J-shaped (Fig. B1), whereas CRP was associated J-shaped with Cu/Zn (Fig. B2). The associations of TG with Zn and Cu/Zn were U-shaped and inversely U-shaped, respectively (Fig. C1, C2). In addition, Zn was directly associated with VAT and LF (all *P*<0.05), while Cu/Zn was inversely associated with LF (*P*<0.05).

CONCLUSIONS/OUTLOOK
In our cohort, Zn was associated with unfavorable traits of lipid metabolism (e.g. higher LDL and LF), whereas Cu/Zn appears to be associated more favorably with lipid metabolism (e.g. higher HDL and lower LF).



Restricted cubic splines regression for plasma zinc concentrations and copper/zinc ratio (n=894).

A1: Multivariable-adjusted RCS for plasma zinc concentration in relation to age; A2: Multivariable-adjusted RCS for copper/zinc ratio in relation to age.

B1: Multivariable-adjusted RCS for plasma zinc concentration in relation to C-reactive protein; B2: Multivariable-adjusted RCS for copper/zinc ratio in relation to C-reactive protein.

C1: Multivariable-adjusted RCS for plasma zinc concentration in relation to triglyceride concentration; C2: Multivariable-adjusted RCS for copper/zinc ratio in relation to triglyceride concentration.

RCS, restricted cubic splines regression.

VS1-02

INCIDENCE TREND OF TYPE 2 DIABETES IN GERMANY FROM 2012 TO 2021: ANALYSIS OF BAVARIAN HEALTH CLAIMS DATA

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INTRODUCTION
Due to missing national and federal diabetes registries, reliable data about diabetes incidence and its regional distribution are lacking in Germany. The study aims to describe the time trend of type 2 diabetes incidence in Bavaria, Germany from 2012 to 2021 and to compare the incidence rates in the pandemic period (2020-2021) to the reference period (2012-2019).

METHODS
This ecological study uses health claims data provided by the Bavarian Association of Statutory Health Insurance Physicians (KVB), covering approximately 85% of the total population of Bavaria, Germany. Newly diagnosed type 2 diabetes (T2D) cases of adults (≥20 years) coded as E11 and E14 (ICD-10-GM) for the study period 2012 - 2021 were included. Age-standardized incidence rate (ASIR) stratified by sex-, age- and region was calculated. Regional ASIR was calculated for all seven districts and 96 counties of Bavaria. Regression analysis was used to analyze the incidence trend and to assess the pandemic effect.

RESULTS
Overall, 745,861 new T2D cases were diagnosed from 2012 to 2021: 50.4% (376,193 cases) in women. Male/female ratio remained stable over the study period, while median age at diagnosis decreased from 61 to 58 years in men and from 65 years to 61 years in women. An overall decreasing trend in ASIR was observed during the study period with a rapid decrease from 2012 to 2017, followed by a less pronounced decline from 2018 to 2021. This downward trend was also seen for age groups 50+ years. All Bavarian districts and most counties showed a similar decreasing pattern and no major regional differences were detected. Regression analysis showed no significant change in incidence rates in the pandemic period (2020 – 2021), when comparing it to the previous period.

CONCLUSIONS/OUTLOOK
Our study shows a strong declining trend in T2D incidence from 2012 to 2017, followed by less pronounced decline from 2018-2021. The incidence of T2D appears not to be affected by the first two years of the COVID-19 pandemic.

VS1-03

INCIDENCE OF TYPE 1 DIABETES FROM 2012 TO 2021 IN CHILDREN AND ADOLESCENCE IN GERMANY

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INTRODUCTION
Type 1 Diabetes (T1D) is one of the most common chronic conditions in children and adolescents in Germany. However, reliable data on the long-term development of T1D incidence rates in Bavaria is limited due to the lack of a federal Diabetes registry. The aim of this study is to analyse the development of T1D incidence rates from 2012 to 2021 and to compare the incidence rates of the pre-pandemic period (2012-2019) with the pandemic period (2020-2021) in the Bavarian paediatric population.

METHODS
Routinely collected health claims data provided by the Statutory Health Insurance Physicians (KVB) is used. We counted all paediatric cases (aged ≤ 19 years) of newly diagnosed T1D cases
(ICD-10 E10) for the study period 2012-2021. Annual and quarterly age-standardized incidence rate (ASIR) stratified by sex was calculated (European standard population). Sex-specific crude incidence rates (CIR) were calculated by 5-year age groups. Regional ASIR was calculated for all seven districts of Bavaria.

RESULTS
ASIR per 100,000 person years showed an increasing trend from 2012 to 2021 (girls: from 23.5 in 2012 to 32.5 in 2021; boys: from 25.2 to 38.9). Boys consistently showed higher rates of incident T1D. The mean age of diagnosis has slightly decreased from 11.3 in 2012 to 10 in 2021 for boys and remained constant for girls (from 10.5 years to 10.4 years). Compared to 2019, the yearly ASIR has increased in 2020 with the start of the pandemic (girls: from 26.7 to 33.2; boys: from 33.1 to 36.2). Regional analysis of ASIR indicated an overall increasing pattern over the study period for all administrative districts except for Upper Bavaria.

CONCLUSIONS/OUTLOOK
T1D incidence rates in childhood and adolescence are on the rise. This calls for continuous research and education about the causes, management and prevention of T1D in order to improve outcomes and reduce the overall burden of disease.

VS1-04

INCIDENCE OF TYPE 1 AND TYPE 2 DIABETES BEFORE AND DURING THE COVID-19 PANDEMIC IN GERMANY: A RETROSPECTIVE CLAIMS DATA ANALYSIS

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INTRODUCTION
Several countries have observedan increase in diabetes mellitus (DM) incidence following the COVID-19 pandemic. We investigated time trends in type 1 and type 2 DM incidence before and during the pandemic based on routine health data.

METHODS
Analyses are based on anonymized routine health data from approximately 9 million persons covered by statutory health insurances in Germany. We estimated time trends in DM incidence from 2015 to 2021. The case definition of new-onset DM in a given year was based on ICD-10-GM codes E10-E14 and required a documented diagnosis of DM at least once in the inpatient setting or in two quarters in the outpatient setting. We distinguished incident cases of type 1 and type 2 DM based on ICD-10-GM codes, prescribed medication and age. We present age-standardized incidence of type 1 and type 2 DM per 100.000 persons adjusted to the population in Germany as of 31.12.2021 and stratified by sex, age group, year, and quarter within a given year.

RESULTS
Among persons with new-onset DM 96.2% were diagnosed as having type 2 DM compared to 1.5% with type 1 DM. From 2015 to 2021, the annual age-standardized incidence of type 1 DM continuously increased from 9.5 to 11.6 per 100,000 persons, corresponding to a rise from 7,117 to 8,699 new cases. The increase in type 1 DM incidence was more pronounced among children and adolescents compared to adults. Incidence per 100,000 in type 2 DM declined and stagnated from 738 in 2015 to 698 in 2019. In 2020, the incidence of type 2 DM decreased to 631, then increased to 740 per 100,000 in 2021. Commonly observed seasonal variations (winter increase) in the incidence of DM were observed in 2015-2019, but not in 2020 or 2021.

CONCLUSIONS/OUTLOOK
In line with reports from other countries, we observed an increase in DM incidence in Germany following the COVID-19 pandemic. We provide evidence that this extends to both types of DM. Factors driving the increase in DM incidence need further investigation.

VS1-05

MEDIIERT DER HBA1C-WERT DEN ZUSAMMENHANG ZWISCHEN BILDUNG UND KOGNITIVEN FÄHIGKEITEN?

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INTRODUCTION
Höhere Bildung steht in einem positiven Zusammenhang mit den kognitiven Fähigkeiten (KF). Die Pfade, über die die Bildung mit KF verbunden sind, sind noch relativ wenig erforscht. Höhere Werte von glykosiertem Hämoglobin (HbA1c) können zu einer Verschlechterung der KF führen. Die Assoziation von Bildung und KF könnte teilweise über den HbA1c-Wert erklärt werden.

METHODS
Zur Analyse wurden niederländische Paneldaten der *Lifelines* Kohortenstudie (2006-2015) verwendet. Das Analysesample umfasst 19.878 Personen, die zu Studienbeginn 50+ Jahre alt waren. Zur Messung der KF wurden altersstandardisierte Reaktionszeiten von Tests zur psychomotorischen Funktion und Aufmerksamkeit aus der *Cogstate Brief Battery* zum Follow-up genutzt. Dabei geben längere Reaktionszeiten schlechtere KF an. Der HbA1c-Wert wurde zu Beobachtungsbeginn gemessen. Zur Schätzung direkter, indirekter und totaler Effekte von Bildung auf die KF wurden lineare Strukturgleichungsmodelle verwendet und für Geschlecht, Alter, Einkommen, physische Aktivität, Komorbiditäten und die individuelle Test-Trefferquote kontrolliert.

RESULTS
Je höher die Personen gebildet waren, desto kürzer waren ihre Reaktionszeiten (niedrig: ref; mittel: $b=-0.125$ $p<0.01$; hoch: $b=-0.268$ $p<0.01$). Ein Anstieg des HbA1c-Werts war mit längeren Reaktionszeiten und damit niedrigeren KF verbunden ($b=0.031$ $p=0.02$). Gleichzeitig zeigt sich ein signifikanter Effekt der Bildung auf den HbA1c-Wert (niedrig: ref; mittel: $b=-0.023$ $p<0.01$; hoch: $b=-0.035$ $p<0.01$). Die wichtigste Entdeckung ist jedoch ein signifikanter indirekter Effekt von Bildung auf die KF via den HbA1c-Wert (niedrig: ref; mittel: $b=-0.0007$ $p=0.06$; hoch: $b=-0.001$ $p=0.03$).

CONCLUSIONS/OUTLOOK
Der nachteilige Effekt von niedriger Bildung auf die KF wird teilweise durch den HbA1c-Wert erklärt. Rechtzeitige Überwachung und Regulierung des Blutzuckerspiegels könnte eine Präventionsmöglichkeit darstellen, um kognitiven Einschränkungen zu begegnen und den Nachteil durch niedrigere Bildung beim kognitiven Abbau zu verringern.

VS1-06

LONGITUDINAL ASSOCIATION OF A LIFESTYLE RISK INDEX WITH TYPE 2 DIABETES IN THE MULTIETHNIC COHORT

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INTRODUCTION
Common behaviors captured in a composite Lifestyle Risk Index (LSRI), i.e. physical activity, healthy diet, not smoking, and moderate alcohol consumption, may protect against type 2 diabetes (T2D).

METHODS
This prospective analysis evaluated the association of LSRI with T2D incidence in the Multiethnic Cohort. The study population included 172230 White (W), African American (AA), Native Hawaiian (NH), Japanese American (JA), and Latino (L) participants with 46500 incident T2D cases identified through repeated self-reports and administrative data with a mean follow-up time of 17 years. LSRI components were assessed by questionnaire at baseline and the score was computed by assigning 1 point each for not smoking, physical activity (≥1.5 hrs/week), consuming
<1 (women) or <2 (men) alcoholic drinks/day, and adhering to ≥3 of 7 food recommendations. Hazard ratios (HR) with 95% confidence intervals were estimated by Cox regression with age as time metric, sex and ethnicity as strata variables, and adjusted for BMI and education.

RESULTS
Overall, LSRI scores were 0/1 (15%), 2 (41%), 3 (35%), and 4 (9%). Mean scores by ethnicity ranged from 2.48±0.85 (JA) to 2.28±0.89 (AA; p<0.0001). The respective HRs (95%CI) for LSRI scores of 2, 3 and 4 vs. 0/1 were 1.01 (0.98-1.04), 0.93 (0.90-0.95) and 0.86 (0.83-0.90) with a significant trend (p<0.0001). Smoking (12%), lack of physical activity (17%) and unhealthy diet (4%) significantly increased, whereas elevated alcohol intake significantly reduced T2D risk by 16%. Across ethnic groups, a score of 4 vs. 0/1 significantly lowered T2D risk for AA (HR 0.75, 0.68-0.83; p<0.0001), L (HR 0.83, 0.76-0.90; p<0.0001), and JA (HR 0.92, 0.85-0.99; p=0.0002) but not NH (HR 0.97, 0.84-1.11; p=0.75) and W (HR 0.94, 0.85-1.04; p=0.11).

CONCLUSIONS/OUTLOOK
These findings support the role of lifestyle factors in T2D prevention beyond maintaining a normal BMI although not all LSRI components impact T2D risk to the same degree and across ethnic groups.

26. SEPTEMBER 2023
11:00 AM – 12:30 PM

VS2 | AG-SESSION – AG8 KREBSEPIDEMIOLOGIE (1/2)

VS2-01

DISPARITIES AND TEMPORAL PATTERNS IN INCIDENCE OF CHILDHOOD CANCER IN GERMANY, 1980 – 2019: 40 YEARS OF CHILDHOOD CANCER REGISTRATION IN GERMANY

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[2] *International Agency for Research on Cancer, World Health Organization (IARC/WHO), Environment and Lifestyle Epidemiology Branch, Lyon, France*
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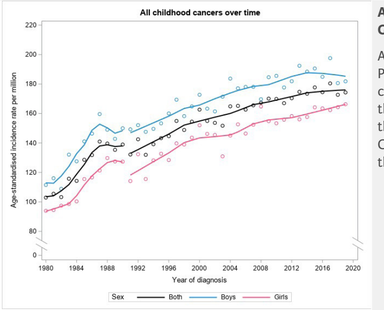
INTRODUCTION
The aetiology of most childhood cancers remains poorly understood. Comparing incidence patterns over time and between populations stimulates aetiological research and informs health policy. However, high-quality data covering several decades of paediatric cancer ascertainment is sparse. With this report we provide an extensive assessment of 40-year incidence patterns of childhood cancer in Germany.

METHODS
We identified all incident childhood cancer cases (defined according to the International Classification of Childhood Cancer, third edition) diagnosed before the age of 15 years between 1980 and 2019 from the German Childhood Cancer Registry (N=65,163). We evaluated incidence patterns and temporal trends by calculating age-specific, age-standardised (ASR), and cumulative incidence rates and sex ratios. For time-trend analyses, we used Joinpoint regression analysis.

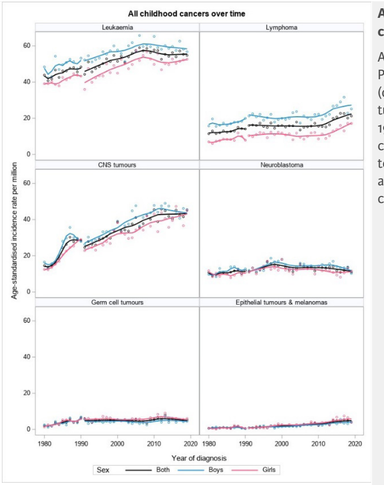
RESULTS
Trend analyses showed a statistically significant increase in ASRs for childhood cancer overall (from 122.8 per million in 1980-1989 to 173.4 per million in 2010-2019) as well as across diagnostic groups and age groups. We observed the steepest increase in ASRs (4.9% on average per annum for all cancer types combined) in the first years of registration (1980-1987), mostly driven by the sharp increase in the ASRs of CNS tumours, soft tissue sarcoma, and germ cell tumours. Since the 1990s, temporal patterns varied across diagnostic groups; changes were generally less pronounced than during the 1980s. The incidence of leukaemia continued to increase slowly until the year 2007. Over the period from 1990 to 2019, boys were somewhat more frequently diagnosed than girls, children aged <5 years had the highest age-specific incidence and ASRs were highest for leukaemias and CNS tumours.

CONCLUSIONS/OUTLOOK
The steep increase in ASRs during the first years of registration is primarily attributable to improvements in registration and diagnostics. Explanations for the recent more heterogeneous
temporal patterns remain speculative.



Age-standardised incidence rates of childhood cancer in Germany, 1980-2019

Age-standardised incidence rates (using Segi World Standard Population) of childhood cancer (cancer in 0-14 year-olds, all cancer diagnoses combined) in Germany, 1980-2019. Before the German reunification only paediatric cancer cases from the area of Western Germany were reported to the German Childhood Cancer Registry, while since 1991 also the area of the former German Democratic Republic is covered.



Age-standardised incidence rates of selected childhood cancer types

Age-standardised incidence rates (using Segi World Standard Population) of (a) leukaemia, (b) lymphoma, (c) CNS tumours, (d) neuroblastoma, (e) germ cell tumours and (f) epithelial tumours and melanomas in 0-14 year-olds in Germany, 1980-2019. Before the German reunification only paediatric cancer cases from the area of Western Germany were reported to the German Childhood Cancer Registry, while since 1991 also the area of the former German Democratic Republic is covered

VS2-02

DISPARITIES AND TEMPORAL PATTERNS OF CHILDHOOD CANCER SURVIVAL 1991–2016: A NATIONWIDE ASSESSMENT BASED ON DATA FROM THE GERMAN CHILDHOOD CANCER REGISTRY

Wellbrock M.[1,2], Spix C.[1], Ronckers C.[1], Grabow D.[1], Filbert A.-L.[1], Borkhardt A.[3,4], Wollschläger D.[5], Erdmann F.[1,2]

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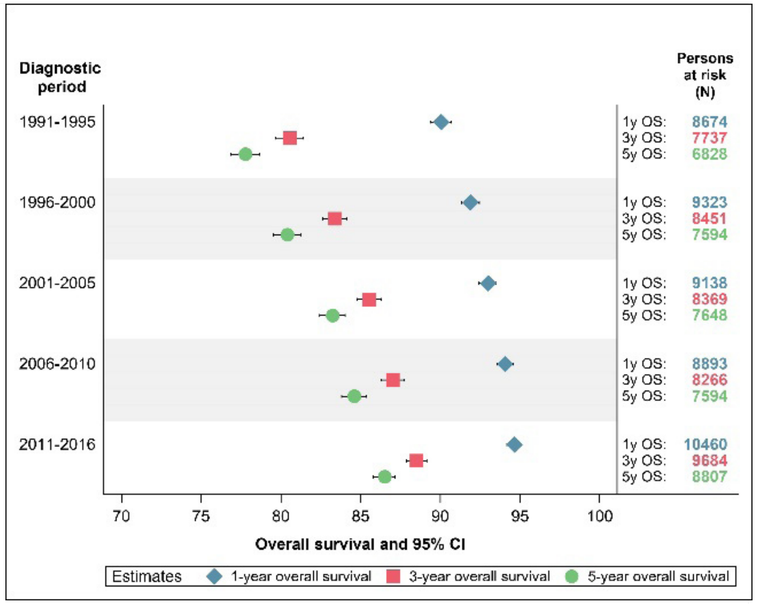
INTRODUCTION
Childhood cancer is the leading disease-related cause of death among under 15-year olds in Europe and is associated with a high burden of disease for patients and their relatives, and may have far-reaching adverse somatic and psychosocial consequences for later life. Since primary preventive measures are lacking, improving survival probabilities and subsequently maintaining long-term well-being remain primary goals. With this report, we provide the first long-term assessment and interpretation of patterns in childhood cancer survival in Germany spanning 30 years.

METHODS
Based on data from the German Childhood Cancer Registry, we assessed temporal patterns of cancer survival among children (0-14 years) diagnosed in Germany from 1991-2016 by cancer type, age at diagnosis, and sex. We calculated overall survival (OS) and average annual percentage changes of the respective five-year OS estimates using Joinpoint regression analysis.

RESULTS
OS improved over time across all cancer types, age groups as well as for boys and girls. Five-year OS for all childhood cancers combined increased from 77.8% in 1991-1995 to 86.5% in 2011-2016, with stronger improvements during the early 1990s. The most pronounced survival improvement was seen for acute myeloid leukaemia, at 2% annually with five-year OS recently reaching 81.5%. Survival improvements for some diagnoses such as neuroblastoma, renal tumours and bone tumours have flattened out.

CONCLUSIONS/OUTLOOK
Tremendous enhancements in diagnostics, treatment, and supportive care have affected average survival improvements for most cancer types. Recently, survival improvements have decelerated overall and for some specific cancer types, it plateaued at an unsatisfactory level. As not all children benefited equally from the survival improvements, personal factors (e.g. socioeconomic circumstances, health literacy, access to care) likely affect individual prognosis and warrant further investigation.



Childhood cancer survival in Germany

Age-adjusted one-, three- and five-year overall survival from childhood cancer among children diagnosed at ages 0-14 between 1991 and 2016 in Germany for all cancer types combined.
Overall survival estimates are weighted according to the age distribution in 1991-2016.

VS2-03

SECOND TUMOUR AFTER CHEMOTHERAPY FOR CHILDHOOD CANCER – DOSE-RESPONSE RELATIONSHIPS FROM THE GERMAN STATT STUDY

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INTRODUCTION
Survival after childhood cancer has improved considerably over the last decades. Hence, more Subsequent Primary Neoplasms (SPN) are observed. Unlike chemotherapy, radiotherapy (RT)
dose-related SPN-risks are well-studied. We conducted a nested case-control study, Second Tumour After Tumour Therapy (STATT), to provide dose response curves for the risk of a SPN for chemotherapy-agents used in paediatric oncology.

METHODS
SPN cases and matched controls (without SPN) were selected from the German Childhood Cancer Registry (1980-2014, 6-month survivors). Treatment data was acquired from clinical and treatment study databases. We performed weighted aggregation of the substances into 12 substance groups. The quantitative association between the chemotherapeutic doses administered for paediatric cancer and the risk for developing a SPN was estimated using Fractional Polynomials with spike at zero in a conditional logistic regression setting.

RESULTS
1244 SPN cases fulfilled the inclusion criteria and 1-4 controls per case were available, matched by sex, diagnosis year, and birth year (risk set sampling). In the best predictive multiple model including eight substance groups (continuous dose) and RT (yes/no, Odds Ratio (OR): 5.26, 95% Confidence Interval: 3.39-8.14), only epipodophyllotoxins (e.g. OR 9.86 (2.21-44.00)
for 330 mg/m²) clearly increased the risk of a SPN. Anthracyclines (only patients with RT: OR 0.32 (0.22-0.45)) and vinca alkaloids (only patients without RT: OR 0.67 (0.49-0.92)) were associated with decreased SPN risk not depending on the dose, but modified by RT. Dose-response curves were generally not linear.

CONCLUSIONS/OUTLOOK
The large database and representative population of childhood cancer survivors allowed quantifying the dose-response relationship for cumulative doses of chemotherapeutic substance groups administered during the treatment of a first tumour on the risk for SPN in Germany. The complex model only identified epipodophyllotoxins as a clear risk factor for SPN.

VS2-04

TRAJECTORIES OF QUALITY OF LIFE IN PATIENTS WITH CHILDHOOD CRANIOPHARYNGIOMA – A LINEAR MIXED MODEL ANALYSIS

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INTRODUCTION
Childhood-onset craniopharyngioma (CP) is a tumor of low histological malignancy but with extensive consequences for the individual. Due to improved diagnostics and treatment options, patients face decades of survival. Quality of life (QoL) has become a critical component of aftercare in survivors of CP. The aim of this study was to analyze trajectories of quality of life in patients with childhood-onset CP and to assess the association with clinical and anthropometric factors.

METHODS
From the registry studies KRANIOPHARYNGEOM 2007/2019, 234 patients with CP participated in the QoL assessment and were included in this analysis. Age at diagnosis was categorized in <2, 2–<6, 6–<12 and 12–<18 years. Presurgical hypothalamic involvement (HI) and post-surgical lesion (HL) were categorized in anterior and posterior by neuroradiological assessment. QoL was measured using the PEDQOL questionnaire in parental- and self-assessment three months till eight years after diagnosis, where higher scores indicate worse QoL. Multivariable linear mixed models were applied to assess time-varying PEDQOL scores with fixed effects for age at diagnosis, BMI SDS at diagnosis, hypothalamic damage and time of assessment, with a random intercept and a time-varying slope for each patient.

RESULTS
In self- and parental-assessment, higher BMI SDS at diagnosis (β_s=1.19, 95% CI 0.43-1.94; β_p=1.23, 95% CI 0.42-2.04) and posterior HI and HL (β_s=11.75, 95% CI 3.93-19.57; β_p=13.12, 95% CI 4.42-21.81) were associated with a worse body image. A decrease in emotional function was associated with posterior HI and posterior HL (β_s=10.24, 95% CI 3.99-16.49; β_p=10.91, 95% CI 4.04-17.78) and posterior HI and anterior HL (β_s=7.79, 95% CI 1.3-14.29; β_p=7.82, 95% CI 0.67-14.96). Physical function was reduced when posterior HI and HL was present (β_p=15.08, 95% CI 5.23-24.92).

CONCLUSIONS/OUTLOOK
Patients with posterior HI and HL and higher BMI SDS at diagnosis are at risk for a decreased QoL in body image, physical and emotional function.

VS2-05

A RAPID REVIEW ON THE IMPACT OF THE COVID-19 PANDEMIC ON ONCOLOGICAL CARE IN GERMANY

Zeeb H.[1], Helmer S.[2], Barnes B.[3], Kraywinkel K.[3], Imhoff M.[3], Müller-Eberstein R.[3], Kirstein M.[1], Quatmann A.[2], Simke J.[2], Stiens L.[2], Christianson L.[1], De Santis K.[1]

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INTRODUCTION
The COVID-19 pandemic affected medical care for chronic diseases. This study aimed to systematically review scientific reports on the impact of the pandemic on oncological care in Germany.

METHODS
We searched MEDLINE, Embase, study and preprint registries and study bibliographies for reports published between 2020 and November 2022. Based on the PCC framework - population (cancer), concept (oncological care) and context (COVID-19 pandemic in Germany) - we included studies following title/abstract and full-text screening. Extracted data were synthesized using descriptive statistics or narrative descriptions of common themes. Risk of bias in included studies was assessed and descriptively summarized.

RESULTS
From an initial set of 6196 hits, 59 peer-reviewed studies and 18 reports without peer-review were included. Administrative records, cancer registries and surveys were the main data sources. Disruptions in oncological care in Germany varied according to pandemic-related factors (e.g., pandemic stage) and other factors (e.g., patient characteristics, cancer type and setting). Most consistent disruptions occurred during higher restriction periods, with reports of fewer consultations, delayed diagnosis and screening, and fewer elective surgeries. Heterogeneous results were reported for non-surgical treatment (e.g., psychosocial care) and aftercare, while ongoing care remained mostly unchanged.

CONCLUSIONS/OUTLOOK
There were disruptions in oncological care that occurred during the COVID-19 pandemic and probably depended on various pandemic-related and other factors. Future research should focus on patient outcomes (e.g., longer-term consequences of disruptions) and pandemic management by healthcare systems.

VS2-06

EINFLUSS DER COVID-19-PANDEMIE AUF DIE KREBSINZIDENZ IN NIEDERSACHSEN: EINE BEVÖLKERUNGSBEZOGENE STUDIE DES EPIDEMIOLOGISCHEN KREBSREGISTERS NIEDERSACHSEN (EKN)

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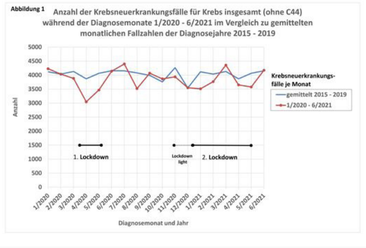

Abbildung 1 Krebs gesamt

INTRODUCTION
Studien haben gezeigt, dass Krebsdiagnostik und -behandlungen während der COVID-19-Pandemie (C19-P) eingeschränkt waren. Wir untersuchten, ob sich dies auch in den Inzidenzdaten des Epidemiologischen Krebsregisters Niedersachsen widerspiegelt. Besonders betrachtet wurden Diagnosen, für die Screeninguntersuchungen angeboten werden, sowie ausgewählte Diagnosen, die überwiegend in einem fortgeschrittenen Stadium entdeckt werden. In der ersten Gruppe ist ein stärkerer Einfluss durch die Pandemie zu erwarten.

METHODS
Die Anzahl der Neuerkrankungsfälle für Krebs gesamt (ICD-10 C00-C96 ohne C44) sowie Darmkrebs (C18-21), Malignes Melanom (C43), Brustkrebs (C50), Gebärmutterhalskrebs (C53), Prostatakrebs (C61), Pankreaskrebs (C25) und Lungenkrebs (C33+C34) der Diagnosemonate 1/2020-6/2021 werden im Vergleich mit den gemittelten monatlichen Fallzahlen der Jahre 2015-2019 (ohne DCO-Fälle) dargestellt. Weiterhin werden altersstandardisierte Inzidenzraten (ASR) für 2020 mit den gemittelten Raten für die Jahre 2015-2019 verglichen (alle Berechnungen mit CARESS 9.12.0.0).

RESULTS
Die ASR für Krebs gesamt nahm 2020 gegenüber dem Vergleichszeitraum um 7,1% ab von 384,5 [95%-KI 382,9-386,2] auf 357,4 [353,9-360,9]; Darmkrebs -12,8%, Malignes Melanom -8,4%, Lungenkrebs -7,6%, Prostatakrebs -6,2%, Brustkrebs -2,3%. Bei Pankreas- und Gebärmutterhalskrebs wurden dagegen Anstiege um 4,3% und 3,1% beobachtet. In der monatlichen Darstellung (s. Abbildung 1) zeigte sich der stärkste Rückgang der Fallzahlen für Krebs gesamt in den ersten C19-P Lockdown-Monaten im Jahr 2020. Dies gilt auch für die anderen Diagnosen außer C25 und C53.

CONCLUSIONS/OUTLOOK
Die beobachteten niedrigeren Inzidenzraten sind mit diagnostischen Verzögerungen bei der Krebsdiagnose in den Lockdown-Monaten der C19-P vereinbar. Die konträre Beobachtung beim Pankreaskrebs entspricht den Erwartungen. Die höheren Zahlen beim Gebärmutterhalskrebs werden diskutiert.

VS2-07

COVID-19 PANDEMIC AND REPORTED CANCER CASES IN BAVARIA

Voigtländer S.[1], Hakimhashemi A.[1], Grundmann N.[1], Radespiel-Tröger M.[1], Inwald E.[2], Ortmann O.[2], Gerken M.[3], Klug S.[4], Klinkhammer-Schalke M.[3], Meyer M.[1], Müller-Nordhorn J.[1]

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INTRODUCTION
In this study, we explored the impact of the COVID-19 pandemic on reported cancer cases in Bavaria, by comparing the first year of the pandemic (March 2020 to February 2021) with the year before the pandemic (March 2019 to February 2020).

METHODS
We retrieved data from the Bavarian Cancer Registry (until 22nd April 2022) and included incident cancer cases reported by pathology departments with consistent reporting throughout the study period. We compared the number of incident cases during the first year of the pandemic and the year preceding the pandemic. Relative changes were estimated based on a t-distribution with 95% confidence intervals (CI) with Bonferroni correction ($\alpha = 0.0018$). We stratified for malignancy (malignant, in situ), tumour site, and month of year.

RESULTS
We included 30 out of 58 pathology departments (51.7%) in Bavaria. Our analysis showed that malignant neoplasms significantly declined from 42,857 cases in the year before the pandemic to 39,980 during the first year of the pandemic (– 6.7%; 95% CI – 8.7%, – 4.7%). Regarding tumour sites, reductions were more pronounced for colon, rectum, skin/melanoma as well as liver (> 10.0% reduction), while they were smaller for breast cancer (4.9% reduction). We observed no decline for pancreas, oesophagus, ovary, and cervix. Regarding carcinoma in situ, reductions tended to be higher compared to malignant neoplasms.

CONCLUSIONS/OUTLOOK
The COVID-19 pandemic was associated with a substantial reduction of reported cancer cases, especially during lockdown periods. To assess the impact of the pandemic, potential effects such as a stage shift of tumours or an increased cancer mortality need to be monitored.

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Voigtländer, S. et al. (2023). Impact of the COVID-19 pandemic on reported cancer diagnoses in Bavaria, Germany. *Journal of Cancer Research and Clinical Oncology*. https://doi.org/10.1007/s00432-023-04707-0

26. SEPTEMBER 2023
11:00 AM – 12:30 PM

VS3 | AG-SESSION – FREIE THEMEN/NACHWUCHSGRUPPE EPIDEMIOLOGIE

VS3-01

ANALYSIS OF BAVARIAN HEALTH CLAIMS DATA ON IMMUNIZATION RATES IN THE ELDERLY IN BAVARIA: INFLUENZA, PNEUMOCOCCUS AND HERPES ZOSTER

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INTRODUCTION
Vaccination is an important pillar of prevention especially in elderly people whose immune system's function decline with age. The COVID-19 pandemic and its associated lockdowns temporarily disrupted delivery of routine services, including vaccination. In this analysis, we assessed rates of immunization for influenza, pneumococcus and herpes zoster among elderly in Bavaria over time and investigated potential effects of the COVID-19 pandemic on these rates.

METHODS
Based on health claims data from the Bavarian Association of Statutory Health Insurance Physicians (KVB), we estimated the percentage of adults aged 60 years or above who have been immunized per standard recommendation for influenza (yearly dose, 2013-2021), pneumococcus (two doses, 2017-2021) and Herpes zoster (two doses, 2019-2021 by the Standing Committee on Vaccination (STIKO). Our analyses were additionally stratified by 10-year age group and sex.

RESULTS
The immunization rates for influenza was between 27% and 30% before the pandemic, increasing to 40% in the first year of the pandemic (2020) and slightly decreasing to 36% in 2021. The rates increased progressively for Herpes and Pneumococcus: from 0.8% to 2.6% and 2.4% to 20.1%, respectively. No sex differences were observed. The age group 80-89 years had the highest immunization rates for influenza and the 70-79 year age group had the highest rates for pneumococcus and herpes zoster. The 60-69 year age group had the lowest vaccination rates for Influenza whilst the 90+ age group had lowest rates for herpes zoster and pneumococcus.

CONCLUSIONS/OUTLOOK
We observed increasing vaccination rates for influenza, pneumococcus and herpes zoster during the COVID-19 pandemic. This might be a result of increased vaccination awareness, which developed during the pandemic. More efforts are needed to sustain and increase these rates as the pandemic effect wanes.

VS3-02

LIFESTYLE CHANGES AND MENTAL HEALTH DURING THE COVID-19-PANDEMIC IN YOUNG ADULTS OF THE GINIPLUS STUDY

Wagner S.[1,2], Kraus U.[2], Schikowski T.[3], Schneider A.[2], Schulte-Körne G.[4], Peters A.[1,2], Standl M.[2]

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INTRODUCTION
Several studies indicated that the COVID-19 pandemic and required containment measures impacted mental health, particularly among young adults. This study aimed to determine how lifestyle factors that changed during the COVID-19 pandemic, were associated with changes in mental health compared to the pre-pandemic period.

METHODS
Harmonized questionnaires were administered to 1639 participants of the German birth cohort GINIplus during the COVID-19 pandemic in 2020 and for the preceding 20-year follow-up conducted 2016 to 2018. Lifestyle and sociodemographic factors that were changing during the COVID-19 pandemic included smoking, alcohol consumption, sleeping difficulties, support and work/study-related changes. Mental health was assessed as depressive symptoms by the Patient Health Questionnaire (PHQ-8) and as perceived stress by the Perceived Stress Score (PSQ-20) at both time points. Anxiety during the pandemic was assessed by the General Anxiety Disorder Scale (GAD-7).

Hierarchical and k-means clustering algorithms were applied to lifestyle and sociodemographic factors to classify changes during the COVID-19 pandemic. Linear regression analyses were conducted with the cluster groups as the independent variable and the mental health status during the pandemic as dependent variables, adjusting for potential confounders including pandemic containment measures at the time of completing the questionnaire.

RESULTS
Significant decreases in alcohol consumption and sleeping difficulties were observed between the two time points. Preliminary results in 1181 participants showed negative associations between smoking, sleeping difficulties, support, work/study-related changes (e.g. working hours) and depressive symptoms, perceived stress and anxiety during the pandemic, whereas remote work was found to be beneficial.

CONCLUSIONS/OUTLOOK
This study identified several risk and protective factors associated with mental health changes in young adults during the COVID-19 pandemic.

VS3-03

ASSOCIATION BETWEEN CIRCADIAN PHYSICAL ACTIVITY PATTERNS AND MORTALITY IN THE UK BIOBANK

Stein M.[1], Baurecht H.[1], Sedlmeier A.[1], Konzok J.[1], Bohmann P.[1], Fontvieille E.[2], Peruchet-Noray L.[2,6], Bowden J.[3,7], Friedenreich C.[4,8], Fervers B.[5,9], Ferrari P.[2], Gunter M.[2], Freisling H.[2], Viallon V.[2], Leitzmann M.[1], Weber A.[1]

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INTRODUCTION
The benefits of physical activity (PA) for improving longevity are well-recognized, however, the relationship between diurnal timing of PA and mortality is poorly understood.

METHODS
This population-based prospective cohort study analyzed wrist-worn accelerometry data from UK Biobank. We used 24h PA time series from 96,351 UK Biobank participants aged 42 to 79 years at accelerometry in 2013-2015. We fitted 'Euclidean norm minus one' time series in a linear model and obtained standardized residuals. These were subsequently applied to functional principal component (fPC) analysis to derive circadian PA patterns. Using multivariable Cox proportional hazard models, we related the loading scores of these fPCs to risk of all-cause mortality.

RESULTS
During 6.9 years of follow-up, 2,850 deaths occurred. We found four distinct fPCs which accounted for 96% of the variation in the accelerometry data. Using a loading score of zero
(i.e., average overall PA during the day) as the reference, a fPC1 score of +2 (high overall PA) was inversely associated with mortality (hazard ratio, HR=0.91; 95% CI: 0.84–0.99), whereas a
score of -2 (low overall PA) was positively associated with mortality (1.69; 95% CI: 1.57–1.81; p for non-linearity <0.001). A significant inverse linear association with mortality was observed for PA in the midday hours (fPC3; HR for a 1-unit increase 0.88; 95% CI: 0.83–0.93) as opposed to PA in early and late hours. In contrast, PA at midday and at night, rather than early and evening PA (fPC4), was positively associated with mortality (HR for a 1-unit increase 1.16; 95% CI: 1.08–1.25).

CONCLUSIONS/OUTLOOK
Daily timing of PA may inform public health recommendations. Specifically, our results suggest that for longevity, it is less important during which hours of the day one is active, but rather to engage in some level of increased PA and to rest during the late evening and night hours.

VS3-04

DIETARY AND LIFESTYLE CORRELATES OF MAJOR BODY SHAPE PHENOTYPES IN THE UK BIOBANK

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INTRODUCTION
Body shape phenotypes (BSPs) may represent a superior body composition and fat distribution measure than classical anthropometric traits. However, whether dietary and other lifestyle
factors are correlated with BSPs is unknown.

METHODS
Using baseline data from 312,167 participants (49.6% women; mean age=55.7±8.1years) from the UK Biobank, we applied principal component (PC) analysis to technician-measured values of weight, height, body-mass-index, waist circumference (WC), hip circumference (HC), and waist-to-hip ratio (WHR). The current study aimed to identify participants' dietary and lifestyle
characteristics according to sex-specific quintiles of major BSPs.

RESULTS
PC1 explained 66.1% of the total variation and was characterized by high loadings for nearly all anthropometric measures, indicating general adiposity. In quintile 5 (Q5), participants tended to show a less healthy diet, a lower education level, and less physical activity than those in quintile 1 (Q1).

PC2 (19.3% of total variation) distinguished between tall individuals with low WHR and vice versa. Individuals in Q5 (the tallest individuals with the lowest WHR) showed a healthier diet and less sedentary behavior than those in Q1; among men, the proportion of never-smokers steadily increased from Q1 to Q5.

PC3 (12.5% of total variation) discriminated between tall individuals with high WHR but low HC and vice versa. The proportion of smokers was greater in the upper than lower quintiles. In men, those in Q5, the tallest individuals with the highest WHR and lowest HC, showed more sedentary behavior and less physical activity than those in Q1.

For PC4 (1.9% of total variation), individuals in Q5 showed higher physical activity levels and more ever-smoking than those in Q1.

CONCLUSIONS/OUTLOOK
In this large cohort study, modifiable lifestyle factors were differentially associated with major BSPs. Future longitudinal analyses of BSP correlates will enable more accurate identification of population subgroups at risk of obesity-related diseases.

VS3-05

SOZIOÖKONOMISCHER STATUS, RAUCHEN UND LUNGENKREBS: MEDIATIONS- UND BIASANALYSE IN DER SYNERGY-STUDIE

Hovanec J.[1], Kendzia B.[1], Olsson A.[2], Siemiatycki J.[3], Jöckel K.-H.[4], Straif K.[5,6], Schüz J.[2], Kromhout H.[7], Brüning T.[1], Behrens T.[1]

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INTRODUCTION
Bislang sind erhöhte Lungenkrebsrisiken für Personen mit niedrigem sozioökonomischem Status (SES) nur teilweise durch ihr Rauchverhalten erklärt worden. Dabei wurde die Rolle der verschiedenen Bias-Formen von Missklassifikation, Selektionsbias und Confounding bisher kaum untersucht.

METHODS
Basierend auf Daten von 12 Fall-Kontroll-Studien aus 18 Studienzentren des internationalen SYNERGY-Projektes (16.550 Fälle, 20.147 Kontrollen) führten wir eine Mediations- und Biasanalyse für den Zusammenhang von Lungenkrebs, beruflichem SES (nach Quartilen) und Rauchen durch. Mittels inverse Odds-Ratio (OR) weighting wurden ORs für direkte Effekte des SES auf Lungenkrebs sowie indirekte Effekte, die über das Rauchverhalten vermittelt werden, geschätzt, adjustiert für Alter und Studienzentrum sowie getrennt nach Geschlecht. Missklassifikation des Rauchstatus, Selektionsbias und Mediator-Outcome-Confounding wurden einzeln sowie in einer multiplen quantitativen Analyse mit 95% Simulationsintervallen (SI) per Bootstrap-Verfahren untersucht.

RESULTS
Die Mediationsanalyse der Lungenkrebsrisiken von SES-Gruppen zeigte, dass durchschnittlich 43% der Risiken bei Männern und 33% bei Frauen dem Rauchen zugeschrieben werden konnten. Die Berücksichtigung einzelner sowie kombinierter Formen des Bias verringerte die direkten Effekte von SES auf das Lungenkrebsrisiko. Bei der kombinierten Analyse führten insbesondere Effekte eines potentiellen Selektionsbias zu einer Reduktion der OR. Dennoch blieben erhöhte Lungenkrebsrisiken für niedrige SES-Gruppen bei Männern (4. vs. 1. (höchstes) SES Quartil: OR 1,51 (95% SI 1,33-1,71)) und Frauen (OR 1,28 (95% SI 1,05-1,59)) bestehen.

CONCLUSIONS/OUTLOOK
Die Berücksichtigung der potentiellen Formen von Bias reduzierte die Lungenkrebsrisiken für Personen mit niedrigem SES, ohne sie jedoch vollständig zu beseitigen. Die verbliebenen erhöhten Risiken sind vermutlich möglichen beruflichen oder umweltbezogenen Expositionen zuzuschreiben.

VS3-06

PREDICTION OF HEPATIC STEATOSIS IN PATIENTS WITH HIV INFECTION – DEVELOPMENT AND VALIDATION OF A MULTIVARIABLE RISK PREDICTION MODEL

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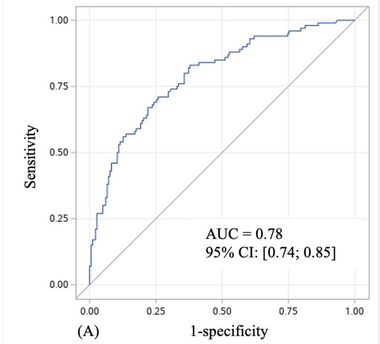
INTRODUCTION
The prevalence of nonalcoholic fatty liver disease is higher in people with HIV (PWH) compared to the general population (35% vs. 25%). Early detection of hepatic steatosis (HS) in PWH could prevent progression and inflammation. The aim was to develop and validate a multivariable risk prediction model for HS in German PWH.

METHODS
282 PWH were prospectively enrolled between 2018 to 2021 at University Medical Center Mainz, Germany, and HS was defined using controlled attenuation parameter (≥275 dB/m). Three multivariable logistic regression models were conducted. Missing values were imputed with multiple imputation. Cut-offs were derived based on Youden-Indices. Performance was assessed via discriminatory and calibrative ability and accuracy via Brier Skill Score. Sensitivity, specificity, predictive values were calculated. Internal validation was performed via bootstrapping.

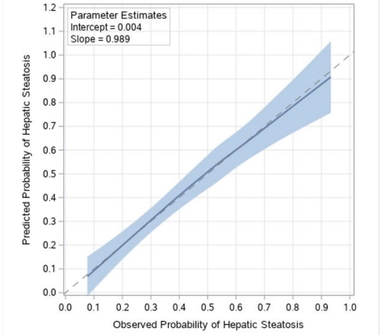
RESULTS
The prevalence of HS was 35.3% (100/282). Univariate analyses revealed associations with age, waist circumference, BMI, hypertension, hyperlipidemia and gamma-gt. In multivariable analyses, male sex (OR 2.07, 95% CI 1.42-3.00, *p*=.001) and BMI (OR 1.27, 95% CI: 1.18-1.36, *p*<.001) were identified as independent predictors of HS. Bootstrapping showed a good discriminatory ability of 78%. Calibration was good with a slight tendency for overestimation for predicted probabilities above 70%. At the cutoff of 1.95, the specificity was 71% and the negative predictive value 82.3%. 27% of the 282 patients would be misclassified, 17% as false positives and 10% as false negatives.

CONCLUSIONS/OUTLOOK
We developed a non-invasive, easy-to-use prediction model to for HS in PWH with a potential use in primary care as well as an online tool in telemedicine by specialists or patients. Future studies should include more candidate predictors and externally validate the model.



ROC-curve

Receiver operating characteristic curve of the prediction model (male sex, BMI) to distinguish between PWH with and without HS (n=282)



Calibration plot

Calibration plot (n=282). X-axis: predicted probability of HS; y-axis: observed proportion of HS; diagonal grey dotted line: reference line for perfect calibration; light blue area: 95% CI

26. SEPTEMBER 2023
11:00 AM – 12:30 PM

VS4 | AG-SESSION – AG4 EPIDEMIOLOGISCHE METHODEN + AG9 STATISTISCHE METHODEN IN DER EPIDEMIOLOGIE (1/2)

VS4-01

TREE-BASED MODELLING APPROACHES IN MATCHED CASE-CONTROL STUDIES

Schauberger G.[1], Tanaka L.[1], Berger M.[2]

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[2] *University of Bonn, Institute of Biomedical Statistics, Computer Science and Epidemiology, Bonn North Rhine-Westphalia, Germany*

INTRODUCTION

Conditional logistic regression is the standard method for the analysis of matched case-control studies. We propose conditional logistic regression trees and conditional logistic random forests as flexible alternatives, which avoid the strict assumption of linearity and allow for a data-driven incorporation of interactions.

METHODS

Compared to regular decision trees, decision trees for matched case control-studies have to account for matched clusters. For this purpose, conditional logistic regression trees are embedded into the framework of conditional logistic regression where the clusters are accounted for by conditioning on the number of cases per cluster. The main idea is to replace the linear predictor of a conditional logistic regression model by a tree structure, which is learned from the data. As in matched case-control studies one is mainly interested in the exposure effect, it can be estimated separately from the tree as a linear effect.

Conditional logistic random forests are a random forest method for matched case-control studies, which use conditional logistic regression trees as base-learners. Instead of only one tree, a large number of trees is estimated and the ensemble of the various trees builds up a new model. Random forests are more stable than trees and allow for an even more flexible functional relationship of the covariates.

RESULTS

The methods are applied to a matched case-control study on cervical cancer (TeQaZ) where the exposure of interest is, whether cervical cancer screening (CCS) was visited frequently. CCS is modelled separately in a linear effect. Figure 1 illustrates the corresponding conditional logistic regression tree while Figure 2 shows the variance importance of the predictors for the conditional logistic random forest.

CONCLUSIONS/OUTLOOK

We propose two flexible machine-learning techniques for the analysis of matched case-control studies, which can improve the modelling of confounding effects and increase the precision of exposure effect estimates.

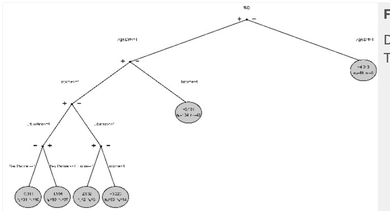

Figure 1

Dendogram of conditional logistic regression tree fitted to TeQaZ data

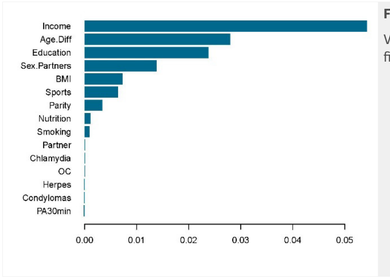

Figure 2

Variable importance for conditional logistic random forest fitted to TeQaZ data

VS4-02

SUITABILITY OF ANCHORS FOR ESTIMATION OF MINIMALLY IMPORTANT DIFFERENCES – A SIMULATION STUDY

Roth R.[1], Sibert N.[2], Breidenbach C.[2], Rücker V.[1], Kolb V.[3], Dieng S.[3], Heuschmann P.[1], Kowalski C.[2]

[1] *University of Würzburg, Julius Maximilian University of Würzburg, Institute of Clinical Epidemiology and Biometry, Würzburg Bavaria, Germany*
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[3] *OnkoZert, Neu-Ulm Bavaria, Germany*

INTRODUCTION
The clinical relevance of patient-reported-outcomes (PRO) can be assessed using minimally important differences (MID). MID represent the smallest difference in score for the PRO domain of interest which patients or clinicians perceive as clinically relevant, and which might result in a change in treatment. While anchor-based MID estimation is considered being superior to distribution-based MID estimation, the performance of anchor-based methods depends on the suitability of the anchor for the respective PRO domain. We conducted a simulation study to investigate the performance of anchor-based methods.

METHODS
Simulation scenarios differed by distribution of anchors and scores (range 0-100, MID=14), strength of correlation between anchor and score (for Likert-scale anchors), and agreement regarding patient classification (patients with/without relevant differences) between anchor and score (for binary anchors). For each scenario, 1000 replications were run. Mean, variance and confidence interval of MID estimates and corresponding bias were derived.

RESULTS
Preliminary results for Likert anchors based on 100 replications show that bias expectedly increases with decreasing anchor-score correlation. The magnitude of bias is about 2, i.e., 14% of the simulated MID, for correlations between anchor and score of 50%, about 1, i.e., 7%, for correlations of 65%, and smaller than 1 for correlations of at most 90%. Final results for Likert and binary anchors based on 1000 replications will be presented at the conference.

CONCLUSIONS/OUTLOOK
The results of this study may guide the selection of appropriate anchors in future studies and may assist researchers when assessing the precision of MID estimates.

VS4-03

THE FIRST 3.000 DEATHS IN THE GERMAN NATIONAL COHORT STUDY (GNC): HEALTHY VOLUNTEER, FATALLY ILL AND RARE DISEASES BIAS – AND HOW TO CORRECT THEM.

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[2] *University of Koblenz, Informatics, Koblenz, Germany*

INTRODUCTION

The German National Cohort (GNC) study is one of the largest and most innovative cohorts globally. Recruitment 2014-2019 in 18 study centers yielded n=205.414 participants born 1944-1999, who completed an extensive examination program and donated biomaterial. N=30.000 received an MRT (whole body, brain, heart) examination. Response was 17 %.

The mortality follow up focuses on long-term deviations from complete health as underlying causes-of-death.

METHODS

Here we report on the first known n=2.833 GNC deaths, 34% female. Male age related mortality rises earlier (Figure 1). N=2.002 GNC deaths are documented with completely coded causes-of-death.

Probably all deaths before 31.12.2020 are on record, with cases still open in 2021 and later. Total number in September 2023 may be n=3.800. Of the birth cohorts 1944-1948 more than 5% have died already.

RESULTS

Three selection biases are observed:

The well-known healthy-volunteer-bias: participants tend to be healthier, more health conscious, in stable work, financial, social contexts, therefore having lower mortality for many years (Figure 2).

A scarcely described fatally-ill-bias: people aware of an infaust prognosis are more likely to participate: mortality in recruitment year and next is higher than in the following ones.

Rare diseases – eg. Ebstein-Anomaly, Merkel cell carcinoma (MCC), Neurofibromatosis Recklinghausen, Morbus Waldenström, Pleuramesotheliom, Wolf-Hirschhorn syndrome – may be more frequent than expected.

CONCLUSIONS/OUTLOOK

Incidences, prevalences, relative risks in the source will be higher than in the study population.

The GNC is an El Dorado for rare disease biographies, firstly visible for the mortality-follow-up.

PROSPECTS

The gold standard for correcting these biases is a Non-Responder-Mortality-Follow-Up, although rarely carried out. For each recruited subject, a statistical twin from the pool of Non-Responders has been drawn. The legal groundwork has been secured for all 16 states (“Länder”)

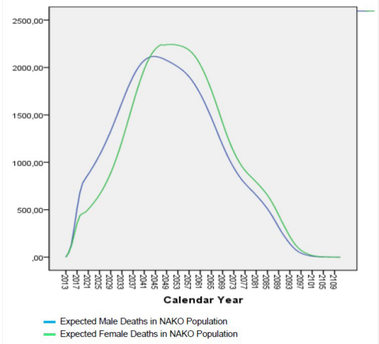

Figure 1

Expected death counts in the GNC Study population 2014-2111

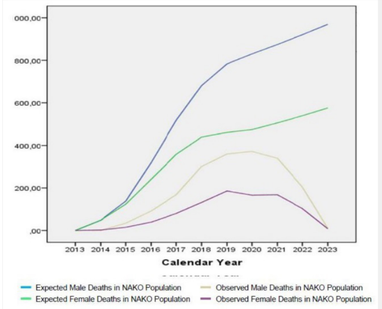

Figure 2

Expected vs. observed seath counts in the GNC Study population 2014-2023

VS4-04

DEALING WITH SELF-SELECTION INTO TREATMENT: APPLYING THE OSTER METHOD TO THE CASE OF PRENATAL COUNSELLING AND RAMADAN FASTING DURING PREGNANCY

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Johannes Gutenberg-University Mainz, Chair of Statistics and Econometrics, Mainz Rhineland-Palatinate, Germany

INTRODUCTION

The analysis of real-world (non-experimental) data is often complicated by potential self-selection into treatment. We evaluate if prenatal consultation affects maternal Ramadan fasting behavior while rigorously testing for potential self-selection into treatment. Even though associated with adverse (long-term) health effects in the offspring, many pregnant Muslims decide to fast. Since pregnant women regularly exchange with healthcare professionals, it is pivotal to evaluate the role of prenatal consultation on Ramadan for the maternal fasting decision.

METHODS

This study exploits survey data from Mainz (N=326), including data on Ramadan behavior during pregnancy, sociodemographic background, and interactions with healthcare professionals. The effect of prenatal consultation on the zero-truncated number of fasted days was estimated using a log-normal hurdle model. The Oster (2019) method allows to test if our controlled estimates might be biased by self-selection into treatment by assessing the impact of unobservable confounders based on the controlled coefficient of interest and the model's R squared.

RESULTS

Among the fasting women, those who received consultation on Ramadan during pregnancy fasted 10.8 days less (95% CI: -19.03, -2.56). The Oster method results show that unobservable confounders would have to be more than five times as important as the included controls to nullify the treatment effect.

CONCLUSIONS/OUTLOOK

We demonstrate how the Oster method can be applied to investigate causal relations using real-world data in the absence of randomization. Our results are not driven by self-selection into treatment, which allows to conclude that prenatal consultation reduces the number of fasted days among pregnant Muslims who intend to fast. Further studies on the role of prenatal care for fasting will contribute to the development of guidelines for prenatal advice on Ramadan during pregnancy in a framework of shared decision-making.

VS4-05

EXPLORING FLEXIBLE METHODS FOR NATIONAL HEALTH EXAMINATION SURVEYS IN GERMANY

Neuhauser H., Weihrauch T., Maier B., Wolff C., Hey I., Schienkiewitz A., Sarganas G., Gößwald A., Schmich P., Stahlberg S.

Robert Koch-Institut (RKI), Department of Epidemiology and Health Monitoring, Berlin, Germany

INTRODUCTION

National health examination surveys (HES) are rarely carried out due to high costs and high complexity. We piloted more flexible methods such as self-sampling, self-measurements and household visits conducted by a study-nurse replacing physician examinations in study centers.

METHODS

Feasibility of several new methods for the German HES was tested, e.g.: large-scale implementation of unattended self-sampled dried blood spots (DBS) and oral-nasal swabs (ONS) in a countrywide general population panel including a large subsample with migration background (Study 1, n=15,122); household visits with brief biosampling & examinations (Study 2, n=470); and unattended blood pressure (BP) self-measurements with mailed devices and video instructions (Study 3, n=202).

RESULTS

Among participants consenting to participate, Study 1 showed successful postal self-sampling of DBS for SARS-CoV-2 antibody tests in 98% of participants and 97% valid ONS for SARS-CoV-2 PCR tests. Study 2 showed successful standardized measurements of BP (97%), weight/height (99%) and DBS and venous blood sampling with onsite whole blood centrifugation (97%). Temperature requirements for centrifugation, cooled transport and ATC-coded medication assessment (Anatomical Chemical Classification) proved challenging and need revised methods to avoid data loss. Nested validation studies confirmed use of a multiplex assay for various antibodies with DBS and of HbA1c analysis with uncooled specimen. The strict and time-consuming BP self-measurement-protocol with 12 measurements in Study 3 was followed only by 54% of participants.

CONCLUSIONS/OUTLOOK

Among those willing to participate new brief biosampling & examination formats have been successfully tested in households and are valuable tools for future health examination surveys. However, protocols with higher complexity may result in low data completeness unless appropriate measures are taken.

VS4-06

SEHEN WIR EINEN ANSTIEG DER STERBLICHKEIT AN AUSGEWÄHLTEN NICHTÜBERTRAGBAREN KRANKHEITEN WÄHREND DER COVID-19-PANDEMIE? ANALYSE DER TODESURSACHENSTATISTIK 2015–21

Baumert J., Scheidt-Nave C., Steppuhn H., Tetzlaff F., Kraywinkel K., Wengler A., Maier B.

Robert Koch-Institut (RKI), Abteilung für Epidemiologie und Gesundheitsmonitoring, Berlin, Germany

INTRODUCTION

Verschiedene Studien weisen auf eine Zunahme der Gesamtsterblichkeit in Deutschland seit dem Ausbruch der COVID-19-Pandemie hin. Diese Übersterblichkeit lässt sich nicht vollständig durch Todesfälle infolge von COVID-19 erklären. Inwieweit auch eine Zunahme der Sterblichkeit an häufigen nichtübertragbaren Krankheiten zur Übersterblichkeit beiträgt ist bislang unklar.

METHODS

Für die vorliegenden Analysen wurden Daten der unikausalen Todesursachenstatistik (Destatis) für Deutschland für die Jahre 2015 bis 2021 verwendet und die häufigen nichtübertragbaren Erkrankungen Krebs, Diabetes mellitus und Herz-Kreislauf-Erkrankungen (HKE) sowie Herzinfarkt und Schlaganfall ausgewählt. Die Berechnung einer Übersterblichkeit erfolgt über den Vergleich der beobachteten Sterberate (SR) 2020/21 (O) zu der erwarteten SR 2020/21 (E) geschätzt über eine Poisson-Regression unter Annahme eines log-linearen Trends der Sterblichkeit 2015-19. Als Kennziffer der Übersterblichkeit wurde $\Delta SR = (O/E - 1)*100$ verwendet. Die Sterberaten waren altersstandardisiert (DEU 2011).

RESULTS

Im Zeitraum 2015-2019 zeigte sich bei allen ausgewählten chronischen Krankheiten altersstandardisiert ein Rückgang der Sterberaten. Diese Entwicklung setzte sich bei Krebs und Schlaganfall mit nahezu gleicher beobachteter und erwarteter SR fort (ΔSR 0,0 und -1,1 %). Eine höhere Sterblichkeit als erwartet zeigte sich hingegen bei Diabetes (5,3 %), HKE (4,2 %) und Herzinfarkt 6,0 %).

CONCLUSIONS/OUTLOOK

Die Übersterblichkeit bei einzelnen ausgewählten Krankheiten für 2020/21 weisen auf mögliche indirekte Folgen der Pandemie hin. Eine fortlaufende Analyse der ursachenspezifischen Mortalität erscheint sehr wichtig, da sich Auswirkungen auf die Sterblichkeit bei bestimmten Erkrankungen, etwa aufgrund von Verzögerungen in Behandlung und Therapie, erst nach einer längerer Latenz zeigen könnten. Perspektivisch ist die Betrachtung der multikausalen Todesursachenstatistik notwendig.

26. SEPTEMBER 2023
11:00 AM – 12:30 PM

VS5 | AG-SESSION – AG15 HEALTH GEOGRAPHY

VS5-01

DIE RÄUMLICHE DIMENSION VON GESUNDHEIT – ENTWICKLUNG EINES KONZEPTIONELLEN MODELLS

Augustin J.[1], Andrees V.[1], Walsh D.[2], Reintjes R.[3], Koller D.[4]

[1] *University Medical Center Hamburg-Eppendorf (UKE), Institute for Health Services Research in Dermatology and Nursing, Hamburg, Germany*
[2] *Glasgow Center for Population Health, Glasgow, UK*
[3] *Hamburg University of Applied Sciences, Faculty of Social Sciences, Hamburg, Germany*
[4] *Ludwig Maximilian University of Munich, Department of Epidemiology, Institute for Medical Information Processing, Biometry and Epidemiology (IBE), Munich Bavaria, Germany*

INTRODUCTION
In zahlreichen Studien und Modellen werden die Determinanten von Gesundheit thematisiert. Räumlichen Aspekte werden dabei jedoch nur am Rande oder gar nicht berücksichtigt. Zudem fehlt eine theoriegeleitete Diskussion des Zusammenhangs zwischen Raum und Gesundheitsdeterminanten.

METHODS
Ziel dieses Beitrags ist die Entwicklung eines konzeptionellen Modells, mit dem die Gesundheitsdeterminanten in einen räumlichen Kontext gestellt werden können. Basierend auf einer Literaturrecherche wurden relevante Gesundheitsdeterminanten identifiziert und der jeweilige Stand des Wissens zusammengefasst. Darüber hinaus wurden räumliche Skalen, die für die regionale Betrachtung von Gesundheit notwendig sind, benannt und diskutiert. Basierend auf diesen beiden Arbeitsschritten wurden die Determinanten und räumliche Skalen zusammengeführt und darauf basierende das Konzeptmodell entwickelt.

RESULTS
Die Ergebnisse zeigen eine Vielzahl aus räumlicher Perspektive relevanter Determinanten. Diese können den Kategorien globale Antriebskräfte, Politik und Governance, Lebensumfeld und physische Umwelt, soziodemografische und wirtschaftliche Bedingungen, Gesundheitsdienste sowie kulturelle und Arbeitsbedingungen zugeordnet werden. Die räumlichen Skalen wurden für diesen Kontext in drei übergeordnete Ebenen (Makro-, Meso- und Mikroebene) und weiter in sechs untergeordnete räumliche Ebenen unterteilt, wie z. B. global (z. B. Kontinente), regional
(z. B. Gemeindegebiete) oder nachbarschaftlich (z. B. Gemeinden). Die Zusammenführung der Determinanten und räumlichen Skalen wird als zentrales Ergebnis dieser Arbeit in einem konzeptionellen Modell dargestellt. Funktionsmechanismen und Wege zwischen den räumlichen Ebenen werden schematisch präsentiert.

CONCLUSIONS/OUTLOOK
Dies ist der erste konzeptionelle Ansatz, in dem die Determinanten der Gesundheit in einen räumlichen Kontext gesetzt werden. Das Konzept kann als Arbeitsgrundlage für zukünftige Analysen dienen, in denen räumliche Aspekte der Gesundheit berücksichtigt werden.

VS5-02

GUTE PRAXIS ERREICHBARKEITSANALYSEN IM GESUNDHEITSWESEN (GPEG) – ANWENDUNG EINES TRANSDISZIPLINÄREN ANSATZES ZUR ERSTELLUNG DER LEITLINIE FÜR WISSENSCHAFT UND PRAXIS

Grohmann J.[3], **Völker S.**[1,2], On behalf of GOSPA Transdisciplinary Working Group

[1] *BFS Health, Dortmund, Germany*
[2] *Hochschule für Gesundheit, Bochum, Germany*
[3] *Bundesamt für Bauwesen und Raumordnung, Bonn, Germany*

INTRODUCTION

Erreichbarkeitskennziffern bestimmen in vielen Lebenssituationen die Qualität des regionalen Versorgungsniveaus. Insbesondere im Bereich der medizinischen Versorgung werden Erreichbarkeitsanalysen zunehmend gefordert und angewendet. Aufgrund mangelnder oder fehlender Methodenbeschreibungen, Datengrundlagen etc. in aktuellen Erreichbarkeitsanalysen können Ergebnisse aus unterschiedlichen Studien und Gutachten jedoch kaum vergleichend bewertet werden und es kann zu Fehlinterpretationen kommen. Die Reliabilität und Validität, aber auch die generelle Glaubwürdigkeit von Erreichbarkeitsanalysen, wird dadurch deutlich reduziert.

METHODS

Aufgrund der komplexen Wechselwirkungen und der Divergenz normativ geprägter Ethiken für den Umgang mit Erreichbarkeitsanalysen im Gesundheitswesen wurde im Rahmen des GOSPA-Projekts ein vierjähriger transdisziplinärer Lernprozess initiiert, an dem Vertreter verschiedener wichtiger Interessengruppen und Wissenschaftler aus unterschiedlichen Disziplinen beteiligt waren. Die Ergebnisse basieren auf einer Triangulation der Wissensintegration aus einem vierjährigen transdisziplinären Gruppenprozess, an dem vierzehn Vertreter aus Wissenschaft und Praxis zu gleichen Teilen beteiligt waren.

RESULTS

Schließlich wurden 6 Grundsätze zu den Bereichen “Geodaten”, “Standorte von Dienstleistern”, “Start- und Endpunkte”, “Verkehrsmittelwahl und Routing”, “Analyse-Settings” und “Ergebnisdarstellung” formuliert, einschließlich Empfehlungen für die praktische Umsetzung. Diese bilden den Kern der GPEG und werden im Auftrag der Arbeitsgruppe zusammengefasst.

CONCLUSIONS/OUTLOOK

Im Ergebnis bietet die Gute Praxis Erreichbarkeitsanalysen im Gesundheitswesen (GPEG) eine Übersicht, Beschreibung und Erläuterung der vielfältigen Datengrundlagen und räumlichen
Analysemethoden, um die Möglichkeit zu schaffen, Erreichbarkeitsanalysen in Wissenschaft und Praxis auf der Basis aktueller wissenschaftlicher Standards objektiv diskutieren zu können.

VS5-03

AREA-LEVEL ANALYSIS OF REGIONAL SOCIO-ECONOMIC FACTORS ON OUTPATIENT ANTIBIOTIC PRESCRIBING INCLUDING CLAIMS DATA FROM 16 MILLION PERSONS IN GERMANY.

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[2] *University of Bremen, Faculty of Human and Health Sciences, Bremen, Germany*

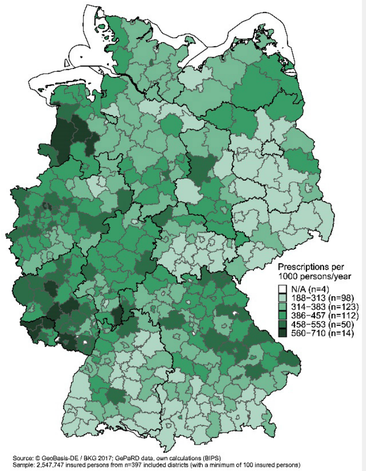
INTRODUCTION
Prescription rates of outpatient antibiotics were found to strongly vary across German districts, indicating overprescribing in some regions. An investigation of underlying reasons can improve antibiotic stewardship. We investigated potential area-level factors explaining regional variation in outpatient antibiotic prescribing in Germany.

METHODS
Using the German Pharmacoepidemiological Research Database (GePaRD) covering ~20% of the German population, we included persons insured in 2018 and linked regional factors according to the German Index of Social Deprivation (GISD) on the district level. We used random effects models to investigate the association of individual (age, sex, and socioeconomic status [SES]) and regional factors with antibiotic prescription (at least one vs. no prescription, see Figure 1 and Figure 2) accounting for a random intercept by district. All analyses were performed by age group (0–6, 7–17, 18–64, and ≥65 years).

RESULTS
The study population comprised 16,623,058 persons from 397 districts in Germany. Across all age groups, district-level employment rate was positively associated with antibiotic prescription, while individual SES, proportion of residents with academic degrees and physician density were negatively associated with antibiotic prescription. In the age group 0–6 years, the rate of preschool children at daycare facilities was positively associated, while in the age groups 7–17 and 18–64 years, a lower chance of antibiotic prescription was found for rural areas than in cities. Individual factors explained 1% (≥65 years) to 6% (7–17 years) of district-level variance, while additional consideration of regional factors explained 50% (0–6 years) to 68% (≥65 years) of regional variations.

CONCLUSIONS/OUTLOOK
Our study showed that a considerable share of regional variations in outpatient antibiotic prescribing in Germany was explained by socioeconomic factors. This indicates the need to design regionally tailored measures to improve rational use of antibiotics.

Figure 1: Age- and sex-standardized prescription rates (prescriptions per 1000 persons/ year) of antibiotics among children and adolescents aged 0–17 years by district in 2018.

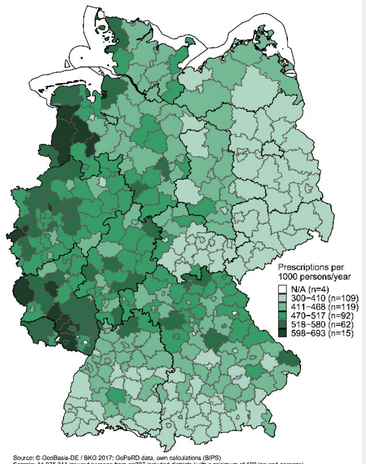


Source: © GeoBasis-DE / BKG 2017; GePaRD data, own calculations (BIPS)
Sample: 2,547,747 insured persons from n=397 included districts (with a minimum of 100 insured persons)

Antibiotic prescription rates in children

Figure 1: Age- and sex-standardized prescription rates (prescriptions per 1000 persons / year) of antibiotics among children and adolescents aged 0–17 years by district in 2018 in Germany.

Figure 2: Age- and sex-standardized prescription rates (prescriptions per 1000 persons/ year) of antibiotics among among adults aged ≥ 18 years by district in 2018.



Source: © GeoBasis-DE / BKG 2017; GePaRD data, own calculations (BIPS)
Sample: 14,075,311 insured persons from n=397 included districts (with a minimum of 100 insured persons)

Antibiotic prescriptions in adults

Figure 2: Age- and sex-standardized prescription rates (prescriptions per 1000 persons / year) of antibiotics among adults aged ≥ 18 years by district in 2018 in Germany.

VS5-04

SMALL-SCALE PROFILES OF AREA-LEVEL DEPRIVATION AND DIFFERENCES IN THE COURSE OF THE COVID-19 PANDEMIC IN THE CITY OF BREMEN

Buck C.[1], Pohlabeln H.[1], Kibele E.[2], Langeheine M.[3]

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[2] *Federal Statistical Office Bremen, Bremen, Germany*
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INTRODUCTION

Socio-demographic factors profoundly affected the course of the COVID-19 pandemic in urban settings and sub-district level deprivation was often used to explain differences in the spread of COVID-19. Profile analysis of socio-economic factors accounts for the interrelation among these factors and improve the identification of highly deprived neighbourhoods.

METHODS

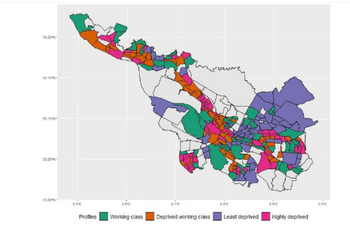
Spatial-temporal data on weekly COVID-19 incidences from March 2020 to December 2021 were provided for 260 neighbourhoods within 70 sub-districts. Data on socio-economic and demographic characteristics, built environment, common pollutants, weather, mobility flows and local policy measures were linked either regarding spatial units and / or time scale. Time series data of weekly COVID-19 incidences were stratified by the five waves of the pandemic. Specific socio-economic factors were considered for latent profile analyses. Identified profiles and further covariates were included in space-time random effects models for each wave investigating differences in weekly COVID-19 incidences.

RESULTS

Using latent profile analyses, we identified three main profiles on the sub-district level and four profiles on the neighbourhood-level. Both area-levels were classified in highly deprived areas (lowest income), working class areas, and least deprived areas (highest income), while on the smaller scale working class areas could be further distinguished by high vs low proportions of migration background and foreign citizens. Significant differences in weekly COVID-19 incidence were found between highly deprived and least deprived areas of about 15 to 20 per 1000 residents in wave 2 and wave 4 with consistently higher incidence in highly deprived areas.

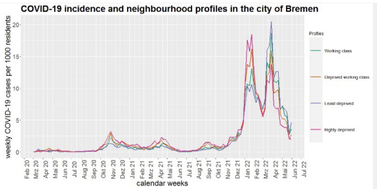
CONCLUSIONS/OUTLOOK

Current analyses will provide detailed insights into area-specific key factors of the COVID-19 pandemic and neighbourhood-specific deprivation profiles considering the interaction of local countermeasures and mobility patterns which will be helpful for pandemics expected in the future.



Deprivation Profiles

Profiles identified by latent class analysis in 260 neighbourhoods in the city of Bremen.



Course of the Covid-19 pandemic in Bremen

Time series of weekly Covid-19 incidence over the course of the pandemic stratified by deprivation profiles in 260 neighbourhoods in the city of Bremen.

VS5-05

SPATIO-TEMPORAL TEMPERATURE VARIATION DURING CONCEPTION AND METABOLIC HEALTH IN 40 – 69 YEAR-OLD UK BIOBANK PARTICIPANTS

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INTRODUCTION
Mice studies and correlational evidence on humans suggest that periconceptional cold exposure increases the amount of active brown fat in adulthood, resulting in better metabolic outcomes. Still, causal evidence on humans is lacking. This is the first study to overcome this challenge, by exploiting quasi-random spatio-temporal temperature variation around conception.

METHODS
UK Biobank individual-level health data (N=430,000, birth years 1934 – 1971) were linked to MIDAS weather data using QGIS. Periconceptional cold exposure was assigned based on the estimated conception date, as inferred from date of birth. Thereby, exposure was defined as temperature deviation from the long-run region-specific trend based on an inverse-distance weighting approach. Our main exposure was temperature deviation in the 2 weeks prior to conception since it is a critical period for epigenetic programming during spermatogenesis. Metabolic health outcome measures were BMI, waist circumference, total cholesterol, and triglycerides levels. We relied on temperature variations within geographic regions and months of conception (region-by-month-of-conception fixed effects) and controlled for sex, year of birth and year of assessment.

RESULTS
Individuals who were conceived when it was one degree Celsius colder than usually have a lower BMI (-0.018, 95% CI: -0.033, -0.003, p-value: 0.018), waist circumference (-0.038, 95% CI: -0.071, -0.004, p-value: 0.028), as well as lower levels of triglycerides (-0.004, 95% CI: -0.007, -0.001, p-value: 0.008) and cholesterol (-0.013, 95% CI: -0.017, -0.010, p-value: < 0.001). The results are robust using different specifications, including a nearest-neighbor approach.

CONCLUSIONS/OUTLOOK
Comparatively subtle environmental shocks around conception are causally associated with long-term metabolic health. This study points to the importance of future research on similar potential health externalities of rising global temperatures.

26. SEPTEMBER 2023
4:30 PM – 6:00 PM

VS6 | AG-SESSION – AG7 EPIDEMIOLOGIE DER HERZKREISLAUF- UND STOFFWECHSELERKRANKUNGEN (2/2)

VS6-01

MENTAL HEALTH AND CARDIOVASCULAR RISK FACTORS IN THE YOUNG – RESULTS FROM THE KIGGS COHORT

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INTRODUCTION
Mental health (MH), and in particular depression, has a bidirectional risk relation to cardiovascular disease (CVD). However, it is not clear at what age in life the relation begins to manifest and if depression is already associated with subclinical atherosclerosis, operationalized as carotid-intima media thickness (CIMT) and distensibility coefficient (DC), or only with manifest CVD.

METHODS
We investigated the association between childhood MH problems with CVD risk factors as well as CIMT from high-resolution carotid sonography in 4,361 14 to 28-year-olds of the KiGGS cohort. Using linear regression analyses adjusted for socioeconomic status, we analyzed the association of the Strength and Difficulties Questionnaire (SDQ) with systolic blood pressure (SBP), body mass index (BMI), total cholesterol (TC), CIMT and DC in z-scores by sex and age. Additional cross-sectional analyses included scores of the Mental Health Inventory (MHI-5) and Patient Health Questionnaire (PHQ-9).

RESULTS
MH problems in childhood (age 3 to 17) were not associated with CIMT or DC one decade later, i.e. at age 14 to 28. However, childhood SDQ total difficulty score was significantly ($p<0.05$) associated with BMI and TC ($-0.03 \leq ß \geq 0.02$), but not with SBP, one decade later. Cross-sectionally, MH measured by the SDQ, MHI-5 and PHQ-9 scores was significantly associated with SBP ($-0.26 \leq ß \geq 0.00$), but not with BMI and inconsistently with TC.

CONCLUSIONS/OUTLOOK
We could not find evidence for an association between MH and subclinical atherosclerosis measured by CIMT and DC in the young. However, our results confirm an early association of MH with other cardiovascular risk factors. This represents a challenge, but also an opportunity for behavioral prevention strategies which should focus on both mental and physical health of the young before atherosclerotic damage may manifest later in life.

VS6-02

CARDIOVASCULAR AND ALL-CAUSE MORTALITY IN A COHORT OF PATIENTS WITH STABLE CORONARY HEART DISEASE: THE CONTRIBUTION OF NOVEL BLOOD-BASED MARKERS OF NEURODEGENERATION

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INTRODUCTION
Blood-based markers of neurodegeneration (glial fibrillary acidic protein (GFAP), neurofilament light chain (NfL), phosphorylated tau181 (p-tau181), total tau (t-tau), and amyloid-β (Aβ)) have been linked to neurological outcomes and mortality and were found to interact with cardiovascular health. However, their prospective associations with adverse outcomes in patients with coronary heart disease remain unexplored. Here, we aim to elucidate the association of these markers with cardiovascular and all-cause mortality.

METHODS
We used data from a cohort of patients with stable coronary heart disease, for which cardiovascular and all-cause mortality was recorded over a follow-up of 20 years (KAROLA study). Blood-based markers of neurodegeneration (serum: GFAP, NfL, p-tau181; plasma: t-tau, $A\beta_{40}$, $A\beta_{42}$, $A\beta_{42}/A\beta_{40}$) were measured in baseline blood samples in a subsample of 379 participants using the Single-Molecule Array (Simoa) Technology (Quanterix, USA), and values were z-standardised for interpretability. We used Cox-proportional hazards models to evaluate the prognostic value of these blood-based markers of neurodegeneration on cardiovascular and all-cause mortality, adjusting for age, sex, study centre, and comorbidities.

RESULTS
Patients with higher levels of NfL had increased rates of all-cause mortality (HR per increase by one SD: 1.35, 95%-CI: 1.08-1.69) and cardiovascular mortality (1.47, 1.07-2.01). Elevated levels of $A\beta_{40}$ were associated with higher rates of all-cause mortality (1.23, 1.00-1.51). The other markers were not associated with the studied outcomes.

CONCLUSIONS/OUTLOOK
Preliminary analyses suggest that NfL and $A\beta_{40}$, but not the other biomarkers of neurodegeneration, predict of all-cause mortality in patients with stable coronary heart disease. Moreover, NfL was predictive of cardiovascular mortality. Dose-response patterns of these markers and their associations with incident stroke will be available by the time of the conference.

VS6-03

IMPACT OF COVID-19 PANDEMIC ON INCIDENCE OF CORONARY HEART DISEASE IN GERMANY: ANALYSIS OF BAVARIAN HEALTH CLAIMS DATA.

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INTRODUCTION
During the COVID-19 pandemic, substantial decreases in diagnosis of cardiovascular diseases and the possible negative consequences have been reported globally. This study analyzed the impact of the pandemic on incidence of coronary heart disease (CHD) and heart failure (HF) in Bavaria by comparing the incidence rates during the pandemic period (2020-2021) to the pre-pandemic period (2012-2019).

METHODS
Health claims data of the Bavarian Association of Statutory Health Insurance Physicians (KVB) were used, covering 85% of the Bavarian population. Adults (≥20 years) newly diagnosed with CHD (coded as I20-I50, ICD-10) and with HF (I50) in the study period were counted. Age-standardized incidence rates (ASIR - per 100,000 person years, using the European Standard Population 2013) stratified by sex and age were calculated. Time series plots and interrupted time series regression models were used to analyze the incidence trend and the impact of the pandemic on CHD and HF incidence.

RESULTS
Overall, 797,074 CHD cases (47% women) and 714,223 HF cases (53% women) have been newly diagnosed in Bavaria from 2012 to 2021. Median age at diagnosis changed in men (CHD: 64.2 to 62.6 years; HF: 72.7 to 72.0) and in women (CHD: 70.4 to 67.9; HF: 77.4 to 77.8). ASIRs for CHD and HF were higher in men compared to women. A decreasing trend of ASIRs was observed from 2012 to 2019 (for CHD in men: -5.2% per annum (p.a.), in women: -6.5% p.a.; for HF in men: -6.2% p.a., in women: -7.1% p.a.) followed by no changes in 2020 and 2021. Time series regression models confirmed the overall negative time trend and showed seasonal effects of CHD and HF ASIRs, but no clear pandemic effect or change in the trend of CHD and HF ASIRs was observed during the pandemic compared to the pre-pandemic period.

CONCLUSIONS/OUTLOOK
This study showed a declining trend in CHD and HF incidence from 2012 to 2019, followed by no changes from 2020 to 2021. There was no clear impact on the CHD and HF incidence in the first two years of the COVID-19 pandemic.

VS6-04

SEX-SPECIFIC PHENOTYPES OF LEFT VENTRICULAR REMODELING DETERMINED BY REGIONAL WALL THICKNESS: ASSOCIATION WITH CARDIOVASCULAR DISEASE RISK

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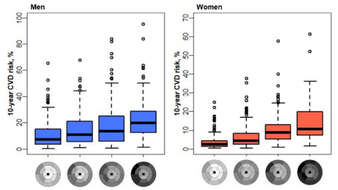

CVD risk according to LV remodeling

Cardiovascular disease risk according to remodeling phenotype. On the x-axis: Remodeling phenotype based on clustering of regional wall thickness data according to the AHA 16 segments model. On the y-axis: Framingham Risk Score of 10 year CVD risk

INTRODUCTION
Left ventricular (LV) remodeling resulting from hemodynamic stress might be an indicator of impaired cardiac function as well as a predictor for deterioration. Current definitions of remodeling use broad categorizations based on hypertrophy and mean wall thickness. More detailed approaches based on regional wall thickness could help utilize the full potential of imaging data and improve cardiovascular disease (CVD) risk stratification.

METHODS
We obtained regional LV wall thickness data by cardiac MRI in three independent population-based cohorts (SHIP-TREND-0, n=931; SHIP-START-2, n=490; KORA-FF4, n=368). Data-driven k-means clustering was employed to identify distinct phenotypes of regional wall thickness patterns. We performed variable selection based on bootstrapped linear regression with LASSO regularization to describe relevant predictor variables. Adjusted regressions between clusters and established CVD risk scores (FRS-10, FRS-30, SCORE2) were calculated.

RESULTS
The final sample comprised n=991 men (mean age 52.9 years, prevalent CVD 7.8%) and n=798 women (52.5 years, 2%). K-means clustering identified 4 distinct phenotypes for men and women, respectively, which were characterized by gradually increasing LV wall thickness and LV mass. Variable selection showed that phenotypes were associated with distinct predictor sets, like lipid profile, body composition and diastolic blood pressure. For both men and women, clusters were significantly associated with increased CVD risk. Associations were independent of myocardial mass and systolic blood pressure. However only in women, associations were also independent of mean wall thickness and LV concentricity.

CONCLUSIONS/OUTLOOK
Regional LV wall thickness patterns assessed by MRI might detect unfavorable cardiac remodeling and improve CVD risk stratification, particularly in women. Automated implementation during image acquisition instead of manual segmentation will facilitate clinical application.

VS6-05

LIPOPROTEIN(A) LEVELS IN THE HAMBURG CITY HEALTH STUDY (HCHS): POPULATION-BASED DISTRIBUTION, THE RELATION TO CARDIOVASCULAR RISK FACTORS AND COMPARISON OF TWO MEASUREMENT METHODS

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INTRODUCTION
Lipoprotein(a) [Lp(a)] has been linked to several cardiovascular diseases (CVD). Lp(a) levels are known to be genetically determined and to vary between regions. However, little is known about potentially influential determinants such as sex or age, and the link to CVD risk factors. This study aims to compare two test assays, to evaluate the Lp(a) distribution in the northern German population, and to characterise more precisely the Lp(a)-associated cardiovascular risk.

METHODS
Baseline data from 9273 deeply phenotyped Hamburg City Health Study (HCHS) participants with complete data on Lp(a) measured via a mass-based (mg/dL) and a molar-based (nmol/L) assay were analysed to assess the Lp(a) distribution. Multiple linear and logistic regression models were used to assess the relationship between Lp(a) and cardiovascular risk factors.

RESULTS
Median Lp(a) levels in the HCHS were 18.1(7.9-62.7) nmol/L and 9.4(4.6-22.4) mg/dL. Lp(a) levels were found to be significantly higher in women, and to increase with age. There was a significant association of Lp(a) with smoking, systolic blood pressure (SBP), apolipoprotein B, and low-density lipoprotein cholesterol. Participants who reported use of lipid-lowering medications (LLM) showed significantly higher Lp(a) levels. Considering risk thresholds, the results differed depending on assay. 22.6% of the total sample had Lp(a)≥75 nmol/L, and 18.8% had Lp(a)≥30mg/dL. The prevalence of high Lp(a) was significantly larger in participants with coronary heart disease (34.7%), and myocardial infarction (31.7%), but not in people with stroke (23%).

CONCLUSIONS/OUTLOOK
Up to 23% of the northern German population may have elevated Lp(a) levels. Based on the HCHS data, Lp(a) differs by sex, age, smoking status, SBP, and lipid profile. LLM could lead to increased Lp(a). Molar-based Lp(a) tests might represent a more precise tool to identify high-risk individuals. These results may help refine Lp(a)-associated risk prediction through better identification of target populations.

VS6-06

VALIDIERUNG DER SELBSTANGABEN ZU HERZ-KREISLAUF-ERKRANKUNGEN ANHAND VON DATEN DER KRANKENVERSICHERUNGEN AOK PLUS UND IKK CLASSIC IM RAHMEN DER KOHORTENSTUDIE LIFE-ADULT

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INTRODUCTION
In bevölkerungsbasierten Studien sind Selbstauskünfte eine etablierte und häufig verwendete Methode zur Erfassung des Gesundheitszustands. Die Validierung der Daten wird jedoch häufig durch das Fehlen Sekundärdaten erschwert. Ziel der vorliegenden Zwischenanalyse war es, die Validität von Selbstauskünften anhand von Krankenkassendaten zu beurteilen. Die Analyse setzte das Einverständnis der Teilnehmer voraus.

METHODS
Im Rahmen der Kohortenstudie LIFE-Adult wurden 10.000 zufällig ausgewählte erwachsene Leipziger Bürger:innen untersucht. Eine Nachuntersuchung erfolgte ca. 6 Jahre später. Die Krankenkassendaten wurden von zwei gesetzlichen Krankenkassen, der AOK PLUS und der IKK classic, zur Verfügung gestellt. Die Validität der selbstberichteten Erkrankungen Schlaganfall (SH), Vorhofflimmern (VHF), Herzinsuffizienz (HI) und Myokardinfarkt (MI) wurde durch Berechnung der Sensitivität und Spezifität im Vergleich zu den Krankenkassendaten analysiert.

RESULTS
In dieser Analyse wurden die Daten von 1.783 Teilnehmern der LIFE Adult-Studie ausgewertet. Nach eigenen Angaben hatten 1,8% einen SA, 1,2% eine HI und 1,8% einen MI erlitten. VHF wurde zu Studienbeginn nicht erhoben. Bei der Nachuntersuchung berichteten 2,9% über einen früheren SA, 3,5% über HI, 2,6% über MI und 5,5% über VHF.Der Vergleich der Selbstangaben mit den Krankenkassendaten ergab für alle vier Erkrankungen eine hohe Spezifität von 99%. Die Sensitivität betrug 65% für VHF, 58% für SA, 20% für HI und 61% für MI (Tab.1)..Die Analyse des Zusammenhangs zwischen diesen Erkrankungen und möglichen Risikofaktoren wie Alter, Geschlecht, BMI und Raucherstatus ergab Unterschiede in den jeweils berechneten Odds Ratios, je nachdem, ob als Zielvariable die Selbstangaben oder die Krankenkassendaten verwendet wurden. Bei einigen Faktoren gab es sogar einen unterschiedlichen Odds-Effekt (Tab.2).

CONCLUSIONS/OUTLOOK
Weitere Untersuchungen sind erforderlich, um die Gründe für die Unterschiede und die Konsequenzen für die Gesundheitsversorgung zu ermitteln.

	Anzahl Teilnehmer	Richtig Positiv	Falsch Negativ	Falsch Positiv	Richtig Negativ	Sensitivität (95% KI)	Spezifität (95% KI)
Schlaganfall	1720	45 (2.6)	33 (1.9)	7 (0.4)	1611 (93.7)	0.58 (0.446-0.714)	0.99 (0.985-0.995)
Vorhofflimmern	1783	77 (4.3)	41 (2.3)	22 (1.2)	1644 (92.2)	0.65 (0.556-0.744)	0.99 (0.985-0.995)
Herzinsuffizienz	1783	35 (2.0)	136 (7.6)	28 (1.6)	1585 (88.8)	0.20 (0.101-0.299)	0.98 (0.973-0.987)
Myokardinfarkt	1747	35 (2.0)	22 (1.3)	11 (0.6)	1661 (95.1)	0.61 (0.469-0.751)	0.99 (0.985-0.995)

Tabelle 1:
Vergleicht die selbstberichteten und die Krankenversicherungsdaten

		Selbstbericht		Krankenkasseninformation	
		OR (95% CI)	p-Wert	OR (95% CI)	p-Wert
Schlaganfall	Alter	1,047 (1,014-1,077)	0,004	1,060 (1,03-1,083)	<0,001
	Geschlecht (weiblich)	0,739 (0,413-1,396)	0,715	0,548 (0,357-0,845)	0,006
	Raucherstatus Ja	0,608 (0,262-1,811)	0,450	1,166 (0,653-2,083)	0,603
	BMI >25	1,086 (0,542-2,183)	0,833	1,074 (0,662-1,741)	0,773
Vorhofflimmern	Alter	1,081 (1,047-1,116)	<0,001	1,099 (1,066-1,133)	<0,001
	Geschlecht (weiblich)	0,609 (0,392-0,948)	0,027	0,7 (0,487-1,040)	0,083
	Raucherstatus Ja	0,84 (0,388-1,819)	0,658	0,857 (0,452-1,783)	0,681
	BMI >25	1,83 (0,8-3,4)	0,05	1,914 (1,075-3,409)	0,027
Herzinsuffizienz	Alter	1,09 (1,046-1,135)	<0,001	1,088 (1,06-1,117)	<0,001
	Geschlecht (weiblich)	0,773 (0,446-1,339)	0,359	0,681 (0,481-0,982)	0,039
	Raucherstatus Ja	1,507 (0,582-3,812)	0,988	1,226 (0,683-2,194)	0,493
	BMI >25	4,03 (1,43-11,36)	0,008	2,234 (1,323-3,784)	0,003
Myokardinfarkt	Alter	1,045 (1,013-1,079)	0,006	1,044 (1,019-1,070)	<0,001
	Geschlecht (weiblich)	0,180 (0,079-0,412)	<0,001	0,378 (0,222-0,644)	<0,001
	Raucherstatus Ja	1,217 (0,533-2,787)	0,640	0,779 (0,372-1,631)	0,508
	BMI >25	1,755 (0,751-4,068)	0,197	1,107 (0,622-1,969)	0,729

OR = Odds ratio; 95% CI = 95% Confidence interval, BMI = Body Mass Index

Tabelle 2:
Multivariate logistische Regressionsmodelle

26. SEPTEMBER 2023
4:30 PM – 6:00 PM

VS7 | AG-SESSION – AG8 KREBSEPIDEMIOLOGIE (2/2)

VS7-01

UTILIZATION OF COLORECTAL CANCER SCREENING AND DIAGNOSTIC COLONOSCOPY IN GERMANY: A LONGITUDINAL ANALYSIS

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INTRODUCTION
It is often reported that participation in the German colorectal cancer (CRC) screening program is low. However, as there are two parallel screening offers (fecal occult blood test, screening colonoscopy) and as there is also a high use of diagnostic colonoscopy, the existing, typically cross-sectional analyses fall short. Based on longitudinal analyses, we aimed to assess the proportion of persons utilizing any colorectal examination over a period of 10 years.

METHODS
Using the claims database GePaRD (~20% of the German population), we identified persons aged 50 (cohort 1) or 55 (cohort 2) in 2011 and assessed whether they utilized colorectal examinations (fecal occult blood test (FOBT), screening colonoscopy, diagnostic colonoscopy) until age 59 (cohort 1) or 64 (cohort 2). We stratified the analyses by sex and also assessed potential differences by socioeconomic status.

RESULTS
Overall,we included 186,832 persons (55% female) in cohort 1 (i.e. aged 50 in 2011) and 157,479 persons (55% female) in cohort 2 (i.e. aged 55 in 2011). In the following 10 years, 81% of women and 65% of men in cohort 1 had at least one colorectal examination. In cohort 2, these proportions were 79% (women) and 70% (men). Considering men and women together, there were no relevant differences by socioeconomic status. The proportion with at least one colonoscopy in cohort 1 was 43% in women and 41% in men. In cohort 2, these proportions were 50% (women) and 49% (men).

CONCLUSIONS/OUTLOOK
Our study shows that a high proportion of the German population utilizes CRC screening offers and/or diagnostic colonoscopy. It also illustrates that longitudinal analyses of data covering not only information on screening examinations provide valuable insights into the actual coverage and uptake of colorectal examinations in the population, which is important to interpret trends in CRC incidence and mortality in Germany.

VS7-02

13-YEAR COLORECTAL CANCER RISK: COMPARING PERSONS WITH A LOW- VS. HIGH-QUALITY SCREENING COLONOSCOPY VS. NO SCREENING COLONOSCOPY

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INTRODUCTION
Several studies have shown that a low quality of colonoscopy reduces its effect in preventing colorectal cancer (CRC), but it is not clear to which extent a low-quality colonoscopy is still effective compared to no colonoscopy. We aimed to compare the 13-year risk of developing CRC between persons with I) a high-quality screening colonoscopy, II) a low-quality screening colonoscopy and III) without a screening colonoscopy.

METHODS
Using observational data from a German claims database (GePaRD; 20% population coverage) we emulated a target trial with three arms: High-quality screening colonoscopy (highQualSC) vs. low-quality screening colonoscopy (lowQualSC) vs. no screening colonoscopy (noSC) at baseline. The quality of baseline colonoscopy was categorized based on the polyp detection rate of the examining physician. We included persons at average CRC risk aged 55–69 years and without a colonoscopy, polypectomy or fecal occult blood test before baseline. We estimated adjusted cumulative CRC incidence over 13 years of follow-up.

RESULTS
Overall, we included 142,960 persons in the highQualSC arm, 62,338 persons in the lowQualSC arm and 124,040 persons in the noSC arm. The adjusted 13-year risk of any CRC was 1.77% in the highQualSC arm, 2.09% in the lowQualSC arm and 2.74% in the noSC arm. Compared to the noSC arm, the adjusted relative risk (aRR) was 0.76 (95% CI: 0.70-0.84) in the lowQualSC arm and 0.65 (95% CI: 0.60-0.69) in the highQualSC arm.

CONCLUSIONS/OUTLOOK
Our study demonstrated that the effect of screening colonoscopy in preventing CRC is substantially lower in persons with a low-quality as compared to a high-quality screening colonoscopy. However, it also showed that attending a low-quality screening colonoscopy still markedly reduces the risk of CRC compared to no screening colonoscopy.

VS7-03

THE EPIDEMIOLOGY OF COLORECTAL NEUROENDOCRINE TUMORS - A POPULATION-BASED STUDY USING GERMAN CANCER REGISTRY DATA

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INTRODUCTION
The incidence of colorectal neuroendocrine neoplasms (NENs) has increased in recent years. We aimed to analyze incidence-trends and relative survival (RS) of NEN in Germany by using data from the German Centre for Cancer Registry Data.

METHODS
Malignant NEN (ICD-O-3 histology 8013, 8041, 8042, 8044, 8045, 8154, 8240, 8241, 8243, 8244, 8245, 8246, 8249 and site C18 to C20 [excluding appendix C18.1]) diagnosed in Germany between 2009 and 2019 were included. The analysis was stratified by site (proximal colon cancer [PCC], distal colon cancer [DCC] and rectal cancer [RC]) and tumour size (T-Stage). We calculated age-standardized incidence rates (ASR), the average annual percentage change (AAPC) and RS for the calendar period 2015-2019 applying the period approach.

RESULTS
A total of 10,344 NEN (54% men) were included. Median age at diagnosis was 63 for men and 64 for women. The ASR for men and women was 1.15 and 1.01 in 2009 and 2.20 and 1.90 in 2019, the AAPC was 6.9% for men and 6.1% for women. Five-year RS was 63% for men and 68% for women. Stratified by site the ASR for men and women for RC was 1.44 and 1.03 (AAPC 8.3% and 7.1%), for DCC 0.46 and 0.60 (AAPC 7.2% and 8.2%) and for PCC 0.19 and 0.18 (AAPC 4.4% and 4.4%), respectively, in 2019. Five-year RS for men and women was for RC 72% and 82%, for PCC 48% and 52% and for DCC 51% and 46%. Information on tumor size is missing for about 40 %. The highest ASR in 2019 was for T stage 1 with 0.71 for men and 0.67 for women. The AAPC for men for T1 to T4 was 15.8%, 6.6%, 2.7% and 4.8%, respectively. The AAPC for women for T1 to T4 were 18.9%, 3.7%, 3.4% and 3.9%, respectively.

CONCLUSIONS/OUTLOOK
We observed most marked increases in incidence of NEN in the rectum and distal colon and for small tumors (T1) with a favorable prognosis. This might be explained by increased use of endoscopy and improvements in classification and tumor documentation.

VS7-04

HEALTH RELATED QUALITY OF LIFE OVER TIME IN GERMAN SARCOMA PATIENTS. AN ANALYSIS OF ASSOCIATED FACTORS – RESULTS OF THE PROSA STUDY

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[7] *Helios Hospital Bad Saarow, Sarcoma Center Berlin-Brandenburg, Bad Saarow, Germany*
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INTRODUCTION
Sarcomas are rare cancers and very heterogeneous in their location, histological subtype, and treatment. Health-Related Quality of Life (HRQoL) of sarcoma patients has rarely been investigated in longitudinal studies.

METHODS
Here, we assessed adult sarcoma patients and survivors between September 2017 and February 2020, and followed-up for one year in 39 study centers in Germany. Follow-up time points were 6 (t1) and 12 months (t2) after inclusion. We used a standardized, validated questionnaire (the European Organisation for Research and Treatment of Cancer Quality of Life Core Instrument (EORTC QLQ-C30) and explored predictors of HRQoL in two populations (all patients (Analysis 1), patients in ongoing complete remission (Analysis 2)) using generalized linear mixed models.

RESULTS
In total we included up to 1111 patients at baseline (915 at t1, and 847 at t2), thereof 387 participants were in complete remission at baseline (334 at t1, and 200 at t2).

When analyzing all patients, HRQoL differed with regard to tumor locations: patients with sarcoma in lower extremities reported lower HRQoL values than patients with sarcomas in the upper extremities. Treatment which included radiotherapy and/ or systemic therapy was associated with lower HRQoL. For patients in complete remission, smoking was associated with worse HRQoL-outcomes. In both analyses, bone sarcomas were associated with the worst HRQoL values. Being female, in the age group 55-<65 years, having lower socioeconomic status, and comorbidities were all associated with a lower HRQoL, in both analyses. HRQoL increased partially over time since treatment and with sporting activities.

CONCLUSIONS/OUTLOOK
HRQoL improved with time since treatment, although not in all domains, and was associated with lifestyle and socioeconomic factors. Bone sarcomas were the most affected subgroup.
Methods to preserve and improve HRQoL should be developed for sarcoma patients.

VS7-05

BODY SHAPE PHENOTYPES OF MULTIPLE ANTHROPOMETRIC TRAITS AND CANCER RISK: A MULTI-NATIONAL COHORT STUDY

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INTRODUCTION
Classical anthropometric traits may fail to fully represent the relationship of weight, adiposity, and height with cancer risk. We investigated the associations of body shape phenotypes with the risk of overall and site-specific cancers.

METHODS
We derived four distinct body shape phenotypes from principal component (PC) analysis on height, weight, body mass index (BMI), waist (WC) and hip circumferences (HC), and waist-to-hip ratio (WHR). The study included 340,152 men and women from nine European countries, aged mostly 35 to 65 years at recruitment (1990 to 2000) in the European Prospective Investigation into Cancer and nutrition (EPIC) study. Cox proportional hazards regression was used to estimate multivariable-adjusted hazard ratios (HRs) and 95% confidence intervals (CIs).

RESULTS
After a median follow-up of 15.3 years, 47,110 incident cancer cases were recorded. PC1 (overall adiposity) was positively associated with the risk of overall cancer, with a HR per 1 standard deviation (SD) increment equal to 1.07 (95% confidence interval 1.05 to 1.08). Positive associations were observed with 10 cancer types, with HRs (per 1 SD) ranging from 1.36 (1.30 to 1.42) for endometrial cancer to 1.08 (1.03 to 1.13) for rectal cancer. PC2 (tall stature with low WHR) was positively associated with the risk of overall cancer (1.03; 1.02 to 1.04) and five cancer types which were not associated with PC1. PC3 (tall stature with high WHR) was positively associated with the risk of overall cancer (1.04; 1.03 to 1.05) and 12 cancer types. PC4 (high BMI and weight with low WC and HC) was not associated with overall risk of cancer (1.00; 0.99 to 1.01).

CONCLUSIONS/OUTLOOK
In this multi-national study, distinct body shape phenotypes were positively associated with the incidence of 17 different cancers and overall cancer.

VS7-06

DECLINES IN CERVICAL CARCINOMA INCIDENCE IN PREVIOUSLY VACCINE-ELIGIBLE AGE GROUPS ARE INDICATIVE OF FIRST EFFECTS OF HPV VACCINATION IN GERMANY – AN AGE-PERIOD-COHORT ANALYSIS BASED ON POPULATION-BASED CANCER REGISTRY DATA

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INTRODUCTION

Infections with the human papilloma virus (HPV) represent the most common sexually transmitted disease. In Germany, HPV vaccination was implemented in 2007 for girls aged 12-17 years (modified to 9-14 years in 2014). We evaluate vaccination effects by describing incidence trends and by conducting age-period-cohort analysis. We focus on cervical cancer, as potential vaccination effects can today at most be seen in the age group <30 years – in which HPV-associated tumours are rare, with the exception of cervical carcinomas.

METHODS

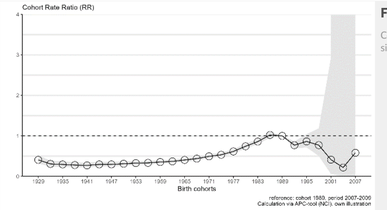
We used data provided by the Centre for Cancer Registry Data (ZfKD) and included females with a max. age of 120 years, a diagnosis of cervical carcinoma (ICD-O-3: C53.0, C53.1, C53.8, C53.9) between 2004 and 2018 and residence in Bavaria, Bremen, Hamburg, Lower Saxony, Saarland, Schleswig-Holstein, or the administrative district of Muenster. We ran age-period-cohort models using the US National Cancer Institute web tool. Data of each three years were aggregated (age groups: 9-11, 12-14, ...; diagnosis years: 2004-2006, 2007-2009, ...).

RESULTS

Up to the age of 15-17 years incidence of in situ and invasive cervical carcinomas was low (<10 cases per year; 18-20: <100 cases). From the period 2004-2006 on, incidence increased in the age group 21-23 years and subsequent groups, until previously vaccine-eligible women entered the respective group for the first time (Table). The 1992 birth cohort, which was the first vaccine-eligible cohort, had a 23 % lower incidence than the reference cohort born in 1989 [rate ratio: 0.77, 95% CI: 0.69; 0.87]. The rate ratio dropped down to 0.41 [95% CI: 0.06; 2.94] for the 2001 cohort and to 0.21 [95:CI: <0.1; 396] for the 2004 cohort (Figure).

CONCLUSIONS/OUTLOOK

The effects of HPV vaccination should become apparent 5-10 years after introduction of vaccination. Initial vaccination effects on incidence could be observed on the population level, although the proportion of 15-year-old girls with complete HPV vaccination was as low as 27% in 2010-2012.



Figure

Cohort-Rate-Ratios (RR) for the incidence of HPV-associated cervical carcinomas (in situ and invasive) in Germany

	2004-2006		2007-2009		2010-2012		2013-2015		2016-2018	
	n	ASPR	n	ASPR	n	ASPR	n	ASPR	n	ASPR
9-11 years	0	0	0	0	0	0	0	0	0	0
12-14 years	0	0	1	0,1	0	0	1	0,1	0	0
15-17 years	6	0,4	8	0,6	8	0,8	8	0,8	2	0,2
18-20 years	91	6,5	81	5,7	80	6,3	66	5,6	55	4,6
21-23 years	283	19,7	389	26,9	468	37,4	308	23,5	284	21,8
24-26 years	616	43,7	828	56,9	1034	73,0	1100	72,9	623	43,9
27-29 years	746	53,0	1301	87,8	1422	97,9	1883	123,7	1436	90,9
30-32 years	855	61,1	1285	91,2	1457	99,1	1893	121,0	1814	116,2
33-35 years	1022	60,9	1101	78,9	1259	90,1	1678	112,0	1574	102,5
*Proportion of girls 15 years of age with complete (3 dosages) vaccination **	Not applicable		Not reported		27%		31%		40%	

Legend: n = number of incident cases; ASPR = age-specific incidence rate (cases / 100.000)
Cells in dark grey indicate vaccine-eligible age groups in respective years, cell in light grey include previously vaccine-eligible age groups
** Estimated mean proportions based on: Robert Koch Institute Epi Bull 2016, Rieck et al. Epi Bull 2017, 2020 and 2022*

Table

Mean annual number of incident cervical carcinomas (n) and mean annual age-specific incidence rate per 100,000 (ASPR) for cervical carcinomas (in situ and invasive) in Germany by age groups

VS7-07

SCHÄTZUNG DER VOLLZÄHLIGKEIT DER KREBSREGISTRIERUNG IN DEUTSCHLAND UNTER NUTZUNG DES M/I-INDEX MIT EXTERNEN DATEN AUS MITTEL- UND NORDEUROPÄISCHEN REGISTERN

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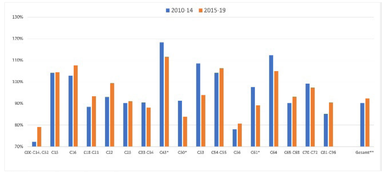

geschätzte Vollzähligkeit der Erfassung in deutschen Krebsregistern (England als Referenzregion)

* eingeschränkte Aussagekraft wg. Screening

** ohne C43, C50, C61

INTRODUCTION

Die regelmäßige Schätzung der Vollzähligkeit der deutschen Landeskrebsregister durch das ZfKD erfolgt anhand des diagnosespezifischen Verhältnisses von Mortalität und Inzidenz (M/I-Index) in einem festgelegten Pool als vollzählig angenommener Register. Diese Ergebnisse erlauben daher nur bedingt Aussagen zur Vollzähligkeit der Erfassung in Deutschland insgesamt.

METHODS

In dieser Analyse wurden die Daten des englischen Krebsregisters aufgrund ihrer breiten Verfügbarkeit (alle 3-stelligen Kodes zwischen C00-D48 nach ICD-10) als Referenz gewählt. Für 6 Alters- und 17 Diagnosegruppen wurde jeweils für Frauen und Männer aus dem Verhältnis von Mortalität zu Inzidenz in England und der bundesweiten Mortalität Erwartungswerte für die Inzidenz in Deutschland geschätzt, aufsummiert und mit den erfassten Fällen (inkl. DCO) verglichen. Zur besseren Einordnung wurden die Vollzähligkeit von acht weiteren nationalen Krebsregistern aus Nord- und Mitteleuropa mit der gleichen Methode geschätzt, teilweise war hierfür aufgrund eingeschränkter Datenverfügbarkeit die Anpassung einzelner Diagnosegruppen erforderlich.

RESULTS

Im Vergleich zu England lag die auf Basis des M/I-Index geschätzte Vollzähligkeit für den Zeitraum 2015-2019 zwischen 87% (Österreich) und 108% (Norwegen). Deutschland erreichte 92,4% (2010-2014: 90,3%). Ein relativ niedriger Erfassungsgrad wurde hier für Kopf-Hals-Tumoren (79%) und hämato-onkologische Diagnosen (90%) geschätzt.

CONCLUSIONS/OUTLOOK

Zu berücksichtigen ist, dass der M/I-Index u.a. durch Unterschiede im Survival innerhalb Europas beeinflusst sein kann. Die Ergebnisse legen jedoch nahe, dass die Krebsregistrierung in Deutschland in der Vollzähligkeit noch nicht ganz zu den etablierten nationalen Registern z.B. in Skandinavien, dem Benelux und Großbritannien aufgeschlossen hat, die Einführung der flächendeckenden klinischen Krebsregistrierung aber auch nicht zu einem Einbruch in der epidemiologischen Erfassung geführt hat.

26. SEPTEMBER 2023
4:30 PM – 6:00 PM

VS8 | AG-SESSION – AG4 EPIDEMIOLOGISCHE METHODEN + AG9 STATISTISCHE METHODEN IN DER EPIDEMIOLOGIE (2/2)

VS8-01

IMPROVING DATA QUALITY ASSESSMENTS THROUGH RICH METADATA – THE UTILITY OF DIFFERENT DATA MODELS

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INTRODUCTION
Descriptions and expectations about the collected data, so called metadata, are a necessary ingredient to assess data quality. Such information should be represented in a machine-readable form to facilitate efficient, transparent and potentially automated analyses. This work provides an update of the recent dataquieR R package metadata approach for data quality assessments and contrasts it with possibilities in selected other data models and standards such as CDISC Define-XML, FHIR, REDCap, and OHDSI's OMOP Common Data Model.

METHODS
Data models have been assessed with the support of domain experts and attributes were assessed for potential relevance to data quality assessments. Our focus was on metadata related to single data elements, such as study variables, and their combinations. A data quality framework for observational studies provided the main point of reference.

RESULTS
The targeted data models offer at least a basic coverage of attributes of relevance such as unexpected data elements, data type mismatches, inadmissible numerical and categorical values, meaning indicators that mainly form part of the integrity and consistency dimension. The range is much narrower with regards to missing values as this requires a standardized approach to code missing data. This is available in FHIR, and dataquieR. Only the dataquieR data model offers a range of attributes of relevance to the accuracy dimension, e.g. to specify unexpected distributions with regards to locations, proportions, shape, or outliers.

CONCLUSIONS/OUTLOOK
The covered data models differ vastly in their structure and ability to store information of relevance for data quality assessments. While the dataquieR model offers the broadest scope of related attributes, it still is not able to fully cover all indicators of the targeted data quality framework. A key issue will be interoperability to reuse data quality related information across data models.

VS8-02

ASSESSING DATA QUALITY IN THE SHIP STUDY USING THE UPDATED DATAQUIER 2.0 PACKAGE IN R

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INTRODUCTION

Among the R packages for data quality (DQ) assessments (DQA), dataquieR is one of the few based on a formal DQ framework for observational studies. dataquieR's previous version enabled calculating 18 out of 34 DQ indicators. dataquieR's latest update increases the coverage to 24 indicators. Here, we present insights from using dataquieR 2.0 for DQAs in the Study of Health in Pomerania (SHIP).

METHODS

Analyzing DQ typically involves computing indicators by comparing data properties with formal expectations (metadata) about them. dataquieR's 2.0 new reporting function uses study data and metadata in this way for DQAs. We input the metadata as a workbook with in total four spreadsheets. These correspond to expectations about variables , the entire study, examination segments, and variable groups. In the same workbook, we classify missing codes and use a reference table for expected participant IDs. dataquieR's reports were applied to data from the ongoing SHIP-NEXT-0 medical examinations.

RESULTS

dataquieR's output consists of HTML files containing an overview, DQA results per DQ dimension, and variables. The overview highlights indicators in which issues were found and provides information about the metadata, its coverage in relation to the study data, and information needed to reproduce the report. The reports further provide the output of the DQ indicators as interactive plots or tables. Data quality issues differ strongly across examinations with physical examinations being among the most vulnerable to issues.

CONCLUSIONS/OUTLOOK

Using dataquieR helped identifying a range of data quality issues that require further attention. The current task is to further refine the grading of issues as decision thresholds may vary across examinations. dataquieR's reports increase the FAIRness of research, as the assumptions and outcomes of its DQA are transparent and reproducible.

VS8-03

HOW TO IMPROVE THE CONDUCT OF COHORT STUDIES WITH VERSATILE SOFTWARE TOOLS

Schmidt C.[1], Struckmann S.[1], Scholz M.[1], Schössow J.[1], Radke D.[1], Kasbohm E.[1], Richter A.[1], Reineke A.[2], Coronado J.[1], Schauer B.[1], Balke D.[1], Henselin K.[1], Westphal S.[1], Leddig T.[1], Völzke H.[1], Henke J.[1]

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INTRODUCTION
Successfully running an epidemiologic cohort study is challenging. One ingredient are suitable and connected IT-tools to cover demands from study design via study conduct up to data transfer. In addition, networked research emphasizes data to be findable, accessible, interoperable, and reusable (FAIR). As best practice example, we illustrate key software components and their connections as developed in the context of the Study of Health in Pomerania (SHIP) and how they support FAIR aims.

METHODS
SHIP comprises three adult cohort-studies and hundreds of side projects. Our software applications have initially mostly been based on the technology of Java Server Faces but are now in the process of being integrated to the Spring Boot architecture. All are provided as Tomcat applications, and Gitlab is used as an infrastructure for software development. Data is stored in a PostgreSQL database.

RESULTS
Our tools address different demands during the study life cycle. The web-tool SHIPPIE serves for electronic data capture. Its strength is the dynamic creation of web forms and a comparatively extensive metadata management, e.g., to enable automated data checks. Interoperability is supported by export options to common data models. SHIPdesigner is a tool to create SHIPPIE web-forms during the design phase of a study. WebMODYS supports and controls all participant management processes. It can be adapted to very specific recruitment processes. Several tools have been designed for data quality assessments, including the R package dataquieR, the Stata package dqrep, and the web application Square[2]. To promote data transfer, FAIRequestsupports findability of and access to data from SHIP and other studies.

CONCLUSIONS/OUTLOOK
The presented tools allow for a high degree of standardization in the conduct of cohort studies with fully documented data management workflows from data capture until data transfer. Most tools have been reused in other studies and are publicly available.

VS8-04

OUTPUT HARMONISATION OF SOCIODEMOGRAPHIC VARIABLES: DEVELOPING PROPOSALS FOR STANDARD VARIABLES FOR GERMAN SURVEYS.

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INTRODUCTION

Summarizing the measurement of sociodemographic characteristics in epidemiology and social sciences, the German survey landscape could be characterized as “same but different”: studies measure the same concepts yet differ in their specific approach. Combining different data sets can thus become a laborious effort which might still produce questionable results, since key caveats can be overlooked in exhaustive survey documentation. It would be best, if such work was done once and for all to use, with standard variables ideally published within scientific use files.

METHODS

To facilitate output harmonisation of socio-demographic variables, we developed proposals for standard variables for selected socio-demographic attributes. While our approach was based on the German survey data landscape, we leaned upon international standards such as ISCED for education or the EU’s standardised key social variables for household net income or main activity status, to ensure international compatibility. To provide for the quality and usefulness of the proposed standard variables, we used three methods: Firstly, before developing our proposals, we reviewed existing survey instruments in several of Germany’s leading studies (https://doi.org/10.5281/zenodo.6810973). Secondly, the proposals were discussed in a virtual roundtable meeting with researchers, study representatives and data users, as well as bilaterally with individual experts. Thirdly, based upon a multiple linear regression analysis approach, we validated our proposals both in a data-driven and a theory-driven way, using a broad set of up to 190 potential outcome variables.

RESULTS

Validation results showed support for some versions proposed. Based on these results and the feedback gained, we have refined our proposals.

CONCLUSIONS/OUTLOOK

In this talk, we will showcase the standard variables for 3 socio-demographic attributes, namely education, marital status and main activity status to collect final feedback. Our proposals will be published in autumn 2023.

VS8-05

EUTHYROID2 – TOWARDS THE ELIMINATION OF IODINE DEFICIENCY

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INTRODUCTION
Iodine deficiency (ID) is the world's leading cause of thyroid disorders and the single most important and preventable cause of brain damage. For adolescents, and in particularly, for young women, even mild-to-moderate ID during pregnancy is related to neurocognitive impairment in the offspring.
The main objective of EUthyroid2 is to fill important gaps in the prevention of ID in Europe and beyond.

METHODS
In six EU countries as well as in Pakistan and Bangladesh implementation studies and community-based randomized-controlled trials will be conducted. The interventions will be performed in the two settings educational system and ambulatory care units in which adolescents (13-17 years) and young woman (18-24 years) are to be taught about the importance of iodine and sensitized to possible adaptations to their nutrition. Logic models for the intervention studies are developed to standardize the procedures. Following this, country specific assessments are carried out in order to adapt the procedure to each country.
For each site separately, associations of intervention with awareness and, in the ambulatory care setting, urinary iodine concentrations after intervention will be analyzed. The primary outcome, the awareness of the risk of ID, and other outcomes such as iodine-related eating habits are evaluated by interviews, surveys and document analysis

RESULTS
First process evaluation data is expected in 2024. In 2026, the project evaluation based on 15 schools (each with 150 students) per country and 10 ambulatory care units (each 30 patients) per country will be completed.

CONCLUSIONS/OUTLOOK
Regardless of warnings from the World Health Organization that Europeans are increasingly affected by the consequences of ID Europe belongs to the worst regions regarding iodine intake.
By finding the best practice models to raise awareness of the significance of iodine for a healthy life, EUthyroid2 will lay the foundation for a cost-effective way to eradicate iodine deficiency-related disorders.

VS8-06

RELIABILITY OF A GERMAN TELEPHONE VERSION OF THE KANSAS CITY CARDIOMYOPATHY QUESTIONNAIRE (KCCQ)

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INTRODUCTION
The prevalence of heart failure (HF) increases constantly and is one of the most common causes for hospitalization in Germany. Monitoring health-related quality of life (HRQoL) is an important component when evaluating the success of HF treatment. Among patients with HF, HRQoL can be assessed using the Kansas City Cardiomyopathy Questionnaire (KCCQ). The KCCQ is a self-administered questionnaire consisting of 23 items that assess seven domains and three scores of the HF related health status of a patient. The reliable collection of HRQoL over the phone might be a useful add-on, allowing a more frequent and less resource intensive assessment. However, to date, there are no published data regarding the reliability when collecting the KCCQ over the phone. The objective of this study was to test the reliability of a telephone version of the German KCCQ.

METHODS
Sixty-one patients with a diagnosis of chronic HF (defined as reduced left ventricular ejection fraction (LVEF) ≤40%) were included in the study. Information on KCCQ was collected twice, in a randomized order: a) participants completed the questionnaire by themselves; b) patients were interviewed by a trained research associate on the phone. The intraclass correlation coefficient (ICC) was calculated to estimate agreement between both methods. As the data was not normally distributed, a non-parametric, rank-based approach for ICC calculation was chosen.

RESULTS
Mean age of HF patients was 61 years (±13.61), 18 were women. The test-retest reliability between the telephone and self-administered KCCQ was excellent for all domains and scores. E.g.,
regarding the overall summary score (KCCQos), the agreement was ICC 0.957 (95% confidence interval 0.924-0.990).

CONCLUSIONS/OUTLOOK
The telephone version of the German KCCQ showed an excellent test-retest reliability, indicating its applicability to collect data about health status among HF patients over the phone.

26. SEPTEMBER 2023
4:30 PM – 6:00 PM

VS9 | AG-SESSION – AG12 ERHEBUNG UND NUTZUNG VON SEKUNDÄRDATEN (AGENS)

VS9-01

IST EINE DEMENZDIAGNOSE PRÄDIKTIV FÜR DIE PALLIATIVVERSORGUNG? – EIN MACHINE LEARNING ANSATZ

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INTRODUCTION
Palliativversorgung (PV) zielt darauf ab, sterbenden Menschen ein würdevolles und selbstbestimmtes Leben zu ermöglichen. Während die Integration von PV bei Tumorerkrankungen in der
Gesundheitsversorgung in Deutschland etabliert ist, wird PV in der S3-Leitlinie für Demenz nicht berücksichtigt.

METHODS
Zur Untersuchung der Frage, ob eine Demenzdiagnose prädiktiv für die PV ist, verwendeten wir longitudinale Abrechnungsdaten der Allgemeinen Ortskrankenkassen (AOK) von Personen über 50 Jahren aus dem Zeitraum 2014 bis 2019 (N=250.000). Die Analyse konzentrierte sich auf die letzten acht Lebensquartale von 13.628 Personen, die im Beobachtungszeitraum verstorben waren. Zielvariablen waren die ambulante (APV) und stationäre (SPV) PV. Prädiktoren waren Komorbiditäten, Pflegemaßnahmen, Medikamente und Patientenstatus (Demenz- (ICD-10: F00-F03, F05.1, G23.1, G30, G31.0) oder Krebsdiagnose (ICD-10: C00-C26, C30-C41, C45-C58, C60-C97, D00-D09), Kombinationen beider Diagnosen und diagnosefreie Patienten). Zur Prädiktion der Inanspruchnahme von PV wurden diskrete conditional inference survival trees (ctrees) und diskrete conditional inference survival forests (cforests) verwendet. Zur Evaluierung der Modelle wurden der Concordanz-Index (C-Index) sowie Kalibrierungsdiagramme genutzt. Um die wichtigsten Prädiktionsmerkmale zu identifizieren wurden Variablenwichtigkeitsmaße berechnet.

RESULTS
Die Modelle für APV und SPV hatten einen C-Index von mehr als 0,7 und die cforests zeigten gute Kalibrierungen. Zu den 20 wichtigsten Prädiktoren für APV gehörten gemäß Variablenwichtigkeit die Krebs- und Demenzdiagnosen und deren Kombinationen. Weder Krebs- noch Demenzdiagnosen waren wichtige Prädiktoren für die SPV.

CONCLUSIONS/OUTLOOK
Wir haben festgestellt, dass eine Demenzdiagnose eine vergleichbare Vorhersagekraft für APV hat wie eine Krebsdiagnose. Dieses Problem sollte diskutiert und angemessene Maßnahmen in die Versorgung von Demenzpatienten integriert werden.

VS9-02

VERSORGUNG UND VERSORGUNGSBEDARF VON PERSONEN NACH EINER KREBSERKRANKUNG IM KINDES- ODER JUGENDALTER (VERSKIK-STUDIE): STUDIENDESIGN UND DESKRIPTION DER STUDIENPOPULATION

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INTRODUCTION
Rund 2.250 Kinder und Jugendliche unter 18 Jahren erkranken in Deutschland jährlich an Krebs. Etwa 82% überleben die Krebserkrankung um mindestens 15 Jahre. Ca. zwei Drittel aller Überlebenden leiden im Laufe ihres Lebens an mindestens einer Spätfolge. Für Deutschland liegen bisher keine systematischen Informationen über Art und Umfang von Spätfolgen, zur Inanspruchnahme von Nachsorgeuntersuchungen sowie zur Auswirkung von Leitlinienadhärenz auf Spätfolgen vor. Das Projekt VersKiK (Förderung: Innovationsfond des G-BA, Förder-Kz VSF1_2019-095) möchte diese Lücke schließen.

METHODS
VersKiK ist eine retrospektive, sekundärdatenbasierte Beobachtungstudie. Das Deutsche Kinderkrebsregister (DKKR) definiert eine Kohorte von Personen nach Krebserkrankung im Kindes- oder Jugendalter (Diagnosejahre 1991-2021, Überleben bis 1.1.2016). Die Identifizierung der Studienpopulation im Datenbestand von 13 beteiligten gesetzlichen Krankenkassen erfolgt über ein stochastisches kryptographiertes Record-Linkage. Zudem wird eine Vergleichsgruppe aus dem Datenbestand der Krankenkassen nach Geburtsjahr und Geschlecht 1:5 gematcht. Die Prävalenz von Spätfolgen (insbesondere kardiologische, audiologische, psychische Erkrankungen) sowie die Teilnahme an empfohlenen Nachsorgemaßnahmen werden anhand der Abrechnungsdaten 2016-2022 untersucht.

RESULTS
Die DKKR-Kohorte umfasst ca. 50.000 Personen. Da die beteiligten Kassen etwa 50-60% der deutschen Bevölkerung abbilden werden voraussichtlich 25.000-30.000 Patient:innen in die Studie einbezogen. Im September 2023 werden erste Ergebnisse zur Charakterisierung der Kohorte präsentiert: demografische Charakteristika von DKKR- und Vergleichskohorte.

CONCLUSIONS/OUTLOOK
VersKiK soll dazu beitragen die Nachsorge von Patient:innen nach Krebserkrankung im Kindes- oder Jugendalter zu verbessern, indem bestehende Versorgungslücken identifiziert werden. Projektende voraussichtlich 08/2024.

VS9-03

THE EU PROJECT “REAL4REG” - USE CASES FOR DEVELOPMENT, OPTIMISATION AND IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE METHODS FOR REAL WORLD DATA ANALYSES IN REGULATORY DECISION-MAKING AND HEALTH TECHNOLOGY ASSESSMENT ALONG THE PRODUCT LIFECYCLE

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INTRODUCTION

The use of real-world data (RWD) is becoming increasingly relevant in drug regulatory decision making, but heterogeneity in data structure and sources pose a challenge. Moreover, there is a need for optimised tools for the appropriate application of artificial intelligence (AI) to RWD sources in the regulatory and health technology assessment (HTA) context.

Based on highly relevant use cases from regulatory practice and across the product lifecycle, Real4Reg develops AI-based data-driven methods and tools for the assessment of medicinal products. Our results will inform training activities on good practice examples and will be informative for existing and emerging guidelines for both health regulatory authorities and HTA bodies across Europe.

METHODS

The data used for the project include national register and health insurance claims data from Denmark, Finland, Germany, and Portugal. We develop user-friendly analytical solutions along four use cases, including pre- and post-authorization examples. Methodological tools involved include a common data model, a trial emulation, propensity score algorithms, and a broad spectrum of AI algorithms.

RESULTS

The results of the four use cases will be:

Information on standardised study population description of amyotrophic lateral sclerosis and breast cancer, information on the usability/feasibility of historical/external control design for pre-authorisation/evaluation purposes, post-marketing safety evaluation of fluoroquinolones and comparative effectiveness of SGLT2 inhibitors

CONCLUSIONS/OUTLOOK

Real4Reg addresses the opportunities and challenges of RWD analyses across different health care systems. Our consortium assembles multiple partners with outstanding excellence in the field of RWD analyses, including experts from regulatory agencies/ HTA, academia, and patient organisations. Our project will enable the use and establish the value of the successful and effective use of RWD in regulatory decision-making and HTA.

VS9-04

DEVELOPMENT OF CASE DEFINITIONS FOR PREVALENCE ESTIMATION OF DIABETIC KIDNEY DISEASE AND RENAL REPLACEMENT THERAPY IN PATIENTS WITH DIABETES BASED ON ROUTINE DATA

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INTRODUCTION
Diabetic kidney disease (DKD) and renal replacement therapy (RRT) are important long-term complications of diabetes with substantial contribution to the disease burden. In this study, the Diabetes Surveillance at the Robert Koch Institute aimed to develop case definitions to estimate prevalence of DKD among patients with diabetes in routine data for continuous surveillance.

METHODS
Based on an age- and sex-stratified sample of persons of the BARMER statutory health insurance, we included persons with documented diabetes (E10-E14), differentiated by type 1 (T1D) and type 2 diabetes (T2D). We distinguished persons with nephropathy (ICD: N08.3, E1x.2), chronic kidney disease (CKD; ICD: N18) and RRT with dialysis (EBM: 40815-40819, 40823-40828 / OPS: 8-853, 8-854, 8-855, 8-857) or transplantation (OPS: 5-555; EBM: 04561, 13601; ICD Z94.0). Subsequently, we determined the persistence of the case definitions for nephropathy and CKD by considering different observation periods.

RESULTS
In 2018, diabetic nephropathy was documented in 15.4% of individuals with diabetes (T1D: 18.3%; T2D: 15.2%), CKD in 21.8% (T1D: 14.4%, T2D: 22.2%). While in age-groups younger than 60 years prevalence of nephropathy is higher than CKD, CKD is more frequent in patients above 60 years. Kidney transplantation was documented in 2.4 and dialysis treatment in 8.4 per 1,000 individuals with diabetes. Considering a five-year observation period, the prevalence of nephropathy increased to 20.5% and the prevalence of CKD to 26.9%.

CONCLUSIONS/OUTLOOK
Diabetic kidney disease is a frequent complication of diabetes. Prevalence estimation varies based on the case definition, which might focus either on etiology (diabetic nephropathy) or functional impairment (CKD). Additionally, the observed time period has significant influence on the prevalence estimation. We will conduct further internal validation studies to gain insight into the suitability of the case definitions.

VS9-05

RECOMMENDATIONS FOR THE UTILIZATION OF CLAIMS DATA DURING A PANDEMIC – LESSONS LEARNED FROM FIVE USE CASES OF THE PROJECT EGEPAN-UNIMED OF THE NETZWERK UNIVERSITÄTSMEDIZIN (NUM)

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INTRODUCTION
During the COVID-19 pandemic data on various relevant research questions for appropriate pandemic response were required. We investigated potentials and limitations of claims data of health insurances as an additional data source for pandemic monitoring and patient-related (follow-up) investigations.

METHODS
Within the BMBF-funded project egePan-Unimed of the Netzwerk Universitätsmedizin (NUM) we investigated five COVID-19 related research questions (‘use cases’) using German claims data of statutory health insurances. We studied the prevalence and relevance of risk factors for a severe course of COVID-19, the background incidence of cerebral venous sinus thrombosis and myocarditis, the frequency and symptoms of Post-COVID as well as changes in the care of people with a psychiatric condition during the COVID-19 pandemic.

RESULTS
Based on these use cases context specific recommendations regarding the use of German claims data for future pandemics or other public health emergencies were derived: The utilization of established and interdisciplinary project teams enables a timely project start and meta-analytic methods are a valuable way to pool aggregated results of claims data analyses when data protection regulations do not allow a consolidation of data sets from different statutory health insurances. The failure to integrate COVID-19 immunization information as well as COVID treatment drugs is a relevant limitation of German claims data regarding COVID-related analyses.

CONCLUSIONS/OUTLOOK
Claims data are a timely available and valid data source for providing an empirical evidence base for necessary public health measures during a pandemic. Nethertheless, statutory and procedural regulations should be adapted for using social data in pandemic situations.

VS9-06

NUTZUNG VON GKV-ROUTINEDATEN ZUR NOTFALLBEHANDLUNG: POTENTIAL UND METHODISCHE LIMITATIONEN FÜR DIE ANALYSE VERSICHERTENINDIVIDUELLER BEHANDLUNGSPFADE

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INTRODUCTION
Forschungsprojekte zur Notfallversorgung benutzen oftmals GKV-Routinedaten zur Analyse versichertenindividueller Behandlungspfade. Dabei wird die Notfall-Inanspruchnahme ambulant über EBM-GOPs (§295 SGBV) und stationär über den Aufnahmegrund (§301) operationalisiert.

METHODS
Bei 9.606 TK-Versicherten, die aufgrund einer Notfallbehandlung in 2019 mit schriftlicher Einverständniserklärung am Projekt ENQuIRE teilgenommen haben, wird die Validität der Notfallbehandlung in GKV-Routinedaten analysiert.

RESULTS
Bei 6.027 Versicherten (62,7%) ist in den GKV-Daten (irgend)eine ambulante Notfallbehandlung dokumentiert, nur bei 46,3% in einer der am Projekt teilnehmenden Kliniken. Fokussiert man auf Fälle mit tagesgleicher Notfallbehandlung, so sinkt die Rate auf 22,2%. Bei zeitlicher Vergröberung (+/-1 Monat) steigt die Rate auf 54,7%. Eine tagesgleiche stationäre (Notfall-) Behandlung liegt bei 16,8% vor, wobei insgesamt 68,2% stationär behandelt wurden.

CONCLUSIONS/OUTLOOK
Wider Erwarten zeigt sich in den GKV-Daten ein Underreporting hinsichtlich einer (tagesgleichen) Notfall-Inanspruchnahme in einer Größenordnung von mind. 37,3%. Hierbei ist zu berücksichtigen, dass Primärdaten zur Notfallbehandlung nicht uneingeschränkt als Goldstandard gelten können, sondern auch spezifischen methodischen Restriktionen unterliegen. Es ist zu berücksichtigen, dass Notfallbehandlungen auch noch zeitlich versetzt abgerechnet werden können, z.B. beim Fehlen der Versichertenkarte im Notfall-Setting oder andere Kostenträgerzuständigkeit (z.B. Unfallversicherung).

Zeitliche Unschärfen hinsichtlich Notfallbehandlungen in GKV-Routinedatenbei (u.a. Abrechnungstag vs. Behandlungsdatum) sollten durch die flankierende Primärdaten (Nach-)Erhebung zumindest für Subgruppen korrigiert werden. Idealerweise unter Nutzung digitaler Anwendungsmöglichkeiten (z.B. EPA-Funktion der Versichertenkarte).

27. SEPTEMBER 2023
9:30 AM – 11:00 AM

VS10 | AG-SESSION – AG1 INFEKTIONSEPIDEMIOLOGIE (1/2)

VS10-01

DIFFERENTIATING HOSPITALIZATIONS CAUSED BY COVID-19 FROM INCIDENTAL POSITIVE SARS-COV-2 TEST UPON ADMISSION - COHORT STUDY BASED ON HEALTH RECORDS FROM GERMAN TERTIARY CARE HOSPITALS

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INTRODUCTION
The hospitalization rate (HR) of patients with SARS-CoV-2 infection is serving as an indicator for the pressure of COVID-19 on the health care system. With increasing population immunization and the emergence of low-virulence variants, however, HR became a less suitable indicator. Thus, an updated version of the HR should differentiate between patients admitted due to COVID-19 (primary cases) and patients with incidental SARS-CoV-2 infection (incidental cases). We propose an updated HR, HR 2.0, which is based on primary cases identified in routine admission screening processes.

METHODS
We used data from electronic health records from two university hospitals in Germany. Patients who tested positive for SARS-CoV-2 upon admission screening between January and June 2022 were included. We developed two distinct models, a point-of-care model based on parameters available shortly after admission, and an extended model based on parameters available within the first 48 hours after admission. Regression and tree-based classification models were applied and internally and externally validated. Discrimination was assessed with the area under the curve statistic (AUC) and calibration with the Brier score (BS).

RESULTS
A total of 1150 patients were included (mean age 49.5±28.5 years, 528 (46%) female). Of all patients, 462 (40%) were hospitalized because of COVID-19 (primary case). The point-of-care model showed good discrimination (AUC=0.80) and calibration (BS=0.19) using admission diagnosis, ward of admission, sex, and age. The extended model additional included viral load, oxygen need, leucocyte count, and C-reactive protein as predictors and yielded an AUC of 0.87 and a BS of 0.12.

CONCLUSIONS/OUTLOOK
The HR 2.0 is an innovative tool for assisting stakeholders in their political decisions. It can be adapted to situations requiring a quick and rapid response to take action in a short period of time. Moreover, it can be modified to be used in future pandemic, epidemic and endemic situations.

VS10-02

FACTORS AND SYMPTOM PATTERNS ASSOCIATED WITH RECOVERY FROM LONG COVID

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INTRODUCTION
Millions of people worldwide are estimated to suffer from long-term symptoms after their SARS-CoV-2 infection (Long COVID). However, there is still little information about the recovery of symptoms among those who initially developed symptoms. Therefore, we aimed to identify factors associated with the recovery among those who suffered from symptoms at 4-12 weeks after infection.

METHODS
We used data of SARS-CoV-2-infected individuals of the DigiHero study, a population-based virtual platform for digital health research in Germany. Participants provided information about their SARS-CoV-2 infection and vaccinations as well as their symptoms at the time of infection, 4-12 weeks, and more than 12 weeks post-infection. Multivariable logistic regression was used to identify factors associated with not progressing from Ongoing COVID-19 (symptoms present at 4-12 weeks after infection) to Post-COVID-19 (symptoms present 12 or more weeks after infection). Furthermore, we performed principal component analysis (PCA) to identify symptom patterns and evaluated their association with recovery from long-term symptoms.

RESULTS
5247 participants still had symptoms at 4-12 weeks after their SARS-CoV-2 infection, of which 2441 (46.5%) fully recovered after 12 weeks. Men, younger participants, individuals with a mild course of acute infection, and individuals infected with the Omicron variant had a higher chance of recovery. In the PCA, we identified four distinct symptom groups. While a group consisting of diverse symptoms, including cognitive impairment and fatigue, was associated with the persistence of symptoms, presence of another group, including lingering symptoms of an acute infection (e.g., cough, sore throat) was associated with the recovery of symptoms at 4-12 weeks post infection.

CONCLUSIONS/OUTLOOK
Our results suggest that there are distinct groups among those still reporting symptoms 4-12 weeks after infection.

VS10-03

PERSISTENT SYMPTOMS AND RISK FACTORS PREDICTING PROLONGED TIME TO SYMPTOM-FREE AFTER SARS-COV-2 INFECTION: AN ANALYSIS OF THE BASELINE EXAMINATION OF THE GERMAN COVIDOM/NAPKON-POP COHORT

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INTRODUCTION

Factors associated with the time course of and recovery from COVID-19 symptoms are not well understood. We aimed to assess symptoms in patients after SARS-CoV-2 infection and to identify factors predicting prolonged time until becoming symptom-free.

INFEKTIONSEPIDEMIOLOGIE (1/2)

METHODS

COVIDOM/NAPKON-POP is a population-based prospective cohort of adults whose first on-site visits had been scheduled ≥6 months after a positive SARS-CoV-2 PCR test. Retrospective data including self-reported symptoms and time to becoming symptom-free were collected prior to the site visits. Data being used for the present analysis were collected between November 2020 and September 2021. In the survival analyses, being symptom-free served as the event and time to becoming symptom-free as the time variable. Data were visualized with Kaplan-Meier curves, differences were tested by log-rank tests. A stratified Cox proportional hazard model was used to estimate adjusted hazard ratios (aHRs) of predictors, with aHR<1 indicating a longer time to becoming symptom-free.

RESULTS

Of 1175 symptomatic participants included in the present analysis, 636 (54.1%) reported persistent symptoms after 280 days (SD 68) post infection. 25% of participants were free from symptoms after 18 days [quartiles: 14, 21]. Factors associated with prolonged time to becoming symptom-free were age 49-59 years compared to <49 years (aHR 0.70, 95% CI 0.56-0.87) (no difference in risk between ≥60 years and <49 years), female sex (aHR 0.78, 95% CI 0.65-0.93), lower educational level (aHR 0.77, 95% CI 0.64-0.93), living with a partner (aHR 0.81, 95% CI 0.66-0.99), low resilience (aHR 0.65, 95% CI 0.47-0.90), steroid treatment (aHR 0.22, 95% CI 0.05-0.90) and no medication during acute infection (aHR 0.74, 95% CI 0.62-0.89).

CONCLUSIONS/OUTLOOK

COVID-19 symptoms had resolved in one quarter of participants within 18 days, and in 45% within 28 days. Symptom persistence was predominantly determined by participants characteristics that are difficult to modify.

VS10-04

PROFILE OF LONG-TERM SYMPTOMS AFTER KNOWN AND UNKNOWN SARS-COV-2 INFECTIONS IN THE POPULATION

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INTRODUCTION
Post-COVID syndrome (PCS) is characterized by heterogenous symptoms. The aim was to determine the specific profile of long-term symptoms after SARS-CoV-2 infections.

METHODS
In the population-based Gutenberg COVID-19 Study (N=10,250), sequential systematic screening for SARS-CoV-2 was performed from October 2020 to June 2021. Individuals with history of SARS-CoV-2 received a standardized interview on long-term sequelae persisting at least 6 months after infection. Controls free of SARS-CoV-2 infection were asked about persistent symptoms during the pandemic. Robust Poisson regression models were applied to compare the frequency of symptoms between groups and to identify risk factors.

RESULTS
The analysis sample comprised 272 individuals with known SARS-CoV-2 infection, 200 with unknown infection, and 470 persons free of SARS-CoV-2. Prevalence of long-term sequelae was 36.4%[95% confidence interval 30.7%-42.5%] among those with known SARS-CoV-2 infection and 27.5%[21.6%-34.3%] in individuals unknowingly infected. Among the control group, 28.1%[24.1%-32.4%] reported long-lasting complaints. Individuals with known SARS-CoV-2 infection had more often dyspnea (Prevalence ratio [PR]=2.31, [1.23; 4.34]), anosmia (PR=14.68[5.38-40.10]), forgetfulness (PR=2.88[1.55-5.35]), concentrating difficulties (PR=2.83[1.55-5.16], hair loss (PR=2.09[1.03-4.21]), and trouble with balance (PR=2.74[1.18-6.35]) than persons free of SARS-CoV-2. Overall, infected individuals less frequently reported headache and sleeping disorders compared with controls. Individuals with arterial hypertension (PR=2.47[1.01-6.12]), diabetes mellitus (PR=2.69[1.12-6.48]) and history of cancer (PR=3.33[1.51-7.34]) had more commonly long-term sequelae after SARS-CoV-2.

CONCLUSIONS/OUTLOOK
Individuals with and without SARS-COV-2 infection reported persistent symptoms, but specific differences in symptomology were identified. The findings contribute to a better understanding of the clinical phenotype of PCS.

VS10-05

INCIDENCE AND PERSISTENCE OF POST-COVID CONDITION IN CHILDREN ONE YEAR AFTER ACUTE INFECTION – A MATCHED COHORT STUDY BASED ON ROUTINE HEALTHCARE DATA

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INTRODUCTION
Long-term health effects of COVID-19 have been investigated by several large cohort studies. As most of these studies have been conducted in adults, data on the incidence and persistence of post-COVID-19 condition (PCC) among children and adolescents are still limited.

METHODS
Using routine healthcare data from statutory health insurance in Germany, children and adolescents with laboratory-confirmed COVID-19 in 2020 were matched to controls (neither documented nor clinically suspected COVID-19) and followed for incident health conditions until 2021-09-30. To study PCC in children we considered selected health outcomes including malaise/fatigue (R53), dyspnea (R06.0), and cognitive dysfunction (F06.7, U51, R41), developmental delay (F80-89), adjustment disorder (F43), chronic fatigue syndrome (CFS; G93.3), and altered smell/anosmia (R43). The incidence of PCC was determined based on the lack of related diagnoses in the 12 months preceding the index quarter. For each outcome incidence rate ratios (IRR) were estimated using Poisson regression.

RESULTS
At 3-month-follow-up, about 40% more individuals with COVID-19 suffered from at least one of the specified health conditions compared to controls. IRR were highest for altered smell/anosmia and CFS. IRR were generally higher among adolescents (≥12 years) than among younger children. Only a minority of PCC diagnoses persisted for 12 months within the COVID cohort. PCC diagnoses were more frequently persistent in the younger age group after one year.

CONCLUSIONS/OUTLOOK
Despite that long-term consequences of COVID-19 are less common and usually less severe in children, a considerable share of those diagnosed with PCC still suffered from specific symptoms 12 months after acute infection. Considering the high number of infected persons our findings suggest a relevant PCC related burden for health care even among children and adolescents.

VS10-06

CONTRIBUTION OF COVID-19 TO THE BURDEN OF RESPIRATORY INFECTIONS IN AUTUMN/WINTER 2022/23

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INTRODUCTION
With the end of the third year of the global SARS-CoV-2 (COVID-19) pandemic, the virus became part of the regular cold season in Germany. Hence, we wanted to investigate the relevance of COVID-19 in the previous winter season of 2022/2023 compared to other infectious respiratory diseases.

METHODS
We conducted a survey with questions on the number of respiratory infections, their severity, and whether a SARS-CoV-2 test was performed in the period from September 2022 to March 2023. We used a sample from the DigiHero study (Medical Faculty, Halle), which includes over 80.000 participants from 13 federal states in Germany.

RESULTS
Out of the first 24.000 participants, who responded until the first week of April 2023, 14.973 (60%) reported at least one respiratory infection, whereby a mean of 1.2 infections (SD = 1.8) with a mean symptom length of 9.6 days (SD = 9.8) was reported per person. In 56% of the infection episodes, participants stayed in bed for a least one day (μ = 2.0, SD = 3.0). In 29% of cases, a doctor's consultation ensued and 0,3% of infections lead to hospitalization. During 72% of infections, a COVID-19 rapid test was self-performed. Of all reported infections, 23% were infections with SARS-CoV-2, of which 74% were self-reported as first infections.

CONCLUSIONS/OUTLOOK
Our results suggest that COVID-19 made up a fourth of all reported infectious respiratory diseases in the population during the cold season of winter 2022/23 . However, it is uncertain to what extent the contribution of COVID-19 to the burden of respiratory infections will change in upcoming winter seasons.

27. SEPTEMBER 2023
9:30 AM – 11:00 AM

VS11 | AG-SESSION – AG6 GENETISCHE EPIDEMIOLOGIE + AG11 PHARMAKOEPIDEMIOLOGIE

VS11-01

TIME TRENDS OF HIV TREATMENT IN GIRLS AND WOMEN OF CHILDBEARING AGE IN GERMANY

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INTRODUCTION

In Germany, about 9000 girls and women of childbearing age (WCBA) have diagnosed HIV. Since 2015 guidelines recommend antiretroviral treatment (ART) directly after diagnosis. In 2018, an increased risk of neural tube defects was observed for the integrase inhibitor (INI) dolutegravir and official warnings have been issued not to use it in WCBA.
Our aim was to describe trends of ART use in WCBA with special focus on dolutegravir.

METHODS

Based on the German Pharmacoepidemiological Research Database (GePaRD), we conducted year-wise cross-sectional analyses (2004-2020). We calculated age-specific prescription prevalences of ART classes and individual substances by dividing the number of females aged 13-49 years with ≥1 dispensing by the mid-year population of the respective year. Age-standardization was performed with the German female population on December 31, 2020. The study was financed by the BfArM.

RESULTS

The age-standardized prescription prevalence of nucleoside reverse transcriptase inhibitors (NRTI) increased from 2004 to 2020 (0.26 to 0.61/1000). For non-nucleoside reverse transcriptase inhibitors (NNRTI) and protease inhibitors (PI) the age-standardized prescription prevalence remained stable. Since the introduction of INI in 2008, the age-standardized prescription prevalence has increased, especially since the approval of dolutegravir in 2014 (0.11/1000 in 2014 to 0.25/1000 in 2019). From 2019 to 2020, no further increase was observed. For all classes and for dolutegravir, the prescription prevalence was higher in women ≥35 years than in younger women. For dolutegravir, there was no change between 2018 and 2020 in women ≥40 years but a decrease in younger women, mainly for 20-24 years (0.04/1000 to 0.02/1000) and 35-39 years (0.15/1000 to 0.11/1000).

CONCLUSIONS/OUTLOOK

The prescription prevalence of ART, mostly of NRTI and INI has considerably increased in Germany among WCBA. The warnings on dolutegravir seem effective in younger age groups, i.e. where pregnancies most commonly occur.

VS11-02

MODELLING THE IMPACT OF CHANGING MALARIA PREVALENCE ON ANTIBIOTIC PRESCRIPTION

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INTRODUCTION
In areas of sub-Saharan Africa where malaria is endemic, treatment of febrile children is sometimes initiated before lab results are available. Over-prescription of antibiotics has been documented and it is clear that clinical treatment decisions are linked with the underlying disease landscape. We sought to explore the impact of malaria prevalence on antibiotic use.

METHODS
We constructed a mathematical probability model for clinical treatment of febrile children <5 in sub-Saharan Africa. This model predicted treatment under three malaria prevalence levels: 33% prevalence among febrile hospitalized children (Scenario A); reduction of this prevalence by 50% (Scenario B); and reduction by 90% (Scenario C). Model parameters were based on data from a recent hospital study in Ghana and validated via literature review. Bayesian sensitivity analyses determined which parameters most influenced model outcomes. We used R Studio for model construction and analyses, with the outcome of antibiotics prescriptions with 99% credibility intervals (CIs).

RESULTS
In Scenario A, 73% of all febrile hospitalized children received antibiotics; this increased in Scenarios B and C to 84% and 91%, respectively, due to the increasing proportion of non-malarial cases. However, since absolute number of febrile cases decreased with malaria prevalence, the number of antibiotic prescriptions decreased: in comparison to Scenario A, Scenario B resulted in a reduction of antibiotic consumption by 3.7% (99% CI: 3.1-4.3%) and Scenario C resulted in a reduction by 11.4% (99% CI: 10.8-12.0%).

CONCLUSIONS/OUTLOOK
We found that antibiotic use is counterintuitively related to the prevalence of non-bacterial illnesses like malaria. Our results support a discussion on the significance of malaria prevalence in clinical treatment decisions, specifically with antibiotics. This study illustrates how we can fight two global health concerns, malaria and antimicrobial resistances, with targeted anti-malaria efforts.

VS11-03

EFFECTIVENESS AND SAFETY OF DIRECT ORAL ANTICOAGULANTS AMONG PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION AND LIVER DISEASE: A MULTINATIONAL COHORT STUDY

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INTRODUCTION
The effects of direct oral anticoagulants (DOACs) in patients with non-valvular atrial fibrillation (NVAF) and liver disease are poorly understood. Our multinational cohort study assessed the effectiveness and safety of DOACs in this high-risk population.

METHODS
We assembled two population-based cohorts (UK, Québec) of NVAF patients with liver disease initiating DOACs or vitamin K antagonists (VKAs) between 2011 and 2020. Using an as-treated exposure definition, we compared DOACs to VKAs and apixaban to rivaroxaban. After inverse probability of treatment weighting, Cox proportional hazards models estimated site-specific hazard ratios (HRs) and 95% confidence intervals (CIs) of ischemic stroke (IS) and major bleeding (MB) separately. Site-specific estimates were pooled using random-effects models. Sensitivity analyses assessed the impact of information bias, competing risk due to death, and residual confounding. Analyses were repeated in NVAF patients with cirrhosis.

RESULTS
Among 11,881 NVAF patients with liver disease (5,199 in UK, 6,682 in Québec), 8,815 initiated DOACs (4,414 apixaban, 2,497 rivaroxaban) and 3,696 VKAs. Compared to VKAs, DOACs were not associated with the risk of IS (HR 1.01; 95% CI 0.76-1.34; I^2=0%) but with a small decrease in the risk of MB (HR 0.87; 95% CI 0.77-0.99; I^2=48%). Results were consistent in sensitivity analyses (Fig1) and patients with cirrhosis. Compared to rivaroxaban, apixaban was not associated with the risk of IS (HR 0.85; 95% CI 0.60-1.20; I^2=0%) but with a decreased risk of MB (HR 0.80; 95% CI 0.68-0.95; I^2=0%). Results were consistent in sensitivity analyses (Fig2). The decreased risk of MB with apixaban was not retained in patients with cirrhosis (HR 1.01; 95% CI 0.72-1.43; I^2=0%).

CONCLUSIONS/OUTLOOK
In NVAF patients with liver disease, DOACs were as effective and slightly safer than VKAs, and apixaban was as effective and safer than rivaroxaban. Results were consistent in cirrhosis patients except for the disappearance of the safety benefit with apixaban.

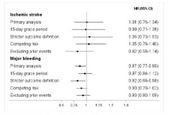

Figure 1

Forest plots summarizing the primary and the sensitivity analyses for the comparison DOACs vs VKAs among NVAF patients with liver disease

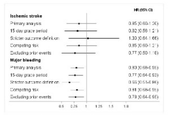

Figure 2

Forest plots summarizing the primary and the sensitivity analyses for the comparison apixaban vs rivaroxaban among NVAF patients with liver disease

VS11-04

USE OF FLUOROQUINOLONE ANTIBIOTICS AND THE RISK OF SEVERE HYPOGLYCEMIA AMONG PATIENTS TREATED WITH SULFONYLUREAS: A POPULATION-BASED COHORT STUDY

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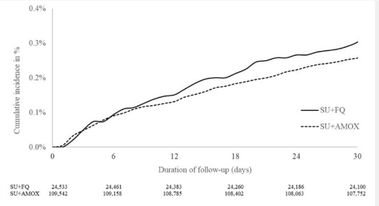
INTRODUCTION
Fluoroquinolones (FQ) may cause hypoglycemia in rare occasions. However, FQ related hypoglycemia could become clinically relevant in populations with a high baseline risk of this adverse effect such as diabetic patients treated with sulfonylureas (SU). Our population-based cohort study assessed whether use of FQ is associated with an increased risk of severe hypoglycemia compared to use of amoxicillin in patients treated with SU.

METHODS
We used the UK CPRD Aurum linked to hospitalization and vital statistics data (1998-2020). Out of a base cohort of SU initiators, we assembled a study cohort of patients co-exposed to SU and either FQ or amoxicillin. Study cohort entry date was the date of antibiotic initiation while on SU. Using an intent-to-treat exposure definition, we assessed the 30-day risk of severe hypoglycemia (hospitalization or death due to hypoglycemia) associated with FQ compared to amoxicillin. The two groups were matched on prior use of SU and propensity score (1:5; greedy matching; caliper 0.2). Cox proportional hazards models estimated hazard ratios (HRs) with 95% confidence intervals (CIs) of severe hypoglycemia in the matched cohort. We also stratified by age and sex after repeating the matching process. Sensitivity analyses assessed the impact of information bias and residual confounding.

RESULTS
Out of 325,000 SU initiators, 143,417 were subsequently co-exposed to FQ or amoxicillin. In SU treated patients, FQs were not associated with an increased risk of severe hypoglycemia (HR 1.17; 95% CI 0.91-1.50) compared to amoxicillin (**Figure**). There was no effect modification by sex; FQ were associated with an increased risk of severe hypoglycemia in patients aged <65 years but not in those aged ≥65 years (**Table**). Sensitivity analyses were consistent with the primary analysis.

CONCLUSIONS/OUTLOOK
In a population with a high baseline risk of hypoglycemia, FQ were not associated with an excess risk of this adverse effect compared to amoxicillin. An excess risk among younger adults is possible.



Figure

Kaplan Meier curves with the cumulative incidence of severe hypoglycemia with concomitant use of SU and FQ compared to concomitant use of SU and amoxicillin

Exposure	N Patients	N Events	N Person-years	Incidence rate (per 1000 person-years)	Matched HR (95%CI)
Female sex					
SU and FQ	10,874	36	915	39.34	1.19 (0.82-1.72)
SU and amoxicillin	47,170	125	3,969	31.49	1.00 (reference)
Male sex					
SU and FQ	13,612	43	1,144	37.59	1.14 (0.82-1.60)
SU and amoxicillin	61,037	160	5,134	31.16	1.00 (reference)
Age <65 years					
SU and FQ	8,236	12	695	17.26	2.90 (1.41-5.97)
SU and amoxicillin	38,173	19	3,227	5.89	1.00 (reference)
Age ≥65 years					
SU and FQ	16,256	67	1,364	49.10	1.03 (0.79-1.35)
SU and amoxicillin	70,378	269	5,904	45.56	1.00 (reference)

Table

Secondary analyses stratifying by age and sex

VS11-05

SERIOUS ADVERSE DRUG REACTIONS OF FLUOROQUINOLONES – A PHARMACOEPIDEMIOLOGICAL ANALYSIS ON AORTIC ANEURYSMS AND CARDIAC ARRHYTHMIA IN GERMAN HEALTH CLAIMS DATA

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INTRODUCTION
The evidence for aortic aneurysm/dissection (AAD) and cardiac arrhythmia/sudden cardiac death (CASCD) associated with fluoroquinolones (FQ) increases, but information on risk profiles of FQ users in large European countries is insufficient. This study aims to contribute to real-world evidence of FQ-associated incident AAD and CASCD in routine care in Germany.

METHODS
Our AOK insurance data-based cohort study in an active comparator new user design included adults with a filled prescription of systemic antibiotics 2014–2018. Covariate-adjusted hazard ratios (aHR) for incident AAD and CASCD during 365 days of follow-up are separately estimated from piece-wise exponential additive mixed models including sex, age and comorbidities. Propensity score matching, accelerated failure time models, shortened follow-up periods and modified censoring and selection criteria are applied in sensitivity analyses. Subgroup analyses include stratification by sex, age and defined daily dose.

RESULTS
Among 14,894,585 and 11,551,801 antibiotic index episodes included in the analyses for AAD and CASCD, 19.1% and 20.4% are FQ episodes, respectively. Adjusted hazard ratio for FQ-associated AAD is 1.036 [95% CI 1.014;1.059] and for CASCD 1.029 [95% CI 1.022;1.036]. Male sex comprises the strongest association with AAD (aHR=3.056 [95% CI 2.993; 3.121]). A high number of drugs dispensed in the previous year shows the strongest association with CASCD (aHR=2.103 [95% CI 2.070;2.136]). Effects of age and person-time included as smoothed terms were significant in both cohorts. Adjusted HRs for FQ effects were increased in sensitivity and subgroup analyses.

CONCLUSIONS/OUTLOOK
FQ exposure is a statistically significant but small risk factor for incident AAD and CASCD within one year after index prescription. Subgroup analyses provide insights for comparative safety of FQ in vulnerable patient groups.

VS11-06

PROTEOMICS BIOMARKER DISCOVERY FOR INDIVIDUALIZED PREVENTION OF FAMILIAL PANCREATIC CANCER USING STATISTICAL LEARNING

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INTRODUCTION

Pancreatic ductal adenocarcinoma (PDAC) is a tumour entity with a dismal prognosis. Familial pancreatic cancer (FPC) refers to families with an inherited predisposition and hence higher risk to develop PDAC. These families are characterised by two or more first-degree relatives with PDAC that do not fulfil the criteria for another inherited tumour syndrome. In this study, we focus on discovering potential biomarkers to improve the current diagnostic tools in established FPC screening procedures. To this end, we applied high-throughput proteomics to obtain comprehensive serum protein profiles for individuals at risk from the German National Case Collection of Familial Pancreatic Cancer in different potential pre-cancer stages.

METHODS

Data analysis in this study encountered two major difficulties: a small sample size and an unbalanced data structure. High dimensional proteomic profile and the above-mentioned difficulties challenge traditional statistical analysis tools. Therefore, we applied advanced statistical learning methods to enhance the quality of statistical analysis and the interpretability of the results. Firstly, we performed variable selection and model fitting via model-based gradient boosting, and secondly, we applied stability selection to discover stable subsets of selected biomarkers.

RESULTS

We were able to show that model-based gradient boosting could handle the unbalanced data structure in a high-risk screening program. We identified a relevant subset of biomarkers in the context of high-throughput proteomics with good prediction performance. Stability selection helped us further sharpen the sets of stable biomarkers.

CONCLUSIONS/OUTLOOK

We successfully identified five proteins as candidates for detection of potential precursor lesions of PDAC. Measurement of these biomarkers might supplement current screening procedures and guide decisions for surgical interventions.

27. SEPTEMBER 2023
9:30 AM – 11:00 AM

VS12 | AG-SESSION – AG16 SOZIALEPIDEMIOLOGIE (1/2)

VS12-01

METHODS TO IMPROVE HUMAN PAPILLOMAVIRUS (HPV) VACCINATION UPTAKE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION
Human papillomavirus (HPV) is the most common sexually transmitted infection and can lead to various health conditions, including cervical cancer. Despite the availability of highly effective vaccines, global uptake remains suboptimal. While previous research focused mainly on young girls, this study aims to present methods increasing HPV vaccination uptake for individuals of all genders aged 9-26 years.

METHODS
A systematic literature search was conducted in the databases Medline/PubMed, the Cochrane Library, and Web of Science. Randomized controlled trials, cluster-randomized trials, and controlled non-randomized studies were included. Where possible, effect sizes were pooled and presented as risk ratio (RR) using random-effects meta-analyses. Study quality was assessed using the Cochrane Risk of Bias tools.

RESULTS
The search resulted in >10000 articles with a total of 47 publications included in the systematic review, and 22 in the meta-analyses. Various interventions to improve HPV vaccination uptake, including health education, reminders, prompts, and school-based interventions were identified. Compared to single-focus interventions, multicomponent strategies were more effective in increasing HPV vaccination uptake. Reminders/recalls to caregivers and adolescents were only successful when delivered via mailed letters (RR 1.16, 95% CI, 1.13-1.18) or electronically (RR 1.04, 95% CI, 1.01-1.06). School-based interventions demonstrated the largest impact on vaccination coverage, particularly in low-and middle-income countries. The evidence on mandates requiring HPV vaccination for school entry was inconsistent (RR 1.13, 95% CI, 1.01-1.28).

CONCLUSIONS/OUTLOOK
Multi-component interventions targeting different populations appear to be most efficient in increasing HPV vaccination uptake. Nevertheless, due to study limitations, additional research is needed to further enhance HPV immunization strategies.

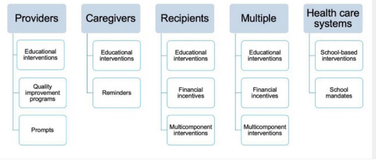

Figure 1:
Interventions to increase HPV vaccination uptake

VS12-02

HEALTH SERVICE USE AMONG DIFFERENT MIGRANT GROUPS AND NATIVE GERMANS – RESULTS FROM THE BASELINE ASSESSMENT OF THE GERMAN NATIONAL COHORT (NAKO)

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INTRODUCTION
This study investigates whether migrants living in Germany differ in their propensity to use health services compared to the native German population

METHODS
Based on the baseline data from the NAKO cohort study, we compared the use of general practitioners, medical specialists, and psychologists/psychiatrists between six migrant groups from different regions of origin with non-migrants. A latent profile analysis (LPA) with a subsequent multinomial regression analysis was conducted with the aim to estimate the general propensity of HSU. Additionally, separate regression models for count data were calculated. Both analyses aimed to estimate the direct effect of migration background on HSU while controlling for mediators and confounders.

RESULTS
In the LPA, the migrant subgroups showed no difference compared to non-migrants. In contrast, general practitioners and medical specialists were used comparably to slightly more often by migrants from Eastern Europe, Turkey, and resettlers, while the use of psychologists/psychiatrists was substantially lower among those groups. Second-generation migrants and migrants from Western countries showed no differences in their HSU.

CONCLUSIONS/OUTLOOK
A notable lower use of mental health services among specific migrant subgroups shows the need for a reduction of barriers to accomplish a need based HSU.

VS12-03

CHANGES IN PHYSICAL ACTIVITY IN COUPLES WITH AND WITHOUT CHILDREN DURING THE COVID-19 RESTRICTIONS IN SPRING 2020 IN GERMANY: RESULTS FROM THE NAKO STUDY

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INTRODUCTION
The novel coronavirus (COVID-19) pandemic posed challenges to health and a healthy lifestyle during the imposed COVID-19 restrictions. The population was advised to stay home and leave home only for work, sports, and shopping. We aimed to identify family constellations that were particularly hard hit by the COVID-19 restrictions between March 2020 and July 2020.

METHODS
German National Cohort (NAKO) participants were included in the following analyses if they responded to a COVID-19 questionnaire between April 30 and July 30, 2020. Participants reported differences in physical activity and sedentary behavior before the restrictions compared to the current status. In addition, the survey collected information on socio-demographics, social relationships, depression, physical health, and altered working conditions.

RESULTS
A large proportion (30.6% to 52.2%) of the 36,121 cohabiting participants reported changes in physical activity and sedentary behavior during the COVID-19 restrictions compared to the time before the pandemic. Participants reported significantly less exercise (mean change (M) = -0.38; $p < 0.001$), but more time spent in household (M = 0.36; $p < 0.001$) and leisure (M = 0.18; $p < 0.001$) activities. Multivariate linear regression models compared couples with and without children. Results showed that women living in households with children reported spending more time in household activities than men. By comparison, men living in households with children reported significantly more leisure activities ($\beta = 0.05$; $p < .05$) than men living in households without children.

CONCLUSIONS/OUTLOOK
Our results indicate adverse effects on physical activity behavior of nationwide COVID-19 restrictions in spring 2020. The care of children points to a gender-stereotyped change in physical activity patterns.

VS12-04

INDIREKTE SOZIOÖKONOMISCHE FOLGEN DER PANDEMIE UND IHRE ZUSAMMENHÄNGE MIT DER LEBENSZUFRIEDENHEIT UNTER MENSCHEN MIT AUSGEWÄHLTEN STAATSANGEHÖRIGKEITEN: ERGEBNISSE DER BEFRAGUNGSSTUDIE GEDA FOKUS.

Koschollek C.[1], Bartig S.[1], Müters S.[1], Goßner L.[3], Bug M.[1], Goerigk L.[1], Hövener C.[1], Kajikhina K.[1,2]

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INTRODUCTION
Nicht nur Risiken für eine SARS-CoV-2-Infektion und schwere bis tödliche Verläufe sind sozial ungleich verteilt, sondern auch Arbeitsplatz- und Einkommensverluste in Folge der Eindämmungsmaßnahmen. Für Menschen mit Migrationsgeschichte zeigen sich erhöhte Risiken, von solchen indirekten sozioökonomischen Pandemiefolgen betroffen zu sein. Ziel dieses Beitrages ist es, Zusammenhänge zwischen indirekten sozioökonomischen Pandemiefolgen und der Lebenszufriedenheit unter Menschen mit ausgewählten Staatsangehörigkeiten zu untersuchen.

METHODS
Analysiert wurden Daten der multimodalen, mehrsprachigen Befragungsstudie GEDA Fokus, die von 11/21 bis 5/22 unter Menschen mit italienischer, kroatischer, polnischer, syrischer oder türkischer Staatsangehörigkeit deutschlandweit durchgeführt wurde. In jeweils separaten multivariablen Poisson-Regressionen werden Zusammenhänge untersucht zwischen der Lebenszufriedenheit sowie Geschlecht, Alter, Bildung, Einkommen, Deutschkenntnissen und der Wahrscheinlichkeit infolge der Eindämmungsmaßnahmen der Pandemie i) den Arbeitsplatz zu verlieren, ii) in Zahlungsschwierigkeiten zu geraten, iii) Sozialleistungen beantragen sowie iv) den Lebensstandard einschränken zu müssen.

RESULTS
Von 4.114 Teilnehmenden berichten 64,4% eine hohe Lebenszufriedenheit. Während ein hohes Einkommen in allen vier Modellen positiv mit einer hohen Lebenszufriedenheit assoziiert ist, zeigen die Selbstangabe schlechter Deutschkenntnisse sowie mit hoher Wahrscheinlichkeit erwartete bzw. bereits eingetretene Arbeitsplatz- und Einkommensverluste jeweils negative Assoziationen.

CONCLUSIONS/OUTLOOK
Der Beitrag zeigt, dass die Lebenszufriedenheit, die für eine Reihe gesundheitlicher Outcomes relevant ist, derjenigen geringer ist, die von Arbeitsplatz- und Einkommensverlusten betroffen sind. Es gilt, strukturelle Ursachen sozioökonomischer Benachteiligung abzubauen, um auch gesundheitliche Ungleichheiten zu adressieren und für künftige Krisen besser gewappnet zu sein.

VS12-05

GESUNDHEITLICHE LAGE UND ASSOZIIERTE DETERMINANTEN VON MENSCHEN MIT AUSGEWÄHLTEN STAATSANGEHÖRIGKEITEN IN DEUTSCHLAND: ERGEBNISSE DER STUDIE GEDA FOKUS

Bartig S., **Bug M.**, Koschollek C., Kajikhina K., Blume M., Hövener C.

Robert Koch-Institut (RKI), Berlin, Germany

INTRODUCTION

DieGesundheit von Menschen mit (und ohne) Migrationsgeschichte variiert nach einer Vielzahl von sozialen Determinanten. Dieser Beitrag gibt einen Überblick über einzelne Gesundheitsoutcomes bei Menschen mit ausgewählten Staatsangehörigkeiten (StaAng) unter Berücksichtigung relevanter soziodemografischer und migrationsbezogener Determinanten.

METHODS

Die Auswertungen basieren auf Daten der multimodalen, mehrsprachigen Befragungsstudie GEDA Fokus (11/21-5/22), die unter Menschen mit italienischer, kroatischer, polnischer, syrischer oder türkischer StaAng deutschlandweit durchgeführt wurde. Berichtet werden Zusammenhänge aus Poisson-Regressionsmodellen zwischen ausgewählten Gesundheitsoutcomes (subjektive Gesundheit, chronische Erkrankungen, Inanspruchnahme (IA) allgemein- sowie fachärztlicher Leistungen) und soziodemografischen und migrationsbezogenen Determinanten.

RESULTS

Selbstberichtete Diskriminierungserfahrungen und eine längere Aufenthaltsdauer in Deutschland sind mit einer höheren Prävalenz chronischer Erkrankungen sowie einer schlechteren subjektiven Gesundheit assoziiert, die jeweils mit einer höheren allgemein- und fachärztlichen IA einhergehen. Als (sehr) schlecht selbsteingeschätzte Deutschkenntnisse sind mit einer geringeren IA allgemeinärztlicher Versorgung assoziiert.

CONCLUSIONS/OUTLOOK

Die Ergebnisse zeigen, dass - neben soziodemografischen Faktoren - die selbsteingeschätzten Deutschkenntnisse und insbesondere selbstberichtete Diskriminierungserfahrungen relevante Determinanten der Gesundheitsoutcomes sind. Gesundheitliche Ungleichheiten, gesamtgesellschaftlich als auch individuell, sind demnach maßgeblich auf soziale Ausschlussmechanismen und eingeschränkte Teilhabechancen zurückzuführen. Vor diesem Hintergrund bedarf es der Erforschung struktureller Zugangsbarrieren, als auch der Etablierung zielgruppenspezifischer Präventions- und Interventionsangebote, um gesundheitlichen Ungleichheiten nachhaltig entgegenzuwirken.

27. SEPTEMBER 2023
1:45 PM – 3:15 PM

VS13 | AG-SESSION – AG1 INFEKTIONSEPIDEMIOLOGIE (2/2)

VS13-01

CHANGES IN SENSITIVITY OF A SARS-COV-2 ANTIBODY ASSAY OVER TIME (2020-2021) IN MUSPAD – A POPULATION-BASED SEROPREVALENCE STUDY IN GERMANY

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INTRODUCTION
Choosing the correct immunoassay for population-based seroprevalence studies at the start of the COVID-19 pandemic was difficult due to low postulated diagnostic accuracy of most commercial assays in the first validating studies. We retrospectively assessed the sensitivity of the Euroimmun Anti-SARS-CoV-2 S1 IgG ELISA over the course of the pandemic from 2020-2021 and aimed to identify factors that affected it.

METHODS
We determined the sensitivity of the SARS-CoV-2 IgG ELISA with the bead-based multiplex assay MULTICOV-AB as reference standard from 07/2020 to 08/2021. We used data from the MuSPAD study (n=6831) and identified 2344 participants aged 18-94 from six German study sites (Reutlingen, Freiburg, Aachen, Osnabrück, Magdeburg, Chemnitz) with a positive MULTICOV-AB result. Reactivity was defined until 12/2020 as combination of normalized spike IgG and RBD IgG signal>1. From 01/2021, a normalized nucleocapsid IgG signal>1 was included to identify infection antibodies only. We performed multilevel random intercept logistic regression models to predict the median sensitivity of the ELISA. The adjustment variables were age, sex, time, heat (number of days per sampling month with max. outdoor temperature above 30 °C) and study site.

RESULTS
The predicted median sensitivity increased slightly over time from 0.93 (95% CI 0.72–0.99) in 2020 to 0.98 (95% CI 0.93–1.00) in 2021. Older age was associated with increasing sensitivity (0.92 (0.73–0.98) at the age of 18 to 0.98 (0.94–1.00) at the age of 94). Other variables included in the regression did not predict median sensitivity, apart from a small increase of sensitivity with higher outdoor temperatures (0.96 (0.87–0.99) in a sampling month with no days above 30 °C to 0.98 (0.91–1.00) for a month with more than 3 days above 30 °C).

CONCLUSIONS/OUTLOOK
Our findings suggest that the ELISA's sensitivity only slightly changed over time and was not diagnostically relevantly affected by participant or study site characteristics that we assessed.

VS13-02

A PROSPECTIVE STUDY OF HOUSEHOLD TRANSMISSION OF SARS-COV-2 – RESULTS FROM THE DIGIHERO STUDY

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INTRODUCTION
The high transmissibility and the immune-evading ability of the omicron variant of SARS-CoV-2 caused a strong surge of infections in Germany during 2022. Households seem to play a crucial role for transmission and secondary attack rates increased over time of the pandemic with a peak for Omicron variants. Prospective data on the transmission of SARS-CoV-2 in households are still scare.

METHODS
We invited 34,666 participants of the German online DigiHero cohort study with two or more household members to a prospective household transmission study. We asked them to contact the study team in case of a first positive SARS-CoV-2 test in their household. We provided them with individual symptom diaries, dry blood spot (DBS) cards, and a link to an online questionnaire. Symptom diaries were completed daily for at least 14 days, while we asked participants for taking DBS from all members at the beginning and six to eight weeks after the first infection. DBS were analysed using ELISA for SARS-CoV-2 antibodies (S- and N-protein).

RESULTS
We included 456 households with 1016 participants between July and December 2022. Most households consisted of two persons (60.4%). The index case was an adult in two thirds of cases (71.8%). Preliminary results of the first 200 complete households showed that there was transmission of SARS-CoV-2 in 63.5% (95% CI 56.5%-69.9%) of households based on seroconversion (change from negative or undetermined to positive) or an 1.5 times or more increase of N-Protein or S-Protein titres (in case of a positive initial titre) amongst the household members. However, the applied serological criteria/reported positive tests (often PCR) were not unambiguous as in 8% of index cases (i.e. cases with positive tests) no seroconversion or titre increase occurred. In these households also no transmissions appeared.

CONCLUSIONS/OUTLOOK
We found high a household transmission during the Omicron wave in Germany. Uncertainties regarding precision of tests make an unequivocal interpretation difficult.

VS13-03

MODEL-BASED ESTIMATES OF SARS-COV-2 HOSPITALIZATIONS AND POPULATION-BASED INFORMATION UNDER VARYING ASSUMPTIONS ON TRANSMISSIBILITY, PATHOGENICITY, NEW VARIANTS, AND VACCINE BOOSTER CAMPAIGNS

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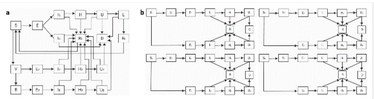

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Scenario	Transmissibility	Severity in comparison to BA.5	Immune evasion	Booster campaign of 5% per week from October 2022
Scenario A1	=	=	=	no
Scenario A2	=	=	=	yes
Scenario B1	1.3x	=	=	no
Scenario B2	1.3x	=	=	yes
Scenario C1	1.3x	2x	=	no
Scenario C2	1.3x	2x	=	yes
Scenario D1	1.3x	2x	++	no
Scenario D2	1.3x	2x	++	yes
Scenario E1	2x	2x	++	no
Scenario E2	2x	2x	++	yes

Figure 1:
SEIR model based on public health and population-based data

INTRODUCTION

Throughout the COVID-19 pandemic, Germany lacked the capability to swiftly integrate panel and hospitalization outcomes into its modeling platforms. Estimates indicating protection against COVID-19 severity and infection are necessary to forecast of new variants.

METHODS

Based on a SARS-CoV-2 prevalence study (MuSPAD) using a combination of population-based information (n=3,034 participants) on vaccinations, (re)infections confirmed by humoral immunity as well as cellular immunity within various age groups. We parametrized the population into four groups with no (no humoral immunity), low (1-2 exposures, either reported infection or vaccination confirmed by humoral immunity), moderate (3 confirmed exposures) and high protection (3 confirmed exposures + infection/vaccination in 2022) against SARS-CoV-2 severity and infection based on Omicron BA.5 variant immunity. In one model, the susceptible population is split based on humoral confirmation; in another model we additionally split the susceptible according to their IGRA (Interferon-Gamma-Release-Assay) positivity. We developed SEIRS model with additional compartments using ordinary differential equations (ODEs) and an adapted model incorporating population-based information to assess different scenarios (figure 1) for winter 2022/23 in Germany.

RESULTS

Dependent on the scenario chosen estimated hospitalizations due to SARS-CoV-2 were predicted to be 30-300% of the peak in 02/2021. Hospitalizations were estimated at higher levels if we included cellular immune correlates in defining population protection levels within modeling. Booster vaccination campaign of 5% per week from October onwards reduced this estimate by 9-33 % in our scenarios.

CONCLUSIONS/OUTLOOK

We show in our models even quite moderate changes in the transmissibility of SARS-CoV-2 variants could result in a relevant hospital burden that exceeds previous waves if proper measures are not taken. It is relevant to provide these parameters in a timely fashion.

VS13-04

CONTACT BEHAVIOUR DYNAMICS AMONG VACCINATED AND INFECTED INDIVIDUALS IN GERMANY DURING THE COVID-19 PANDEMIC: AN ANALYSIS OF TWO POPULATION-BASED STUDIES”

Böff L.[1], **Bartz A.**[2], Harries M.[1], Chaturvedi M.[2], Rübsam N.[2], Strengert M.[1], Dulovic A.[3], Schneiderhan-Marra N.[3], Karch A.[2], Aigner A.[4], Jäger V.[2], Lange B.[1]

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INTRODUCTION
Effective supervision of direct personal contacts is crucial for containing the transmission of respiratory infections like SARS-CoV-2. We wanted to understand differences in contact behaviour based on vaccination status and previous infections. In addition, we analysed the relationship between the number of several types of contacts and seropositivity.

METHODS
Participant data from the MuSPAD and COVIMOD studies were analysed. Contacts were assessed as direct encounters, separated into household and non-household contexts. We evaluated the mean number of reported contacts and used DAGs to fit negative binomial regression models to evaluate the effect of known immunity status, based on vaccination and previous infections, on contact numbers. We ran mixed logistic regression models to explore the relationship between contact behaviour and seropositivity

RESULTS
Vaccinated and/or previously infected participants had more non-household contacts than unvaccinated/not previously infected participants (incidence rate ratio (IRR) up to 1.3 in MuSPAD and 1.4 in COVIMOD). In MuSPAD, participants with more non-household contacts had a higher likelihood of prior infection (odds ratio (OR) up to 1.3), as did participants with more household contacts (OR up to 1.5).

CONCLUSIONS/OUTLOOK
During the pandemic, contact behaviour differed by vaccination and infection status in two large population-based studies in Germany in 2021. In the future, conducting such assessments in real-time could support modelling aiming to assess effectiveness of current pharmaceutical and non-pharmaceutical measures.

VS13-05

ASSESSING DYNAMICS OF RESPIRATORY SYNCYTIAL VIRUS FROM 2020-2022 IN GERMANY IN AN EPIDEMIC PANEL (MUSPAD)

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INTRODUCTION
From 2020 and 2022 dynamics of infections and hospitalizations due to respiratory syncytial virus (RSV) changed globally compared to pre-pandemic periods. In Germany, RSV-positivity and hospitalization remained low from spring 2020 to autumn 2021. In autumn 2021 and 2022 surges of RSV were seen earlier and leading to a high number of hospitalizations. To quantify the effect of different mechanism underlying these changes we performed longitudinal serological assessments in the population-based cohort MuSPAD.

METHODS
We reinvited participants from three regions of the MuSPAD cohort in June and July 2022 and assessed longitudinal blood samples in a sub-sample (1721 participants) using a multiplex-based serological assay for titer changes from 2020/2021 to 2022. We assumed a re-infection in that time period with an increase of antibodies against RSV post F-protein of at least 30% between two sampling time points.

RESULTS
Overall we saw titer increases indicative of re-infection in 5.8% (99/1721; 95% CI 4.70-6.96%) of the study populations. Split by year of initial sample collection, 5.1% of individuals with an initial sample from 2020 (371 participants) and 5.9% of individuals with an initial sample from 2021 (1350 participants) were assumed to have been re-infected with RSV between the two samples. We found a slightly higher proportion of participants with assumed re-infections in the age group 25 to 44 in comparison to both older and younger age groups.

CONCLUSIONS/OUTLOOK
Our results indicate a low proportion of RSV reinfections in the adult population between 2020 and 2022 in Germany compared to pre-pandemic periods. Epidemiologically relevant population-based indicators of RSV re-infections and protection against infection and severe course of disease will have to be further developed. Longitudinal assessments of these estimates are important in the coming years to enable future dynamic models to adequately understand and predict short- and longterm dynamics of RSV.

VS13-06

EFFECT OF A MULTIMODAL PREVENTION STRATEGY ON DIALYSIS-ASSOCIATED INFECTIONS IN OUTPATIENTS RECEIVING HEMODIALYSIS: THE DIPS-STEPPED WEDGE, CLUSTER-RANDOMIZED TRIAL (DIALYSIS ASSOCIATED INFECTION PREVENTION AND SURVEILLANCE)

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INTRODUCTION
Patients with hemodialysis catheters are susceptible to health care-associated infections, particularly catheter-associated bloodstream infections. These infections are associated with high mortality and health care costs. There have been few systematic attempts to reduce this burden. Our DIPS-study aimed to investigate the effect of a multimodal prevention strategy on dialysis-associated infections (DAIE) in hemodialysis outpatient facilities.

METHODS
A multicenter, stepped wedge cluster-randomized controlled trial was done from October 1, 2019, to September 30, 2021. Hemodialysis outpatient facilities entered into the intervention in three randomly assigned clusters, at three predefined time-points. The multimodal prevention strategy consisted of surveillance and regular feedbacks on infection data combined with intensified teaching aseptic procedures in hemodialysis. The primary outcome was incidence density of DAIE (bloodstream infections, intravenous antimicrobial starts, local access-site infections) per 1,000 dialysis. Poisson regression and generalized estimating equation models (GEE) were applied.

RESULTS
A total of 43 outpatient hemodialysis facilities with 1,413,457 proceeded hemodialysis were included in the DIPS-trial. Incidence densities were 0.71 DAIE per 1,000 dialysis (95%CI 0.65-0.78) in the control group and, 0.31 (95% 0.27-0.36) in the intervention group. Bloodstream infections, intravenous antimicrobial starts and local access-site infection were reduced in the intervention group in comparison with the control group. Patients with central venous catheter had in the intervention group a relative risk reduction for all DAIEs by almost 60% compared to the control group.

CONCLUSIONS/OUTLOOK
The multimodal prevention strategy showed a significant preventive effect on dialysis-associated infection events among hemodialysis outpatients. Surveillance of dialysis-associated infection events over time is a potential tool to evaluate prevention bundles in hemodialysis outpatient settings.

27. SEPTEMBER 2023
1:45 PM – 3:15 PM

VS14 | AG-SESSION – AG14 NEUROLOGISCHE UND PSYCHIATRISCHE EPIDEMIOLOGIE (1/2)

VS14-01

ASSOCIATION OF PERCEIVED STRESS, DEPRESSIVE SYMPTOMS, AND ANXIETY WITH COGNITIVE PERFORMANCE

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INTRODUCTION
Subjective stress and symptoms of impaired mental health are highly prevalent in the general population and have been discussed as potential risk factors for neurodegeneration and cognitive decline. The goal of our study was to investigate how perceived stress as well as depressive and anxiety symptoms relate to cognitive performance in the general population.

METHODS
The analysis was based on 8,318 participants (aged 30-95) from the population-based Rhineland Study. Subjective chronic stress, depressive symptoms, and symptoms of anxiety were measured using the Perceived Stress Scale 10 (PSS-10), the Patient Health Questionnaire-9 (PHQ-9), and the Generalized Anxiety Disorder-7 Scale (GAD-7). Cognitive performance was measured across different fluid cognitive domains (executive function, processing speed, working memory, episodic verbal memory) and crystallized intelligence. Relations of mental health scores with cognitive outcomes were quantified using multivariable linear regression models, adjusting for age, sex, educational level, and mother tongue.

RESULTS
Participants with higher perceived stress and with higher levels of depression and anxiety symptoms performed significantly worse in all fluid cognitive domains (standardized beta coefficients (β [95% CI]) for perceived stress ranged from -0.06 [-0.08, -0.05] to -0.03 [-0.05, -0.02]; for depressive symptoms from -0.04 [-0.05, -0.02] to -0.02 [-0.04, -0.01], and for anxiety symptoms from -0.03 [-0.05, -0.02] to -0.02 [-0.04, -0.00]). Only perceived stress was associated with crystallized intelligence (-0.05 [-0.07, -0.04]). The strength of the associations between mental health scores and fluid cognition scores increased with older age.

CONCLUSIONS/OUTLOOK
Our results show that higher levels of perceived stress, depressive symptoms, as well as anxiety symptoms are associated with poorer cognitive performance especially in older-aged adults.

VS14-02

AN EXPLORATORY STUDY OF BLOOD KALLIKREIN-8 (KLK8) AND NON-AMNESTIC MILD COGNITIVE IMPAIRMENT-RESULTS OF THE HEINZ NIXDORF RECALL STUDY

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INTRODUCTION
Blood kallikrein-8 (KLK8) is supposed to be a biomarker for mild cognitive impairment (MCI) due to Alzheimer's disease (AD), a precursor of Alzheimer's dementia, but little is known about the association of KLK8 and non-AD type dementias. Using data of a nested case-control study within the population-based Heinz Nixdorf Recall (HNR) study we investigated whether blood KLK8 is elevated in individuals with non-amnestic MCI (naMCI), which has a higher probability to progress to a non-AD type dementia, compared with cognitively unimpaired (CU) controls.

METHODS
We measured blood KLK8 at ten-year follow-up (T2) in 75 naMCI cases and 75 controls matched for sex and age who were participants of the HNR study (baseline: 2000-2003). Cognitive performance was assessed in a standardized manner at five-year follow-up (T1) and T2. Cases were CU or had subjective cognitive decline at T1 and had naMCI at T2. Controls were CU at T1 and T2. The association between KLK8 (per 500pg/ml increase) and naMCI was estimated using conditional logistic regression. Odds ratios (OR) and 95% confidence intervals (95%CI) were determined, adjusted for sample freezing duration and inter-assay variability.

RESULTS
Valid KLK8 values were measured in 121 participants (55 cases and 66 controls, 54.5% women, 70.5±7.1 years). The mean KLK8 was higher in cases than in controls (922±797 pg/ml vs. 884±782 pg/ml), but fully adjusted KLK8 was not associated with having naMCI compared to being CU (OR: 1.03 [95%CI: 0.80-1.32], complete sets: n=55).

CONCLUSIONS/OUTLOOK
Our exploratory study is the first population-based study demonstrating that blood KLK8 may not be elevated in individuals with naMCI compared to CU. As blood KLK8 is supposed to be an early biomarker for AD, this may highlight its specificity for AD. Further studies comparing larger patient populations with amnestic MCI, naMCI, AD, vascular dementia, and other neurodegenerative diseases are warranted.

VS14-03

PREVALENCE OF SELF-REPORTED DEPRESSIVE AND ANXIETY SYMPTOMS IN PATIENTS PRESENTING IN CENTRES FOR RARE DISEASES

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INTRODUCTION
Patients presenting in Centres for Rare Diseases (CRD) often suffer from unnoticed mental disorders. Little is known about the frequency of these conditions in this patient group. The aim of this analysis was to determine the prevalence of depressive and anxiety symptoms in patients presenting at CRD.

METHODS
Data were derived from ZSE-DUO (Dual guidance structure in Centres for Rare Diseases), a multicentre study in 11 CRD (funding by G-BA, Grant 01NVF17031), evaluating the benefit of involving a mental health expert (MHE) in the diagnostic process. Depressive and anxiety symptoms were assessed at patients' first visit at a CRD using standardised scales (PHQ-9, GAD-7). Results were compared to data from The German National Cohort (NAKO) and between patients included pre and during Covid-19.

RESULTS
1300 patients were consecutively enrolled in the study. Mean PHQ-9 summary score was 9.5 (±5.5), mean GAD-7 summary score was 6.9 (±5.0). Based on a recommended cut-off score of ≥10 for both questionnaires, 27.5% and 43.9% had at least moderate depressive or anxiety symptoms, respectively. Compared to the NAKO (PHQ-9: 3.9, GAD-7: 3.2), ZSE-DUO patients had higher mean PHQ-9 (p<0.001) and GAD-7 scores (p<0.001). Patients included in ZSE-DUO pre Covid-19 had higher mean PHQ-9 (pre: 9.7±5.4; during: 9.0±5.7; p=0.010) and GAD-7 scores (pre: 7.2±5.0; during: 6.3±4.9; p<0.001). Grouped by at least moderate symptoms, differences were observed for anxiety symptoms (pre: 29.4%, during: 24.3%; p=0.047), but not for depressive symptoms (pre: 45.8%; during: 40.7%; p=0.074).

CONCLUSIONS/OUTLOOK
Depressive and anxiety symptoms are frequent in patients presenting in CRD. This becomes particularly apparent in the comparison with the general population, regardless of Covid-19. Although, less anxious patients may rather attend appointments during Covid-19. Hence, it might be important to consider symptoms of depression and anxiety to shape the care in these patients by involving a MHE in the diagnostic process.

VS14-04

PREVALENCE AND COURSE OF DEPRESSION IN PEOPLE WITH AORTIC STENOSIS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION – A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION

Depression is a highly prevalent risk factor for adverse cardiac surgery outcomes, such as cardiovascular mortality. However, the role of depression in people with aortic stenosis (AS) undergoing transcatheter aortic valve implantation (TAVI) remains unclear, with prevalence estimates varying substantially between published studies. Thus, this systematic review and meta-analysis aimed to provide an estimate of the prevalence of depression among people undergoing TAVI, and to examine its course from pre- to post-TAVI.

METHODS

We searched databases (PubMed, Web of Science, PsycINFO) for articles reporting the prevalence of depression (diagnosed or assessed with standardised tools) in people undergoing TAVI. Two reviewers independently screened the articles for eligibility and extracted the data. We conducted a meta-analysis to pool the proportions using a generalized linear mixed-effects model. The study protocol was registered a priori at PROSPERO (ID: CRD42023389245).

RESULTS

We included 27 relevant studies, 17 of which reported prevalence of depression before or around TAVI. The pooled overall prevalence was 12.1% [95% confidence interval (CI): 8.2, 17.5], with a sample size of 247,787 and significant heterogeneity between studies [I^2=99.8%, p<0.0001, 95% prediction interval: 1.9, 48.9]. The pooled overall prevalence of diagnosed and assessed depression differed considerably, with 6.4% [95% CI: 4.0, 10.1] and 18.1% [95% CI: 12.0, 26.4], respectively. We expect the results of the pre-/post-TAVI comparison of depression prevalence to be available by the time of the conference.

CONCLUSIONS/OUTLOOK

Our preliminary results suggest that a significant proportion of people undergoing TAVI experience depression before or around the procedure. Therefore, disease management strategies should be adapted to include screening for and adequate treatment of depression in this patient group.

VS14-05

CHILD MALTREATMENT AS TRANSDIAGNOSTIC RISK FACTOR FOR THE EXTERNALIZING DIMENSION: A MENDELIAN RANDOMIZATION STUDY

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INTRODUCTION
Observational studies suggest that child maltreatment increases the risk of externalizing spectrum disorders such as attention deficit hyperactivity disorder (ADHD), conduct disorder (CD), antisocial personality disorder (ASPD), and substance use disorder (SUD). Yet, only few of such associations have been investigated by approaches that provide strong evidence for causation, such as Mendelian Randomization (MR). Additionally, few studies have examined the shared genetic basis of externalizing spectrum disorders.

METHODS
Evaluating causality between child maltreatment and the externalizing phenotypes, we used genome-wide association study (GWAS) summary data for child maltreatment (143,473 participants), ADHD (20,183 cases; 35,191 controls), CD (451 cases, 256,859 controls), ASPD (381 cases, 252,877 controls), alcohol use disorder (AUD; 13,422 cases, 244,533 controls), opioid use disorder (OUD; 775 cases, 255,921 controls), and cannabinoid use disorder (CUD; 14,080 cases, 343,726 controls). We also generated a latent variable 'common externalizing factor' using genomic structural equation modeling.

RESULTS
Genetically predicted childhood maltreatment was consistently associated with ADHD (odds ratio [*OR*], 10.09; 95%-*CI*, 4.76-21.40; $P=1.63\times10^{-09}$), AUD (*OR*, 3.72; 95%-*CI*, 1.85-7.52; $P=2.42\times10^{-04}$), and the externalizing factor (*OR*, 2.64; 95%-*CI*, 1.52-4.60; $P=5.80\times10^{-04}$) across the different analyses and pleiotropy-robust methods. A second childhood maltreatment GWAS confirmed the results for the externalizing factor.

CONCLUSIONS/OUTLOOK
The present results confirm the existence of a common externalizing factor and an increasing vulnerability caused by child maltreatment, with crucial implications for prevention. However, the partly diverging results across externalizing disorders also indicate that specific influences impact individual phenotypes separately.

VS14-06

WHICH HEALTH CARE-RELATED FACTORS PREDICT AN EPIDEMIOLOGICAL PARENT-REPORT OF A CHILD'S ADMINISTRATIVE ADHD DIAGNOSIS?

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INTRODUCTION
Available population-based data on child attention deficit/hyperactivity disorder (ADHD) differs and is not easily compared. For example, in a German epidemiological setting parent-reported 12-month prevalence has recently remained well below administrative prevalence rates, with a proportion of almost two thirds (Schlack & Junker, 2019). A substantial proportion of administratively recorded ADHD diagnoses of the child appears not to be reported by the parents. Using a data-linkage approach, this contribution examines how this gap is related to different healthcare issues, in particular to the type of diagnostician as well as to specific patterns of healthcare utilization. It is supposed that parents report an ADHD diagnosis of their child more likely if it was coded by a specialist diagnostician. In addition, children with a parent-reported ADHD diagnosis might be more likely to utilize specialized medical care (psychiatrist/psychologist) and other health care providers (physiotherapist, occupational therapist, speech and language therapist).

METHODS
Parents of 5,512 children aged 0 to 17 years who are insured by the third largest German statutory health insurance (DAK-Gesundheit) and presented with at least one verified administrative ADHD diagnosis in the insurance year 2020 answered an epidemiological online survey on their child's ADHD diagnosis. The questionnaire included issues of health care utilization. The administrative data includes information on the type of diagnostician and further utilization issues.

RESULTS
Logistic regressions are used to examine the probability of a parent report of a child's ADHD diagnosis depending on the type of diagnostician and various indicators of health care utilization. The data analysis is currently running, first results will be presented in September.

CONCLUSIONS/OUTLOOK
The results are discussed with regard to their implications for health care utilization, decision makers and stakeholders in the field.

27. SEPTEMBER 2023
1:45 PM – 3:15 PM

VS15 | AG-SESSION – AG3 EPIDEMIOLOGIE DER ARBEITSWELT

VS15-01

VERÄNDERUNG DER NUTZUNGSBEREITSCHAFT DIGITAL-GESTÜTZTER GESUNDHEITSFÖRDERUNGSANGEBOTE DURCH ÄLTERE BESCHÄFTIGTE IN DER CORONA-PANDEMIE

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INTRODUCTION

Aufbauend auf den Ergebnissen einer früheren Querschnittsanalyse zur Nutzungsbereitschaft digital-gestützter Gesundheitsförderungsangebote bei älteren Beschäftigten (Borchart & du Prel, 2019, DOI: 10.1055/s-0039-1694601), gehen wir hier der Frage nach, ob sich diese Nutzungsbereitschaft während der Corona-Pandemie verändert hat.

METHODS

Im Rahmen der lidA(leben in der Arbeit)-Studie wurden Daten von 2030 älteren Beschäftigten (geb. 1959 oder 1965), welche in der 3. (2018) und 4. Welle (2022/2023) einer sozialversicherten Tätigkeit nachgingen, analysiert. Ausgewertet wurde die Veränderung der Nutzungsbereitschaft von online-gestützten Interventionen, Gesundheits-Apps und Plattformen zur Wissensvermittlung nach soziodemographischen Aspekten mittels McNemar-Test.

RESULTS

2018 hatten noch knapp 8 von 10 eine nicht-digitale Maßnahme präferiert, 2022/2023 waren es nur noch 7 von 10. Während 2018 jeder Dritte zur Nutzung online-gestützter Interventionsangebote bereit war, war es 2022/2023 jeder Zweite. Die Häufigkeit der Nutzungsbereitschaft für Gesundheits-Apps erhöhte sich um über 10 % auf 50 %. Hingegen lag der Zuwachs für die Nutzung von Onlineplattformen zur Wissensvermittlung unter 5 %. Bei der Nutzungsbereitschaft von Angeboten für Onlineplattformen zur Wissensvermittlung und zur online-gestützten Intervention war bei Männern, Älteren und gering Gebildeten der Anteil derer hoch, die initial eine Teilnahmebereitschaft geäußert hatten und es jetzt nicht mehr tun. Bei den Gesundheits-Apps überwog hingegen bei allen eine häufigere Nutzungsbereitschaft.

CONCLUSIONS/OUTLOOK

Absolut hat die Bereitschaft zur Nutzung digital-gestützter Gesundheitsförderungsangebote bei älteren Beschäftigten zwischen 2018 und 2022/2023 zugenommen. Möglicherweise haben die Umstände der Corona-Pandemie die Akzeptanz digitaler Angebote erhöht. Allerdings kann die bei bestimmten Gruppen beobachtete gegenläufige Tendenz auch auf die zu häufige Nutzung von digitalen Medien in dieser Zeit zurückzuführen sein.

VS15-02

FOLLOW-UP-UNTERSUCHUNG DER PSYCHISCHEN BEANSPRUCHUNG VON BESCHÄFTIGTEN VERSCHIEDENER BERUFSGRUPPEN IM LAUFE DER PANDEMIE

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INTRODUCTION
Die SARS-CoV-2-Pandemie veränderte die Zukunft der Arbeit nachhaltig und führte zu einem allgemeinen Anstieg der psychischen Beanspruchung. Eine SARS-CoV-2-Umfrage des IPA in der 2. und 3. Welle (t2) mit retrospektiver Erhebung zur 1. Welle (t1) unter 1.545 Beschäftigten aus verschiedenen Berufen außerhalb des Gesundheitssektors bestätigte eine Zunahme der Beanspruchung und zeigte einen Zusammenhang mit dem beruflichen SARS-CoV-2-Infektionsrisiko (bIR).

METHODS
Im November 2022 konnten 563 Probanden per E-Mail zu einer erneuten Online-Befragung (Follow-Up) eingeladen werden. Die psychische Beanspruchung wurde in Form von Angst- und Depressionssymptomen (AD) mit dem Patient Health Questionnaire-4 (PHQ-4) Ende 2022 (t4) und retrospektiv zur 5. Welle (t3) erfasst. Die kategorisierten PHQ-4-Werte wurden mit ordinalen logistischen Regressionsmodellen mit zufälligem Intercept modelliert und mit Odds Ratios (OR) und 95%-Konfidenzintervallen (95% KI) dargestellt.

RESULTS
Die psychische Beanspruchung der 275 Probanden mit Follow-Up-Daten nahm bis t4 wieder ab. Schwere Symptome (PHQ-4≥9) lagen zu t2 bei 15% und zu t4 nur noch bei 6% der Probanden vor. Beschäftigte mit hohem bIR wiesen stets die höchste Symptombelastung auf und hatten ein erhöhtes Risiko für schwerere Symptome im Vergleich zu Personen ohne bIR (OR 3,97; 95% KI 1,32-11,96). Work-Privacy-Konflikte und Overcommitment hatten einen signifikant moderierenden Effekt auf diesen Zusammenhang. Als stärkster Risikofaktor erwies sich eine Angststörung oder Depression (AD-Diagnose) vor (OR 5,42, 95% KI 2,53-10,84) beziehungsweise während der Pandemie (OR 8,02, 95% KI 3,99-16,10).

CONCLUSIONS/OUTLOOK
Eine frühere beziehungsweise während der Pandemie erworbene AD-Diagnose war der stärkste Risikofaktor für schwerere AD-Symptome während der Pandemie. Bei Beschäftigten ohne entsprechende Diagnose verliert sich mit abnehmender Symptomschwere im Pandemieverlauf der Einfluss des hohen bIR auf die psychische Beanspruchung.

VS15-03

SUN PROTECTION BEHAVIOR IN GERMAN OUTDOOR WORKERS: PREVALENCE AND DETERMINANTS

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INTRODUCTION
Outdoor workers are exposed to ultraviolet (UV) radiation on a daily basis, which increases their risk of developing skin cancer. Besides organizational prevention by the employer, behavioral prevention in the form of avoiding and protecting against UV radiation by outdoor workers is the most important preventive measure. We aimed to explore sun protection behavior in a nationwide sample of outdoor workers, and focused on potential differences by sex and job-related characteristics.

METHODS
Data were collected in the framework of wave 7 of the National Cancer Aid Monitoring (NCAM, n=4,000) which included 486 outdoor workers. Sun protection measures (i.e., use of sunscreen on the face / body, wearing a shirt that covers the shoulders / headgear / sunglasses / long trousers / work gloves, having lunch at a shaded place) as well as sociodemographic and job-related characteristics (e.g., kind of industry, time worked outdoor per day, part-time vs. full-time employment) were assessed. We conducted descriptive analyses stratified by sex.

RESULTS
Use of sun protection differed depending on the individual measure (e.g., use of sunscreen on the body: 25.3% vs. having lunch at a shaded place: 82.7%). While female outdoor workers were significantly more likely to use sunscreen, their male counterparts were more likely to wear headgear and sun-protective clothes. In the subgroup of male outdoor workers, we identified associations between the use of sun protection measures and job-related characteristics. For example, those working outdoors for a longer time per day were less likely to wear sunglasses.

CONCLUSIONS/OUTLOOK
The identified differences in sun protection behaviors by sex and job-related characteristics point out that sex- and industry-specific measures are recommended to increase UV protection at the workplace. Qualitative research may help to explore barriers to the use of individual protection measures identified to be low in our study.

VS15-04

COMPARISON OF SEDENTARY TIME AND NUMBER OF STEPS IN DIFFERENT OFFICE ENVIRONMENTS AND IN HOME OFFICE – ANALYSIS OF QUANTITATIVE ACCELEROMETER DATA FROM THE SITFLEX STUDY

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INTRODUCTION

Long sitting periods are prevalent among office workers. Sitting > 8 h/d is related to adverse health consequences. The quantitative part of the mixed-methods SITFLEX study aims to compare sedentary and moving behavior of employees working in an activity-based flex office (ABF) with working in a traditional open plan office (TOP) during working hours. Furthermore, behaviors at home and in the office are analyzed.

METHODS

In a cross-sectional field study (Jul – Nov 2021), sitting and moving patterns of office workers were objectively measured using the activPAL 3 for at least four consecutive workdays. They worked either in an ABF or in a TOP, as well as from home. In addition, participants answered a questionnaire about sociodemographic factors (sex, age, etc.) and protocolled their working hours and hours awake. As a first step, we analyzed the working time spent sedentary (sitting and lying) and number of steps descriptively, and stratified by office type, sex, and age categories.

RESULTS

The sample consisted of n = 108 participants (men: n = 78, women: n = 30, median age: 37 years) from one company working in an ABF (n = 59) or in a TOP environment (n = 43) (n = 6 worked in other office environment). Employees working in the ABF office spent 333 (SD 88) minutes sedentary and made 2931 (SD 1161) steps per day at work, while employees in the TOP office sat for 350 (SD 122) minutes and made 2752 (SD 1265) steps per day at work. When working from home employees were more sedentary, sitting an average of 375 (SD 101) minutes and making 1283 (SD 960) steps per day while working compared to 342 (SD 102) minutes and 2845 (SD 1187) steps per day at the office. Similar tendencies are visible in the subgroup analysis (sex and age).

CONCLUSIONS/OUTLOOK

We observed a relevant reduction of steps when working from home, which cannot only be explained the lack of commuting. Recommendations for being less sedentary while working, especially from home, are needed.

VS15-05

WORKING LONGER IN GOOD MUSCULOSKELETAL HEALTH? TIME TRENDS AND INCOME INEQUALITIES IN LIFE YEARS FREE OF MUSCULOSKELETAL DISEASES AMONG THE WORKING-AGE POPULATION

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INTRODUCTION

Musculoskeletal diseases (MSDs) often lead to early retirement and limit the workability of the labour force. Given the prolonged working lives in Germany, MSDs therefore represent a relevant disease group when discussing further increases in the retirement age. We analyse time trends and income inequalities in life years free of MSDs.

METHODS

Using data from the German statutory health insurer AOK Lower Saxony (N=3,405,673), years free of MSDs were calculated by period (2006-08, 2011-13, 2016-18) for the total insurance population and by different income groups. MSDs were defined based on the inpatient and outpatient ICD-10 GM diagnosis codes (M00-99). Calculations were performed using multistate analyses taking into account three states (MSD-free, MSD-prevalent, and death). Individuals aged 18 to 69 were included in the analyses to cover a broad range of working age.

RESULTS

Overall, life years free of MSDs decreased at younger ages in both genders over time (age 18: 34.4 to 33.7 in men, 32.2 to 31.2 in women) while they remained largely stable at higher working age (age 50: 9.2 to 9.0 in men, 8.2 to 7.8 in women). Time trends differ significantly between different income groups with the lowest income groups showing the least favourable trends.

CONCLUSIONS/OUTLOOK

With regard to MSDs, the increase in disease-free lifetime cannot keep pace with the increase in working lifetime reported for Germany. This emphasizes the importance of prevention targeting the musculoskeletal health of the working-age population. A special focus should be paid to reduce social inequality in MSDs.

VS15-06

EXPOSURE PREVALENCE TO INHALED NOXIOUS AGENTS AT THE WORKPLACE – SELF-REPORTED VS JOB-EXPOSURE-MATRIX – FINDINGS FROM THE POPULATION-REPRESENTATIVE HAMBURG CITY HEALTH STUDY

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INTRODUCTION
Chronic obstructive pulmonary disease (COPD) is the third leading cause of death worldwide. The major risk factor is tobacco smoking. Other factors include harmful exposures to gases, chemical vapors, dusts, and fumes (VGDF) in the workplace and the environment. The aim of this study is to determine the workplace exposure in Hamburg.

METHODS
Cross-sectional data were gained from the population-based Hamburg City Health Study. Free-text data on occupation were recoded by different occupational classifications. VGDF exposure was then determined based on the “Standard Occupational Classification 2000” using a job exposure matrix (JEM). Furthermore, subjective workplace exposures were recorded in a questionnaire.

RESULTS
According to the questionnaire (n=13463), 14.0% of women and 30.2% of men were exposed to inhalative harmful agents at work, whereas according to the JEM (n=11971), 23.9% of women and 38.8% of men were exposed.
In the questionnaire, 9.2% reported exposures to chemical vapors, 7.1% vs. gas, 9.9% vs dust, and 7.5% vs fumes. Men were more frequently exposed to dust and women were rarely exposed to fumes. According to the JEM, 17.7% were exposed to chemical vapors, 14.3% vs gas, 24.3% vs dust, and 14.9% vs fumes. As specified by the JEM, men were again more frequently exposed to dust, whereas women were more frequently exposed to chemical vapors. The Kendall’s rank correlation coefficient between questionnaire and JEM was 0.3 ($p < 0.001$), corresponding to a medium correlation.

CONCLUSIONS/OUTLOOK
In population-based studies monitoring by personal sampling of occupational exposures is not feasible. Alternative exposure assessment methods are mandatory but are prone to limitations: Using the questionnaire makes a recall bias likely and using the JEM a misclassification bias. Nevertheless, the data obtained provide a good overview of the exposure prevalence of inhaled noxious agents in the workplace. Jobs with diverging exposures were identified and risk prevention should be intensified in those.

27. SEPTEMBER 2023
1:45 PM – 3:15 PM

VS16 | AG-SESSION – AG16 SOZIALEPIDEMIOLOGIE (2/2)

VS16-01

LIFE SATISFACTION AND SUBJECTIVE EXPERIENCE OF WOMEN DURING THE COVID-19 PANDEMIC IN GERMANY: ANALYSES OF LARGE SCALE REPRESENTATIVE DATA FROM THE FREDA PANEL

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INTRODUCTION
Some studies point to lower life satisfaction and more negative experiences during the COVID-19 pandemic among (subpopulations of) women compared to men. However, there is a lack of knowledge on vulnerable female subgroups as well as on protective or impeding predictors. Therefore, life satisfaction as well as the subjective experience of the COVID-19 pandemic of women, compared to men, and within selected subpopulations of women were analyzed.

METHODS
Analyses using the large scale representative Family Demography Panel Study FReDA were conducted with data from 36,967 (20,254 female and 16,713 male) participants. Data were collected from April to June 2021. Variables assessed were life satisfaction on a 10-Point Likert scale, the subjective assessment of the pandemic experience regarding the 5 outcome measures *health concerns*, *good pandemic aspects*, *financial concerns*, *personal contacts*, *perceived burden of the pandemic*, and sociodemographic variables. Multiple linear and binary logistic regression analyses were applied.

RESULTS
During the COVID-19 pandemic women had a slightly lower life satisfaction than men. Higher life satisfaction could be determined for the subgroups of women on *parental(7.22 points)* or *maternity leave (7.12 points)*, *not employed (7.09 points)*, *with high socioeconomic status (SES) (7.09 points), with children (7.07 points), andwith a partnership (6.92 points)*, each compared to their counterparts. *Personally perceived burden of the pandemic* isnegative associated to financial and health concerns and lower SES. In contrast, the *perception of also good pandemicaspects* could be described as a protective factor for life satisfaction.

CONCLUSIONS/OUTLOOK
Women's life satisfaction appears to have been more negatively affected during the COVID-19 pandemic than men's. These findings highlight the need for a strategy during and after times of crisis that promotes protective factors of resilience and enables to reach vulnerable populations by considering gender-specific characteristics.

VS16-02

SOZIALE UND PSYCHOLOGISCHE DETERMINANTEN DER INANSPRUCHNAHME DER COVID-19-IMPFUNG

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INTRODUCTION

Verschiedene Studien verweisen auf soziale Unterschiede in der Inanspruchnahme der COVID-19-Impfung. Allerdings mangelt es insbesondere für Deutschland an Erkenntnissen zum Einfluss von psychologischen Faktoren auf das Impfverhalten. Dieser Beitrag untersucht den Zusammenhang zwischen der COVID-19-Impfung und ausgewählten sozialen sowie psychologischen Determinanten.

METHODS

Die Auswertungen basieren auf Daten der seroepidemiologischen Studie „Corona-Monitoring bundesweit – Welle 2“ (RKI-SOEP-2), die von 11/2021 bis 02/2022 durchgeführt wurde. Um Assoziationen zwischen der COVID-19-Impfung (mind. einmal) und den sozialen (Bildung, Einkommen) sowie psychologischen Faktoren (5C-Modell: confidence, complacency, constraints, calculation, collective responsibility) zu identifizieren, wurden multivariat adjustierte Prevalence Ratios mit 95%-Konfidenzintervallen mittels Poisson-Regressionen (schrittweise) berechnet.

RESULTS

Hinsichtlich der sozialen Determinanten sind eine niedrige formale Bildung und geringeres Einkommen negativ mit der COVID-19-Impfung assoziiert. Alle einbezogenen psychologischen Faktoren zeigen - bei wechselseitiger Kontrolle der sozialen sowie psychologischen Determinanten - relevante Assoziationen mit dem Impfstatus. So steigt z.B. mit zunehmendem Vertrauen in die Sicherheit der Impfung und einem höheren Verantwortungsfühl für die Gemeinschaft die Wahrscheinlichkeit geimpft zu sein. Demgegenüber geht eine geringere Risikowahrnehmung mit einer niedrigeren Impfinanspruchnahme einher.

CONCLUSIONS/OUTLOOK

Die Ergebnisse verweisen auf sozioökonomische Ungleichheiten im Impfstatus und auf die Bedeutung psychologischer Faktoren beim Impfverhalten. Um gesundheitliche Chancengleichheit zu fördern, sollten die Ergebnisse bei der Konzeption gezielter Maßnahmen zur Überwindung möglicher Impfbarrieren zukünftig bedacht werden, z.B. in Form niedrigschwelliger sowie lebensweltnaher Impfangebote und Kommunikations- bzw. Informationskampagnen.

VS16-03

EDUCATIONAL DIFFERENCES IN COVID-19 VACCINE UPTAKE BY REGIONAL SOCIOECONOMIC DEPRIVATION IN GERMANY

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INTRODUCTION
Vaccination against COVID-19 is regarded as the most effective prevention measure to reduce risks of severe illness and death from the disease. Research on COVID-19 vaccine uptake in Germany has reported lower vaccination rates among people with a lower socioeconomic position. Additionally, considerable regional variation in vaccine uptake was found, which could partly be accounted for by levels of regional socioeconomic deprivation (RSDep). To get a comprehensive understanding of social inequalities in vaccination uptake, we analysed how educational differences in COVID-19 vaccination status evolved over the first ten months of Germany's vaccination campaign and whether the size of the educational differences varied by the level of RSDep.

METHODS
Data from the study "Corona Monitoring Nationwide" (RKI-SOEP-2) collected from 11/2021 to 02/2022 was linked with district-level data of the German Index of Socioeconomic Deprivation (GISD). We estimated the proportions of adult individuals with at least one vaccination dose stratified by educational groups at three time points exploiting information on the vaccination date. Logistic multilevel regression models were applied to adjust for multiple covariates and to test cross-level-interactions between educational levels and levels of RSDep.

RESULTS
The results emphasise that educational differences in vaccine uptake depended on the level of RSDep. Comparisons by socioeconomic context showed particularly low vaccination rates for respondents with low education living in regions with highest levels of RSDep, while vaccine uptake for the high educated was high for all levels of RSDep. The analysis of vaccination timing revealed that educational gaps appeared early in the vaccination campaign and did not close completely before the 4th wave of COVID-19 infections.

CONCLUSIONS/OUTLOOK
Future vaccination campaigns should take regional socioeconomic differences into account and target people with lower education in particular.

VS16-04

THE MEDIATING EFFECT OF WORKING FROM HOME ON SOCIOECONOMIC INEQUALITIES IN SARS-COV-2 INFECTION RISK IN THE GERMAN WORKING POPULATION

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INTRODUCTION
International evidence has shown that individuals in lower socioeconomic positions (SEP) are at higher risk for SARS-CoV-2 infections. But less is known about the mediating pathways between SEP and infection risk although these might be promising targets for interventions for preventing infections and reducing health inequalities during the pandemic. This study aims to assess the mediating effect of the possibility to work from home on socioeconomic inequalities in SARS-CoV-2 infections.

METHODS
We used data came from the seroepidemiological “Corona Monitoring Nationwide” study – wave 2 (RKI-SOEP-2). The sample was restricted to the working population aged 18–67 years (n=6,826). SARS-CoV-2 infection was assessed by either positive COVID-19 serology and/or self-reported PCR-confirmed infections. Potential confounders were identified by a directed acyclic graph and Poisson regression was used to calculate a minimally adjusted estimate of the total effect of education (as a measure of SEP) on SARS-CoV-2 infections. We then used the Karlson-Holm-Breen (KHB) decomposition method to estimate the mediating effect of the frequency to work from home.

RESULTS
Individuals with a low level of formal education had a 1.8-fold higher risk of SARS-CoV-2 infection (95% CI 1,08–2,88; p=0.023) compared to the very high-educated group. The KHB decomposition showed that working from home explained 27% to 58% (depending on the educational level) of the educational inequalities in SARS-CoV-2 infection risk.

CONCLUSIONS/OUTLOOK
The increased risk for SARS-CoV-2 infections in individuals with lower levels of education may partially be explained by the possibility to work from home. Preparation and testing of improved home office infrastructure also for those in lower SEP may be an important step in pandemic preparedness. The extension and improvement of legal and technical conditions for home office, especially for people in low SEP, may be an important step for pandemic preparedness.

28. SEPTEMBER 2023
11:15 AM – 12:45 PM

VS17 | AG-SESSION – AG14 NEUROLOGISCHE UND PSYCHIATRISCHE EPIDEMIOLOGIE (2/2)

VS17-01

AN ASSOCIATION BETWEEN COLONOSCOPY AND PARKINSON'S DISEASE? AN EVENT HISTORY ANALYSIS OF GERMAN HEALTH CLAIMS DATA

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INTRODUCTION
Germany's aging population has resulted in a rise in Parkinson's disease (PD). Researchers proposed that α-synuclein aggregates in PD patients act in a prion-like manner and spread from the gut to the brain via the vagal nerve. It is hypothesized that there is a transmission and subsequent formation of these aggregates. Consequently, α-synuclein may be transmitted through colonoscopy procedures. This study examines a possible association between colonoscopy and PD.

METHODS
We used longitudinal data of 250,000 individuals aged 50+ from 2004-2019 from Germany's largest health insurer. Cox proportional hazard and competing risk models were estimated to calculate the risk of PD. The competing event was death. Models were adjusted for colonoscopy, age, sex, reason for colonoscopy and comorbidities of PD. Colonoscopy was categorized as never receiving colonoscopy, colorectal cancer (CRC) screening without or with biopsy/destruction/excision (BDE) and diagnostic colonoscopy without or with BDE.

RESULTS
There were 6,186 incident cases of PD among 221,725 individuals. The Cox model revealed a significantly increased risk of PD for patients who ever had a diagnostic colonoscopy without or with BDE (HR=1.34, p<0.001; HR=1.30, p<0.001) after adjustment for age and sex. When controlling for survival, patients who ever had a diagnostic colonoscopy without or with BDE had a decreased risk of PD (HR=0.91, p=0.007; HR=0.84, p<0.001). After adjusting for all covariates, persons who ever underwent CRC screening had a 41% reduced risk of PD (HR=0.59, p<0.001), while persons who underwent diagnostic colonoscopy had a 18% reduced risk of PD (HR=0.82, p<0.001). When covariates were added, there was little change.

CONCLUSIONS/OUTLOOK
Persons who ever had any colonoscopy had a lower risk of PD compared with those who never had a colonoscopy, after adjusting for death and covariates. Persons who underwent only CRC screening had the lowest risk of PD, which may be a result of a comparatively more resilient lifestyle.

VS17-02

NUTZUNG VON GKV-ROUTINEDATEN FÜR DIE ANALYSE VON RISIKOSIGNALEN DES SPONTANMELDESYSTEMS AM BEISPIEL VON MULTIPLE SKLEROSE-THERAPIEN

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INTRODUCTION
Multiple Sklerose (MS) ist ein sehr dynamisches Indikationsgebiet mit zahlreichen, neuen Immuntherapien. Bei Marktzulassung haben diese Arzneimittel noch einen geringen Erprobungsgrad, was besondere Anforderungen an die Pharmakovigilanz stellt. Erste Meldungen über Nebenwirkungen kommen meist über das deutsche bzw. europäische Spontanmeldesystem, sind aber mit Unsicherheit behaftet. Ziel dieser Analyse war es, Risikosignale aus dem Spontanmeldesystem für den monoklonalen Antikörper Natalizumab anhand von GKV-Routinedaten nachzubilden.

METHODS
Im Rahmen des Innovationsfondsprojekts VerSI-MS-PV stellten 12 Kassenärztliche Vereinigungen (KV) und 44 Betriebskrankenkassen (BKK) GKV-Routinedaten von MS-Patient*innen (ICD-10 G35) zur Verfügung. Eingeschlossen wurden Patient*innen mit MS-Diagnose nach dem M2Q-Kriterium und ohne Therapiewechsel. Natalizumab-Risikosignale des Spontanmeldesystems wurden in ICD-10-Codes übersetzt. Patient*innen unter Interferon-Therapie bildeten die Referenz und beide Datensätze wurden unabhängig voneinander ausgewertet.

RESULTS
Es wurden 340.184 Versicherte mit MS-Diagnose in den KV-Daten und 43.694 in den BKK-Daten identifiziert. Davon hatten 56.752 (17%, KV) bzw. 5.076 (12%, BKK) Patient*innen keinen Therapiewechsel. In die Analyse eingeschlossen wurden 2.667 (KV) bzw. 207 (BKK) Patient*innen unter Natalizumab-Therapie, die verglichen wurden mit 25.858 (KV) bzw. 2.558 (BKK) Patient*innen unter Interferon-Therapie. Für die Nebenwirkung progressive multifokale Leukenzephalopathie (PML) konnte das nachgebildete Signal in beiden Datenquellen repliziert werden (KV: OR=42,8 [17,0 – 108,2]; BKK: OR=16,9 [2,1 – 137,8]). Das Odds Ratio für Folsäure-Mangelanämien war in beiden Datenquellen statistisch nicht signifikant erhöht.

CONCLUSIONS/OUTLOOK
Risikosignale aus dem Spontanmeldesystem konnten in zwei Sekundärdatenquellen nachgebildet werden. Analysen von GKV-Routinedaten können das Spontanmeldesystem sinnvoll ergänzen.

VS17-04

IMPLEMENTING INTERFACES FOR INFORMATION TRANSFER IN ACUTE STROKE CARE: PROCESS EVALUATION OF THE USE CASE EMERGENCY WITHIN THE CAEHR (CARDIOVASCULAR DISEASES – ENHANCING HEALTHCARE THROUGH CROSS-SECTORAL ROUTINE DATA INTEGRATION) PROJECT

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INTRODUCTION
The CAEHR project was funded as a Digital Hub within the Medical Informatics Initiative. In theUse Case Emergency, we aim to establish interfaces for automatic transfer of routine data from Emergency Medical Service (EMS), regional hospitals and telemedical consultations with a tertiary stroke center in Germany. The implementation of the CAEHR project will be accompanied by a comprehensive evaluation concept. The aim of the process evaluation is to evaluate the requirements, expectations, and barriers from the perspective of the healthcare providers in the context of new digital interfaces as well as to examine how these barriers can be addressed in the implementation process of the novel interfaces.

METHODS
Following the guidelines for process evaluations of complex interventions of the Medical Research Council, a logical model was developed that describes context and components of the intervention. Mixed-methods-approaches (structured interviews, surveys, document analyses) are used to collect input from medical and nursing staff of the stroke center, the participating EMS staff and health care researchers. The data will be analysed descriptively or via content analysis and quantified if adequate.

RESULTS
Following the purposive sampling approach, to date 7 of 9 planned interviews could be conducted and transcribed with stroke center personal. Preliminary results revealed shortcomings in communication documentation processes between emergency and hospital stroke centers (e.g. errors with patients' names, transposed digits) which may be improved using novel digital interfaces. The online survey and the in-depth interviews conducted with EMS personal will be completed in 06/2023. Analysis of the survey and interviews is completed by 09/2023 and will be presented in the session.

CONCLUSIONS/OUTLOOK
The implementation of technical interfaces in the context of CAEHR may improve information transfer before hospital admission and may help to further improve pathways in acute stroke care.

VS17-05

CYSTATIN C ESTIMATED KIDNEY FUNCTION AND RISK AND PROGNOSIS OF AMYOTROPHIC LATERAL SCLEROSIS IN THE ALS REGISTRY SWABIA

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INTRODUCTION
Little is known about the role of chronic kidney disease (CKD) in amyotropic lateral sclerosis (ALS). We investigated the associations between renal function, based on CKD-EPI cystatin C equation, and the risk at onset and prognostic value of CKD for amyotrophic lateral sclerosis.

METHODS
Between October 2010 and June 2014, 362 ALS cases (59.4% men, mean age 65.7 years) and 681 controls (59.4% men, means age 66.3 years) were included in a case-control study based on the ALS registry Swabia in Southern Germany. ALS cases were followed-up (median 89.7 months), of whom 327 died.

Cystatin C was measured in serum samples to estimate the glomerular filtration rate (eGFR) according to the CKD-EPI equation as indicator for renal function. Information on covariates were assessed by an interview-based standardized questionnaire. Conditional logistic regression models were applied to calculate odds ratio (OR) for risk of ALS associated with eGFR/CKD stages. Time-to-death associated with renal function at baseline was assessed in ALS cases only.

RESULTS
ALS cases had lower body mass index, had slightly less smokers, were more frequently manual workers and had lower education than controls. Median cystatin-C based eGFR concentrations were lower in ALS cases compared to controls (54.0 vs. 59.5 mg/L) whereas the prevalence of CKD stage ≥3 was slightly higher in ALS cases than in controls (14.1 vs. 11.0%). In the adjusted models, CKD stage 2 (OR 1.82, 95%CI 1.32, 2.52) and stage 3 (OR 2.34, 95%CI 1.38, 3.96) were associated with increased ALS risk. In the cohort of ALS cases, eGFR and CKD stage ≥ 3 were not associated with prognosis.

CONCLUSIONS/OUTLOOK
: In the case-control part of this study, higher CKD stages were associated with increased ALS risk, while in the prospective cohort part, no association with mortality was found in ALS cases. Further research, including other biological markers, is necessary to clarify the role of kidney function in ALS.

VS17-06

AMATEUR MUSIC MAKING AND DEPRESSION AND ANXIETY IN THE CORONA PANDEMIC – DATA FROM THE NAKO STUDY CENTER BERLIN MITTE

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INTRODUCTION
The Corona pandemic and the measures taken to reduce the number of infections have been shown to yield an increased incidence of mental diseases. In the German National Cohort (NAKO) a worsening of the depression, measured with the Patient Health Questionnaire (PHQ-9), and anxiety, measured with the Generalized Anxiety Disorder 7-Item Scale (GAD-7) has been observed. Both scores were measured before and during the pandemic.

METHODS
Data and Methods: For 3709 individuals (1852 males, 1857 females) data on musical activity before corona lockdown were available. Of these, 25 were professional musicians which are not considered here.[HCJ1] 3009 provided data on mental health before and during the pandemic. We present the data descriptively and investigate the individual change in the mental health scores and its possible relation with the musical activities using linear and logistic regression models taking possible confounding factors into account.

RESULTS
Within the last 12 months, 2871 individuals (77.9%) reported no active musical activity, (80.8% in males, 75.1% in females). Singing was mentioned in 15.1%, and playing an instrument in 14.5%. The distribution of the PHQ-9 score and GAD-7 score before the pandemic did not differ between musicians and non-musicians. The results on the associations between musical activity with mental health scores in the pandemic will be presented.

CONCLUSIONS/OUTLOOK
The study population reported a relative high degree of amateur musical activity. In the analysis of a potential beneficial effect of music on mental health in the pandemic lockdown phase potential confounders such as family status, sex and age as well as a distinction between singing, music in groups/orchestra and playing an instrument alone must be considered.

28. SEPTEMBER 2023
11:15 AM – 12:45 PM

VS18 | AG-SESSION – AG17 EPIDEMIOLOGIE DES ALTERNS

VS18-01

DOES RESIDENTIAL AREA QUALITY INFLUENCE FUNCTIONAL HEALTH IN MIDDLE AND OLDER AGE? AN EXAMINATION OF INDIVIDUAL AND COMMUNITY FACTORS

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INTRODUCTION

The concept of functional health links individual physical and psychological health conditions with the ability to be active and to participate in social life. The impact of individual factors is well described in literature. Besides individual factors this study takes community factors into account. Especially people in older age spend more time in their near residential area than younger people and so the quality of this place can influence their functional health status. The study expects to gain information about the effects of subjectively assessed residential area quality (RAQ) on functional health in middle and older age. Our research question is whether, in addition to individual conditions, the subjectively assessed RAQ plays a role in functional health in old age.

METHODS

Data of the German Aging Survey (DEAS) 2020/21 was used (n=4,723). The DEAS is a German representative survey of the population aged 40 and older. Functional health was measured by the sum score oft the physical functioning subscale of the SF-36. Individual factors were included like age group, gender, level of education and suffering from arthrosis and heart failure. An interviewer rating was used to measure RAQ. Data was analyzed using stepwise regression models with functional health (SF-36) as dependent variable.

RESULTS

The results show that especially the very old people, people with poorer subjective health and people suffering from heart failure or orthopedic diseases have a significantly lower sum score of the SF-36. Controlling for these individual factors, people who live in non-upscale RAQ also have significantly poorer functional health.

CONCLUSIONS/OUTLOOK

Our findings confirm that besides individual factors there is an autonomous influence of community factors on functional health. Preventing bad functional health therefore also means to improve living conditions in all kinds of residential areas.

VS18-02

MODERIERT KÖRPERLICHE AKTIVITÄT DEN ZUSAMMENHANG ZWISCHEN SYSTEMISCHER ENTZÜNDUNG UND KOGNITIVER LEISTUNG?

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INTRODUCTION
Erhöhte systemische Entzündungswerte sind nachweislich mit schlechteren kognitiven Leistungen (KL) assoziiert. Regelmäßige körperliche Aktivität (KA) führt hingegen zu besseren KL. Diese Studie untersucht, ob regelmäßige KA die Auswirkungen systemischer Entzündungen auf die KL abmildern kann.

METHODS
Wir verwendeten die ersten beiden Wellen der Niederländischen *Lifelines*-Kohortenstudie (2006-2015,N=19985,Alter 50+). Die KL wurde in Welle 2 als psychomotorische Geschwindigkeit (Cogstate Brief Battery) gemessen, wobei höhere Werte einer geringeren KL entsprachen. Als Biomarker für systemische Entzündungen verwendeten wir die Leukozytenzahl im Normbereich von 4 bis 10x10⁹ Zellen pro Liter im Blut bei Studienbeginn. Wir untersuchten die Auswirkungen von Leukozytenzahl und KA auf die KL in linearen Regressionsmodellen. Anschließend wurde mithilfe eines Interaktionseffekts die potenzielle Moderation durch KA analysiert.

RESULTS
Kontrolliert für Alter, Geschlecht und Bildung war eine höhere Leukozytenzahl signifikant mit schlechteren KL verbunden (b=0,020,p=0,036). Dieser Effekt schwächte sich ab, wenn man für KA und Komorbiditäten adjustierte (b=0,011,p=0,257). KA war hoch signifikant mit besseren KL verbunden (b=-0,126,p<0,001). Die Interaktion zwischen der Leukozytenzahl und der KA zeigte eine grenzwertige signifikante Steigung für körperlich aktive Personen (b=0,029,p=0,093) und keinen Effekt für körperlich inaktive Personen (b=0,003,p=0,782). Beim Vergleich der vorhergesagten KL für körperlich aktive und inaktive Personen fanden wir signifikant bessere Ergebnisse für aktive Personen mit 4 bis 7x10⁹ Zellen pro Liter, während sich Personen mit 7 bis 10x10⁹ Zellen nicht signifikant nach KA unterschieden.

CONCLUSIONS/OUTLOOK
Bei Personen mit einem niedrigen Inflammationsniveau fanden wir eine schützende Wirkung von KA auf die KL. Da KA bei Personen mit höherer Leukozytenzahl (wenn auch im Normbereich) keine Wirkung hatte, scheint diese eher präventive als intervenierende Effekte auf die KL zu haben.

VS18-03

ASKING RESIDENTS ABOUT DEPRESSION SYMPTOMS VS. USING CARE STAFF AS A SOURCE OF INFORMATION – A COMPARISON OF SELF- AND PROXY-RATINGS IN THE CONTEXT OF THE MIDDEL STUDY

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INTRODUCTION
Dementia and depression are increasingly prevalent and comorbid conditions in older adults. Depending on the dementia severity, it is not always possible for the person affected to answer questions on depressive symptoms. In this case, the assessment relies on proxy-ratings. We compared staff- and self-ratings of care home residents living with dementia using the Montgomery-Åsberg Depression Rating scale (MADRS).

METHODS
In the context of the MIDDEL study, a cluster-randomized controlled trial investigating the efficacy of music interventions in people living with dementia in care homes, data were collected since August 2021 in and around Oldenburg. Residents and care staff were administered a semi-structured interview comprising the MADRS. Mean differences between self- and proxy-scores with 95% CI were calculated. To investigate the agreement between the two ratings we calculated the intraclass correlation coefficient (ICC). In addition, we collected measures on disease-specific and generic QoL (QoL-AD, EQ-5D).

RESULTS
We included 47 residents with self- and proxy-ratings. 44 (94%) of the residents were female, and the mean age was 86 years. The majority were classified as moderate dementia severity (27, 57%) and rated their QoL a bit above medium (Qol-AD: median 33, IQR 29-37; EQ-5D visual analog scale: median 65, IQR 50-80). The mean difference between the self- and proxy-ratings was 8.1 (4-11) points. Only 1 case (2.1%) showed a perfect agreement between self- and proxy-ratings, and 7 (14.9%) showed a good agreement (no difference and <5% difference). 27 (57.4 %) demonstrated a poor agreement of >10% difference between the ratings. The ICC was 0.24 (-0.21 to 0.48).

CONCLUSIONS/OUTLOOK
The agreement between self- and proxy-ratings was poor. The proxy-ratings should be interpreted with caution. Where possible both ratings should be collected to get the entire information. Further research should focus on to which extent it is possible to rely on self-ratings in people living with dementia.

VS18-04

SUICIDE MORTALITY TRENDS IN EASTERN AND WESTERN GERMANY AGAINST THE BACKDROP OF POPULATION AGING 1980 – 2021

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INTRODUCTION

The number of suicide deaths as well as suicide rates has been declining since about 1980, both in Eastern and Western Germany (but has stagnated since about 2007). At the same time, the mean age of suicide deaths has increased by about seven years. This raises the question of what role population aging plays in these trends.

METHODS

For the analysis, population-based data (for Germany, Old and New federal states) of the cause of death statistics of Destatis are used. In a first step, a decomposition analysis of the trend in the number of suicide deaths from 1980 to 2021 was performed. Here, the trend was decomposed into the effects of the development of suicide rates (cases per 100,000 inhabitants), the age structure and the number of the total population. In a second step, a further decomposition of the number of suicide deaths was performed for the period since 2007.

RESULTS

In both Eastern and Western Germany, the number of suicide deaths decreased since the beginning of the observation period (East: -67%; West: -43%). Due to population aging alone, number of suicide deaths would have increased (East: 38%; West: 22%). The change in suicide rates, on the other hand, resulted in a decrease in numbers (East: -68%; West: -59%). The change in total population numbers had different effects (East: -25%; West: +15%). For the period since 2007, aging has had the strongest effect in Eastern Germany (+9.7%), which is slightly lower for Western Germany at 6.9%. In the age group 75 years and older, the number of suicide deaths has risen sharply (East: +84%; West: +38%), while remaining fairly constant in the other age groups.

CONCLUSIONS/OUTLOOK

In both parts of Germany, suicide mortality has been declining since 1980, although increasing case numbers would have been expected due to population aging. Since the mid-2000s, there has been an increase in suicide deaths of very old people. It must be observed whether this process continues and whether a specific public health problem is emerging here.

VS18-05

RISK ATTITUDE AND SELF-EFFICACY ARE ASSOCIATED WITH VERTIGO-SPECIFIC FUNCTIONING IN OLDER PATIENTS WITH VERTIGO, DIZZINESS AND BALANCE DISORDERS – RESULTS FROM THE LONGITUDINAL MULTICENTER STUDY MOBILE-TRA 2

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INTRODUCTION

The burden of vertigo, dizziness, and balance disorders (VDB) on the patients' functioning might depend on their personality traits. The aim of this study thus was to investigate the association of self-efficacy, risk attitude, and time preference with vertigo-specific functioning in older patients with VDB.

METHODS

MobilE-TRA2 is a cohort study at the German Center for Vertigo and Balance Disorders (DSGZ). Patients aged 60 and older were assessed during their stay at the DSGZ and three months later, using self-administered questionnaires. Self-efficacy was based on the mean of three questions, with values ranging from 1 (very low) to 5 (very high). Risk attitude in terms of health was inquired using an 11-point scale, ranging from "not at all willing to take risks" (0) to "very willing to take risks" (10). Time preference was assessed on a 5-point Likert scale, measuring the patients' consent regarding the statement "I am only concerned about the present because I trust that things will work themselves out in the future". Vertigo-specific functioning was evaluated using the Dizziness Handicap Inventory (DHI), assessing disability caused by VDB on everyday activities. The 25 items of the DHI can be summarized into three domains, representing functional, emotional, and physical aspects of functioning, and an overall score. Higher scores indicate more severe handicap. The association between personality traits and vertigo-specific functioning was examined using mixed-effects regression models.

RESULTS

337 patients (53% women, median age at baseline = 70 years) were included. Higher self-efficacy and higher risk-taking were associated with better vertigo-specific functioning.

CONCLUSIONS/OUTLOOK

Our results indicate that patients with high self-efficacy and high risk-taking might cope better with the challenges that come along with VDB. This knowledge could inform the development of personalized programs to reduce the burden of VDB.

Table 1 Longitudinal linear mixed models to assess the association of personality traits and vertigo specific functioning

	DHI Overall Score (95% CI)	DHI Functional Score (95% CI)	DHI Physical Score (95% CI)	DHI Emotional Score (95% CI)
Observations (n)	558 (305)	560 (306)	561 (307)	562 (307)
Fixed effects				
Intercept	79.89 (64.73 ; 95.04)	34.49 (27.55 ; 41.43)	17.14 (12.18 ; 22.10)	27.91 (22.31 ; 33.50)
Wave				
Baseline	Reference	Reference	Reference	Reference
Follow-up (3 months later)	**-2.84 (-4.90 ; -0.98)**	**-1.32 (-2.19 ; -0.45)**	-0.22 (-0.94 ; 0.51)	**-1.48 (-2.24 ; -0.74)**
Risk attitude	**-1.04 (-1.95 ; -0.12)**	**-0.43 (-0.85 ; -0.01)**	-0.05 (-0.35 ; 0.25)	**-0.56 (-0.90 ; -0.22)**
Self efficacy	**-6.28 (-8.72 ; -3.68)**	**-2.73 (-3.88 ; -1.57)**	**-1.16 (-2.00 ; -0.35)**	**-2.23 (-3.16 ; -1.28)**
Time preference	-0.15 (-2.28 ; 1.95)	-0.20 (-1.16 ; 0.77)	0.18 (-0.51 ; 0.86)	-0.09 (-0.87 ; 0.69)
Diagnosis				
Functional	Reference	Reference	Reference	Reference
Peripheral	-0.80 (-7.70 ; 6.10)	-0.84 (-3.80 ; 2.53)	0.78 (-1.46 ; 3.03)	-0.81 (-3.28 ; 1.73)
Central	5.79 (-13.74 ; 2.16)	-2.86 (-6.50 ; 0.78)	-0.76 (-3.36 ; 1.83)	-1.92 (-4.85 ; 1.01)
Cardiovascular	**-12.07 (-21.58 ; -2.45)**	-4.13 (-8.52 ; 0.26)	-2.96 (-6.09 ; 0.17)	**-4.71 (-8.25 ; -1.17)**
Polyneuropathy	-0.80 (-7.70 ; 6.10)	-0.84 (-3.80 ; 2.53)	0.78 (-1.46 ; 3.03)	-0.81 (-3.28 ; 1.73)
Other	-8.38 (-16.85 ; 0.08)	**-3.99 (-7.67 ; -0.11)**	-1.05 (-3.61 ; 1.71)	**-3.14 (-6.27 ; -0.02)**
Multimorbidity[1]				
No	Reference	Reference	Reference	Reference
Yes	**4.69 (1.39 ; 7.98)**	1.34 (-0.14 ; 2.82)	**1.55 (0.40 ; 3.10)**	**1.48 (0.22 ; 2.70)**
Age[2]	0.02 (-0.29 ; 0.32)	0.03 (-0.11 ; 0.17)	0.06 (-0.04 ; 0.16)	-0.08 (-0.20 ; 0.03)
Gender				
Mmale	Reference	Reference	Reference	Reference
Female	**4.98 (0.45 ; 9.51)**	**2.63 (0.55 ; 4.71)**	0.46 (1.03 ; 1.94)	**1.81 (0.13 ; 3.50)**
Marital status				
Single	Reference	Reference	Reference	Reference
Married	-2.47 (-11.06 ; 6.11)	-1.04 (-4.97 ; 2.90)	-1.14 (-3.97 ; 1.68)	-0.36 (-3.55 ; 2.84)
Divorced	1.17 (-8.71 ; 11.05)	0.86 (-3.65 ; 5.21)	-1.14 (-4.39 ; 2.11)	1.66 (-2.02 ; 5.33)
Widowed	**-10.61 (-21.19 ; -0.02)**	-4.81 (9.65 ; 0.04)	**-3.65 (-7.13 ; -0.17)**	-2.04 (5.97 ; 1.69)
Education[3]				
Lower graduation	Reference	Reference	Reference	Reference
Lower secondary education	-2.58 (-8.08 ; 2.93)	-1.10 (-3.63 ; 1.42)	-0.94 (-2.74 ; 0.86)	-0.74 (-2.78 ; 1.30)
Upper secondary education	-2.62 (-9.52 ; 4.48)	-1.88 (-4.89 ; 1.53)	-0.99 (-3.28 ; 1.31)	0.17 (-2.43 ; 2.77)
Tertiary education	**-8.84 (-14.32 ; -3.36)**	**-3.93 (-6.44 ; -1.42)**	**-3.14 (-4.94 ; -1.34)**	**-1.77 (-3.50 ; 0.27)**
Random effects				
Intercept (SD)	16.13	7.45	5.97	5.93

Significant results are highlighted in bold print.
CI – Confidence Interval; DHI – Dizziness Handicap Inventory; VDB – Vertigo, dizziness and balance problems; SD – Standard deviation.
[1] "Yes", if patient suffered from at least two chronic conditions during baseline assessment; [2] The minimum age of 60 as set by the inclusion criteria was subtracted from age in years for each patient; [3] No graduation or Lower secondary" = nine years of school or less, "Lower secondary education" = 10 years of school, "Upper secondary education" = 12 or 13 years of school, "Tertiary education" = university / university of applied sciences.

Longitudinal linear mixed models assessing the association of personality traits and functioning

Longitudinal linear mixed models to assess the association of personality traits and vertigo-specific functioning. Results for the overall functioning and separately for each dimension of the Dizzyness Handicap Inventory (DHI), representing functional, emotional, and physical aspects of functioning.

VS18-06

PREVALENCE OF MULTIMORBIDITY IN PEOPLE AGED 65 AND OLDER IN THE STUDY GESUNDHEIT 65+

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INTRODUCTION

Multimorbidity (MM) is one of the most important and challenging aspects in public health and is associated with physical and mental health disorders, frailty, hospital admissions and polypharmacy.

METHODS

'Gesundheit 65+' is a population-based longitudinal epidemiological study on the health situation of people aged 65 years and older in Germany. Based on two-stage stratified random sampling from 128 local population registries 3,694 individuals participated in the baseline survey (response 30.9%) between June 2021 and April 2022 (47.9% women, mean age 78.8 years).

MM was defined as the presence of 2 or more diseases and health problems (yes vs. no) from a list of 11 chronic diseases and health problems (self-reported 12-month prevalence of hypertension, coronary heart disease, stroke, hypercholesterolemia, diabetes, chronic bronchitis, osteoarthritis, osteoporosis, lower back complaints or other chronic back complaints, depression and life-time cancer). Weighted prevalences on MM and associations with other health indicators are reported.

RESULTS

Most frequently reported single diseases are hypertension, osteoarthritis and lower back complaints. Overall, 48.9% of the participants are multimorbid, women more often (53.6%, CI 50.4-56.8) than men (43.0%, CI 39.7-46.4) and percentages rise significantly with age.

Women and men with MM show significantly less often a good self-rated health, report more often hospital admission in the last 12 month and use more often 5 and more prescribed medications (polypharmacy) than respondents who are not multimorbid. Furthermore, women with MM report more often to be lonely.

CONCLUSIONS/OUTLOOK

MM is highly prevalent in older people and we found association with age. In addition to the general recommendations to support a healthy lifestyle (e.g., sufficient exercise, balanced diet) Intervention efforts should address avoidance of loneliness and polypharmacy.

28. SEPTEMBER 2023
11:15 AM – 12:45 PM

VS19 | AG-SESSION – AG10 UMWELTMEDIZIN, EXPOSITIONS- UND RISIKOABSCHÄTZUNG

VS19-01

SHORT-TERM EFFECTS OF AMBIENT AIR POLLUTION ON DAILY TOTAL AND CAUSE-SPECIFIC MORTALITY IN GERMANY: A DIFFERENCE-IN-DIFFERENCES ANALYSIS

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INTRODUCTION

Numerous epidemiological studies have shown adverse associations between ambient air pollution and mortality, however, often focusing on selected cities. Nationwide studies including rural and urban areas are scarce. This study investigates the short-term effects of ambient air pollution on daily total and cause-specific mortality in all 401 German counties.

METHODS

We obtained county-level daily counts on total, nonaccidental, and cardiovascular mortality between 2015 and 2019 in Germany. Data on fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2) were derived from spatiotemporal models. Applying a difference-in-differences design, we quantified the short-term effects of daily air pollution concentrations on the same day (lag 0), the previous days (lag 1 and 2), and the two-/three-day averages (lag 0-1 and 0-2) on mortality rate using an interactive fixed effects model adjusting for temperature and relative humidity. Interdependencies between pollutants were assessed by two-pollutant models. To identify potentially sensitive subpopulations, we conducted stratified analyses by sex and age group (0 to 74 years and 75 years and above).

RESULTS

On average, the median daily $PM_{2.5}$ and NO_2 concentrations were 8.3 µg/m³ and 10.1 µg/m³, respectively.Our preliminary results show no significant associations with total mortality for either pollutant. Using a two-pollutant model barely altered the effects. In subgroup analyses, we found a 0.074% [95% CI: 0.004%, 0.144%] increase in mortality rate per 1 µg/m³increase in $PM_{2.5}$ in females on lag 1. No clear associations were found for $PM_{2.5}$ among males or for NO_2 among males or females. Effects were generally higher among people aged 0 to 74 compared to those aged 75 and above.

CONCLUSIONS/OUTLOOK

We found no consistent effects of $PM_{2.5}$ or NO_2 concentrations on total mortality in our nationwide study in the period 2015 to 2019. Cause-specific analyses are ongoing and will provide deeper insight into the association of air pollution with mortality.

VS19-02

KRANKHEITSKOSTEN IM ZUSAMMENHANG MIT DER FEINSTAUBBELASTUNG IN DEUTSCHLAND, 2018

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INTRODUCTION
Neben den Auswirkungen von Feinstaub ($PM_{2,5}$) auf die Gesundheit von Bevölkerungen sind die resultierenden Krankheitskosten als zusätzliche Information in politischen Entscheidungsfindungsprozessen zunehmend relevant. Im UKAGEP-Projekt wurde die feinstaubbedingte Krankheitslast für Deutschland monetarisiert.

METHODS
Im ersten Schritt wurde anhand der Environmental Burden of Disease-Methode die Krankheitslast für das Jahr 2018 berechnet, die in Deutschland auf Feinstaub zurückgeführt werden kann. Zur Monetarisierung der Krankheitslast wurde zum einen der Value of Statistical Life (VSL) mit einer ökonomischen Bewertung eines statistischen Lebens in Höhe von ca. 6,3 (2,4-7,2) Mio. € und zum anderen der Value Of a statistical Life Year (VOLY) mit einer Bewertung eines statistischen Lebensjahres in Höhe von 58.623 (36.646-146.582) € verwendet. Statistische Unsicherheiten bei der Krankheitslast und den VSL- und VOLY-Werten wurden berücksichtigt und anhand von unteren und oberen Schätzern dargestellt.

RESULTS
Die feinstaubbedingte Gesamtkrankheitslast belief sich im Jahr 2018 auf 290.702 (194.265-391.112) Disability-Adjusted Life Years. Bei Verwendung des VOLY-Ansatzes entspricht dies Krankheitskosten von etwa 17 (7-57) Mrd. €. Bei ausschließlicher Betrachtung der Mortalität wurden 15.652 (10.390-21.466) attributable Todesfälle berechnet. Unter Verwendung des VSL-Ansatzes entspricht dies Kosten von etwa 98 (25-124) Mrd. €.

CONCLUSIONS/OUTLOOK
Der VSL- und der VOLY-Ansatz haben den Vorteil, dass sie die indirekten und intangiblen Kosten berücksichtigen. Letztere werden in der Regel bei der Berechnung der Krankheitskosten nicht betrachtet, weil dort lediglich die direkten Behandlungskosten einfließen. Der VSL-Ansatz führt zu deutlich höheren Kosten, weil im Vergleich zum VOLY-Ansatz das Sterbealter nicht berücksichtigt wird und daher alle Todesfälle mit demselben monetären Wert versehen werden. Der VOLY-Ansatz differenziert nach Sterbealter und ist daher dem VSL-Ansatz vorzuziehen.

VS19-03

ZEITLICHE ENTWICKLUNG DER FEINSTAUBBELASTUNG UND BEWERTUNG DER GESUNDHEITLICHEN RELEVANZ FÜR DIE BEVÖLKERUNG IN DEUTSCHLAND

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INTRODUCTION
Um die gesundheitliche Relevanz von Feinstaub ($PM_{2,5}$) bewerten zu können, ist es notwendig, die Entwicklung der $PM_{2,5}$-Exposition der Bevölkerung zu erfassen. Dafür wurden Zeitreihen (2010-2021) für zwei $PM_{2,5}$-Indikatoren für Deutschland entwickelt: (1) die durchschnittliche bevölkerungsgewichtete $PM_{2,5}$-Belastung pro Jahr sowie (2) der Bevölkerungsanteil, der über dem aktuellen WHO Luftqualitätsrichtwert für $PM_{2,5}$ von 5 µg/m³ im Jahresmittel exponiert ist.

METHODS
Zur Berechnung der beiden Indikatoren für den Zeitraum 2010-2021 wurden flächendeckend für Deutschland modellierte $PM_{2,5}$-Jahresmittelkonzentrationen verwendet. Diese wurden mit räumlichen Informationen zur Bevölkerungsdichte aus dem Zensus 2011 verschnitten. Die Bevölkerungsdaten wurden dabei zusätzlich für das jeweilige Betrachtungsjahr gemäß der Fortschreibung des Bevölkerungsstandes skaliert. Darauf aufbauend konnte die Bevölkerung pro Jahr verschiedenen $PM_{2,5}$-Expositionsklassen zugeordnet werden.

RESULTS
Über den Betrachtungszeitraum nahm die durchschnittliche bevölkerungsgewichtete $PM_{2,5}$-Belastung in Deutschland um ca. 41 % ab: 2021 lag der Indikatorwert mit 9,3 µg/m³ im Jahresmittel deutlich niedriger als 2010 mit 15,9 µg/m³. Allerdings waren im gesamten Verlauf der Zeitreihe nahezu 100 % der Bevölkerung $PM_{2,5}$-Jahresmittelkonzentrationen oberhalb des aktuellen WHO Richtwertes ausgesetzt.

CONCLUSIONS/OUTLOOK
Die rückläufige $PM_{2,5}$-Belastung der deutschen Bevölkerung ist grundsätzlich sehr positiv zu bewerten. Maßnahmen der letzten Jahre zu Emissionsminderungen aus stationären Quellen und dem Verkehrsbereich haben maßgeblich hierzu beigetragen. Hingegen zeigt der extrem große Bevölkerungsanteil oberhalb des WHO Richtwertes, dass die bisherige $PM_{2,5}$-Reduktion bei Weitem noch nicht zum Schutz der Gesundheit ausreicht. Vielmehr sind weitgreifende Maßnahmen zur deutlich stärkeren Senkung der Feinstaubkonzentrationen in Deutschland erforderlich.

VS19-04

EINSATZ VON HUMAN-BIOMONITORING (HBM)-DATEN ZUR BERECHNUNG VON UMWELTBEDINGTEN KRANKHEITSLASTEN FÜR KINDER UND JUGENDLICHE IN DEUTSCHLAND

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INTRODUCTION
Die Quantifizierung der Auswirkungen von Umweltrisikofaktoren auf die Bevölkerungsgesundheit wird häufig anhand der Environmental Burden of Disease (EBD)-Methode durchgeführt. Solche Berechnungen liegen für Chemikalien nur in wenigen Fällen vor. Das UKAGEP-Projekt hatte das Ziel, für sieben Chemikalien die Machbarkeit von Krankheitslastberechnungen auf Basis von HBM-Daten zu prüfen.

METHODS
Um die Krankheitslast zu quantifizieren, die auf Chemikalien zurückgeführt werden kann, wurde auf die Daten der 5. Deutschen Umweltstudie zur Gesundheit (GerES V, 2014-2017) zurückgegriffen. GerES V beinhaltet repräsentative Daten zur korporalen Belastung der 3-17-Jährigen in Deutschland mit Chemikalien. Zu den ausgewählten Chemikalien wurden systematische Literaturrecherchen durchgeführt, um die für den Einsatz der EBD-Methode notwendigen Expositions-Wirkungsfunktionen (EWF) zu identifizieren.

RESULTS
Bei allen Chemikalien konnte auf HBM-Daten der GerES V-Studie zurückgegriffen werden. Für einige war es jedoch nicht möglich, entsprechend adäquate EWFs zu identifizieren (Arsen, Cadmium, PFC, PCB, Phthalate). Für Bisphenol A, als Beispiel, konnten die HBM-Daten zur Erfassung der Exposition genutzt und auch die Krankheitslast quantifiziert werden. Etwa 28 % der Adipositas-Fälle bei den 7-17-Jährigen; dies entspricht ca. 170.000 Fällen, konnten 2016 auf die Belastung mit Bisphenol A zurückgeführt werden.

CONCLUSIONS/OUTLOOK
Wir konnten zeigen, dass HBM-Daten für die Erfassung der Exposition in Krankheitslaststudien grundsätzlich eingesetzt werden können. Die Nutzung in EBD-Analysen ist allerdings nur möglich, wenn EWFs aus Studien vorliegen, welche die Belastung mit Chemikalien in den gleichen Körpermedien gemessen haben. Im UKAGEP-Projekt ergab sich zudem noch die Herausforderung, dass die Gruppe der Kinder und Jugendlichen (glücklicherweise) sehr gesund ist, und die Schadstoffkonzentrationen zumeist unterhalb von akut gesundheitsgefährdenden Konzentrationen lagen.

VS19-05

UMWELTBEDINGTE KRANKHEITSLASTEN VON KINDERN UND JUGENDLICHEN IN DEUTSCHLAND – DAS UKAGEP-PROJEKT

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INTRODUCTION
Kinder sind eine verhältnismäßig gesunde Bevölkerungsgruppe. Jedoch können sich langfristig auch geringe Umweltexpositionen, die in frühen Lebensjahren oder sogar bereits vor der Geburt beginnen, negativ auf die Gesundheit von Kindern und Jugendlichen auswirken. Unser Ziel war es, die umweltbedingte Krankheitslast (Environmental Burden of Disease, EBD) zu quantifizieren, die auf ausgewählte Umweltrisikofaktoren für Kinder im Alter von 3 bis 17 Jahren in Deutschland zurückzuführen ist.

METHODS
Anhand der EBD-Methode haben wir Disability-Adjusted Life Years berechnet. Zur Identifikation von Expositions-Wirkungsfunktionen wurden systematische Literaturrecherchen durchgeführt. Aktuelle Expositions- und Gesundheitsdaten stammten unter anderem aus der fünften bevölkerungsrepräsentativen Deutschen Umweltstudie zur Gesundheit (GerES V, 2014-2017).

RESULTS
EBD-Berechnungen konnten für fünf von 18 Risikofaktoren durchgeführt werden: Passivrauch, Bisphenol A, Verkehrslärm, Benzol und Feinstaub. Allerdings konnten die GerES V-Daten nur eingeschränkt für die Berechnungen genutzt werden. Für mehrere Risikofaktoren waren die gemessenen Konzentrationen in den Körpermedien zu niedrig. Auf dieser Basis würde sich keine quantifizierbare Krankheitslast ergeben. Das bedeutet jedoch nicht, dass die ermittelten Konzentrationen generell als unkritisch zu bewerten wären. Für einzelne Risikofaktoren wie Verkehrslärm und Feinstaub mussten wir zudem auf andere Quellen für die Expositionsdaten zurückgreifen. Eine weitere Herausforderung war es, die durch systematische Literaturrecherchen ermittelten Expositions-Wirkungsfunktionen mit den vorliegenden Belastungsdaten zu kombinieren.

CONCLUSIONS/OUTLOOK
Die EBD-Methode benötigt mehrere Eingangsdaten, die für Kinder und Jugendliche in Deutschland nicht ohne Weiteres verfügbar sind. Dies schränkt die Darstellung eines umfassenden Überblicks über ihre EBD ein.

VS19-06

HOW ASSOCIATIONS OF ENVIRONMENTAL EXPOSURES WITH PREVALENT DIABETES AND OBESITY VARY IN COMPLEXITY – RESULTS FROM THE KORA FIT STUDY

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INTRODUCTION
Recent studies suggested increased diabetes risk from air pollution. However, evidence on the association of ambient temperature and green space with diabetes is deficient. In addition, environmental effects on obesity are unclear. Therefore, we aimed to assess long-term effects of multiple environmental exposures on these metabolic diseases.

METHODS
We analyzed cross-sectional data of 3,034 participants aged 53-74 years from the KORA Fit study (2018/19), a German population-based cohort. Environmental exposures were assigned to the participants' residencies and included modelled ambient air pollutants and temperature, and satellite-derived surrounding greenness. We applied logistic and linear regression models adjusted for confounders (age, sex, smoking behavior, alcohol consumption, physical activity, education) to assess associations with prevalent diabetes, obesity and body-mass-index (BMI). Potential effect modifications by sex and urbanization, and linearity of exposure-response functions were assessed.

RESULTS
Higher annual averages of air pollution and air temperature as well as lack of greenness were associated with higher diabetes prevalence in men (e.g., NO_2: Odds Ratio (OR) = 1.49, 95% Confidence Interval: (1.13; 1.95), air temperature: OR = 1.48 (1.15; 1.90); OR per interquartile range increase of greenness: OR = 0.78 (0.59; 1.01)). Effects of unfavorable environmental exposures were suggestive for higher obesity prevalence and BMI in men and urban areas. Conversely, higher levels of air pollution and temperature, and lack of greenness were suggestive of lower obesity prevalence and BMI in women and rural areas.

CONCLUSIONS/OUTLOOK
We observed sex-specific associations of multiple environmental exposures with diabetes and obesity. Additionally, associations between environmental exposures and obesity showed a potential interaction with urbanization. Future analyses should assess the impact of environmental exposures on metabolic diseases considering the interplay of sex and urbanization.

28. SEPTEMBER 2023
11:15 AM – 12:45 PM

VS20 | AG-SESSION – AG5 ERNÄHRUNGSEPIDEMIOLOGIE

VS20-01

PRENATAL INTERMITTENT FASTING AND FERTILITY: RAMADAN DURING PREGNANCY AND MENARCHEAL ONSET AMONG MUSLIM OFFSPRING

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INTRODUCTION

Prenatal conditions can permanently alter fetal physiology, preparing the body for predicted postnatal circumstances. To the extent that maternal nutritional shortages forecast an increased risk of mortality in the postnatal environment, fetal programming theory predicts that the onset of puberty, and therewith fertility, might be shifted towards younger ages to increase the chances of reproductive success. At the same time, early puberty onset is linked to various adverse health outcomes, such as diabetes and cancer (Day et al., 2015; Day et al., 2017). Previous work on the Dutch Famine showed that prenatally exposed females started reproducing at younger ages and had more offspring (Painter et al., 2008). In this study, we examine the effect of Ramadan during pregnancy, a milder prenatal nutritional shock, on the age at menarche, an important puberty marker among females.

METHODS

We use data from Indonesian Family Life Survey (1993-2014, N=8,081) and Indonesian Demographic and Health Survey (2002-2007, N=13,241). We compare female Muslims who were exposed to Ramadan in utero with nonexposed Muslims. Since most of pregnant Muslims in Indonesia fast during Ramadan, we can determine exposure by date of birth in an Intention-To-Treat-setting. The outcome is self-reported age at menarche. We use OLS and Cox regressions, controlling for living in urban areas, year of birth, year of birth squared, survey waves, and months of birth (Ramadan occurs on different dates each year).

RESULTS

Ramadan during pregnancy is not found to be associated with age at menarche, independent of the trimester in which Ramadan overlapped. These results are stable when the sample is restricted to women with shorter recall period, or interview age <=30.

CONCLUSIONS/OUTLOOK

Ramadan during pregnancy, does not seem to be associated with an earlier onset of puberty. Further research is needed to assess associations between different forms of prenatal malnutrition and other (bio)markers of puberty as well as reproductive outcomes.

VS20-02

NUTRITIONAL BEHAVIOR OF SCHOOLCHILDREN IN LEIPZIG: DETERMINANTS AND ASSOCIATIONS WITH WEIGHT STATUS

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INTRODUCTION
Given the high prevalence of childhood overweight, school-based programs aiming at nutritional behavior may be a good starting point for community-based interventions.

METHODS
Therefore, we investigated associations between school-related meal patterns and weight status as well as determinants for school lunch participation in 1215 schoolchildren. Children reported meal habits, parents provided family-related information (like socio-economic status), and anthropometry was conducted on-site in the school. Subsequently, the body mass index (BMI) was calculated and transformed to standard deviation scores (SDS). Associations between nutritional behavior and weight status were estimated using hierarchical linear and logistic regression, between school lunch participation and family-related predictors using logistic regression. Analyses were adjusted for age, gender, socio–economic status (SES), migration background, and parental weight status if necessary.

RESULTS
Having breakfast was associated with a lower BMI-SDS ($\beta_{adj} = -0.51$, $p = 0.004$) and a lower risk of being overweight ($OR_{adj} = 0.30$, $p = 0.009$). Moreover, having two breakfasts resulted in stronger associations (BMI-SDS: $\beta_{adj} = -0.66$, $p < 0.001$; risk of being overweight: $OR_{adj} = 0.22$, $p = 0.001$). The associations persisted after controlling for parental SES and weight status. School lunch participation was primarily associated with family factors. While having breakfast on schooldays was positively associated with school lunch participation ($OR_{adj} = 2.20$, $p = 0.002$). Lower secondary schools ($OR_{adj} = 0.52$, $p < 0.001$) and low SES ($OR_{adj} = 0.25$, $p < 0.001$) were negatively associated.

CONCLUSIONS/OUTLOOK
Therefore, our data confirm the potential of school-based intervention approaches, as unhealthy skipping of meals can be reduced by providing breakfast or lunch at school.

VS20-03

FACTORS ASSOCIATED WITH OBJECTIVELY MEASURED PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR IN A CROSS-SECTIONAL CITIZEN SCIENCE STUDY OF ADOLESCENTS

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INTRODUCTION
Physical inactivity and sedentary behavior in adolescents unfavorably affect physical fitness, body size, social and psychological health indicators and chronic disease risk and tend to track into adulthood. The identification of factors associated with physical activity is necessary for the planning of public health interventions that aim to increase activity levels.

METHODS
SMOVE (Science that makes me move) aimed to identify factors associated with objectively measured physical activity (PA) and sedentary behavior (SB) in a school-based Citizen Science approach in Berlin and Brandenburg. Students (from grade 8) were involved in the development of new class-specific questionnaires on potential factors that influence their PA and SB. Students wore activPAL accelerometers for seven consecutive full days and subsequently filled in one established and the newly developed class-specific questionnaires to ascertain potential factors that influence PA and SB. We used multilevel linear regression models (to control for the dependence of observations within students) to investigate factors that influence PA (time spent in moderate-to-vigorous physical activity, MVPA) and SB (sedentary waking hours).

RESULTS
ActivPAL data with at least four recorded days was available for 119 students (789 recorded days). In models adjusted for age, sex and parental socioeconomic status, high traffic safety around the school was positively (0.30 hours/day, 95% CI 0.09, 0.51) and having a TV in the own bedroom was inversely (-0.14 hours/day, 95% CI -0.26, -0.02) associated with time spent in MVPA. From the class-specific questionnaires developed based on input from students, higher motivation to be physically active and working out regularly at a gym were associated with longer MVPA. Sedentary waking hours were not associated with the factors under investigation.

CONCLUSIONS/OUTLOOK
This Citizen Science study identified factors associated with PA behavior that deserve investigation in larger samples.

VS20-04

GREATER ADHERENCE TO A HEALTHY NORDIC DIET IS ASSOCIATED WITH LOWER ALL-CAUSE MORTALITY IN A POPULATION-BASED SAMPLE FROM NORTHERN GERMANY

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INTRODUCTION
Dietary risks account for approximately one in five deaths globally each year. Multiple studies showed associations between higher consumption of healthy foods, such as fruits, vegetables, and legumes, with lower all-cause mortality. Such healthy food groups constitute a major part of dietary patterns like Dietary Approaches to Stop Hypertension (DASH), a Mediterranean, or a Healthy Nordic Diet.

METHODS
We examined the association between three dietary pattern scores (DASH, Modified Mediterranean Diet Score [MMDS], and Healthy Nordic Food Index [HNFI]) and all-cause mortality in n=836 participants of a population-based sample from Northern Germany (43.8% females, median age 62.4 years). Based on a self-administered Food Frequency Questionnaire, dietary scores DASH, MMDS, and HNFI were calculated. During a median follow-up period of 11 years, n=93 individuals died. After adjustment of dietary scores for total energy intake, we used multivariable-adjusted Cox proportional hazard regression models to relate DASH, MMDS, and HNFI (each considered as a separate exposure) to all-cause mortality.

RESULTS
While DASH and MMDS scores were not associated with all-cause mortality, we observed greater adherence to HNFI to be associated with lower mortality hazards (HR: 0.472 [95% CI 0.250–0.891] when comparing the highest dietary score quartile to the lowest, HR: 0.789 [95% CI 0.637–0.977] for HNFI as a continuous trait). Diabetes modified the association of HNFI with all-cause mortality (HR: 0.359 [95% CI 0.183–0.707] in individuals with diabetes, HR: 0.868 [95% CI 0.999–1.095] in individuals without diabetes, $p = 0.0398$ for interaction). Among the different components of the HNFI score, higher intake of oatmeal displayed the most conclusive association with all-cause mortality (HR: 0.588 [95% CI 0.378–0.914]).

CONCLUSIONS/OUTLOOK
In conclusion, we observed greater adherence to a Healthy Nordic Diet to be associated with lower all-cause mortality in an elderly sample of the general population in Northern Germany.

VS20-05

FEDERATED ANALYSIS OF THE ASSOCIATION BETWEEN BODY MASS INDEX AND GUT MICROBIOTA COMPOSITION AMONG ADULTS FROM MULTIPLE EUROPEAN OBSERVATIONAL STUDIES

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INTRODUCTION
Meta-analytic evidence suggests inconsistent results in associations of body mass index (BMI) with the gut microbiota composition, which may be due to methodological heterogeneity across studies. Joint analysis of studies with harmonized data may overcome some sources of heterogeneity. We examined associations of BMI with gut microbiota relative abundance (RA) at the phylum and genus level among adults in a joint federated analysis of harmonized data from European observational studies participating in the Knowledge Platform Intestinal Microbiomics (INTIMIC-KP).

METHODS
Studies provided cross-sectional data harmonized based on a joint study protocol; data included measured BMI (kg/m²) and RA of taxa based on high-throughput microbiota measurement. Generalized linear or logistic regression (for taxa in ≥10% to ≤90% of the samples) models were used in joint federated virtual individual personal data (IPD) analysis and study-level meta-analysis (SLMA) using DataSHIELD. Main models were adjusted for age, sex, and study (IPD).

RESULTS
Data from seven studies on 7,656 participants were available (57% female, 18-79 y). IPD analysis showed a 5-unit increment in BMI was associated with higher RA of Proteobacteria (B: 0.06 (95%CI: 0.04, 0.09)) and lower RA of *Faecalibacterium* (B: -0.10 (-0.13, -0.08)). *Bifidobacterium* (OR: 0.92 (0.86, 0.98)), *Blautia* (OR: 0.90 (0.84, 0.96)), and *Akkermansia* (OR: 0.88 (0.84, 0.92)) were less likely to be observed as BMI increases; IPD results were consistent with SLMA results. There was no association of BMI with either Firmicutes to Bacteroidetes ratio or with *Prevotella* to *Bacteroides* ratio.

CONCLUSIONS/OUTLOOK
Our findings from multiple observational studies based on harmonized data provide evidence on the association of BMI with gut microbiota composition, including a positive association with Proteobacteria and inverse associations with *Faecalibacterium*, *Bifidobacterium*, *Blautia*, and *Akkermansia*.

VS20-06

SUBSTITUTION OF ANIMAL-BASED WITH PLANT-BASED FOODS ON TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE – A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION
Growing evidence suggests that replacing animal-based with plant-based foods is associated with a lower risk of type 2 diabetes (T2D) and cardiovascular diseases (CVD). Our aim was to summarize and evaluate the evidence for these associations in a systematic review and meta-analysis.

METHODS
We systematically searched Medline, Embase and Web of Science to March 2023 for prospective observational studies investigating the substitution of animal-based with plant-based foods on T2D and CVD. We calculated summary hazard ratios (SHRs) and 95% confidence intervals (95% CI) using random-effects meta-analyses. Risk of bias and the certainty of evidence (CoE) were assessed using ROBINS-I and the GRADE approach.

RESULTS
In total, 29 publications based on 19 cohorts were identified. Risk of bias was mostly moderate. We found moderate CoE for an inverse association with T2D incidence when substituting red meat with whole grains/cereals [SHR (95% CI): 0.90 (0.84, 0.96), n=6 cohorts], red meat or processed meat with nuts [0.92 (0.90, 0.94), n=6 or 0.78 (0.69, 0.88), n=6], as well as for replacing poultry with whole grains [0.87 (0.83, 0.90), n=2] and eggs with nuts or whole grains [0.82 (0.79, 0.86), n=2 or 0.79 (0.76, 0.83), n=2]. There was moderate CoE for a lower risk of CVD when substituting processed meat with nuts [0.73 (0.59, 0.91), n=8], legumes [0.77 (0.68, 0.87), n=8] or whole grains [0.64 (0.54, 0.75), n=7], as well as eggs with nuts [0.83 (0.78, 0.89), n=8] and butter with olive oil [0.96 (0.95, 0.98), n=3]. There was also indication that the substitution of red meat and eggs with legumes was associated with a reduced risk of T2D and CVD, however, the CoE for these associations was low.

CONCLUSIONS/OUTLOOK
Our findings show that a shift in the diet from a high consumption of animal-based foods (e.g., processed meat, eggs) to plant-based foods (e.g., nuts, legumes, whole grains) is associated with a lower risk of T2D and CVD.

VS20-07

ASSOCIATION OF DIETARY PATTERNS WITH CARDIOVASCULAR RISK FACTORS VARIES AMONG DIABETES ENDOTYPES

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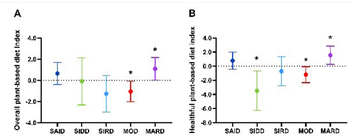

Figure 1: Differences between diabetes endotypes and dietary patterns

Plots show (A) the overall plant-based diet index and (B) the healthful plant-based diet index. Each diabetes endotype was tested against the four other diabetes endotypes as reference group so that data are mean adjusted differences with 95% confidence intervals adjusted for age, sex, highest school-leaving qualification ("Fachhochschulreife" or "Abitur": yes/no), total daily energy intake, total daily alcohol intake. *p <0.05.

INTRODUCTION

Differences of dietary behaviors across the novel diabetes endotypes are unknown. This study aimed to assess adherence to hypothesis-based dietary patterns and their associations with cardiovascular risk factors among diabetes endotypes.

METHODS

Within a cross-sectional analysis from the German Diabetes Study (GDS), 765 individuals with recently diagnosed (67%) and prevalent diabetes (33%) were allocated into severe autoimmune diabetes (SAID, 35%), severe insulin-deficient diabetes (SIDD, 3%), severe insulin-resistant diabetes (SIRD, 5%), mild obesity-related diabetes (MOD, 28%), and mild age-related diabetes (MARD, 29%). Adherence to a Mediterranean diet score, Dietary Approaches to Stop Hypertension (DASH) diet score, overall plant-based diet index (PDI), healthful (hPDI) and unhealthful plant-based diet index (uPDI) was derived from a food frequency questionnaire. Associations of dietary pattern adherence with cardiovascular risk factors were assessed using multivariable linear regression analysis.

RESULTS

People with MARD compared against the other endotypes combined showed the highest, those with MOD the lowest adherence to the overall PDI and hPDI (Figure 1). Differences in associations of dietary patterns with cardiovascular risk factors were observed between endotypes, but without a clear pattern. While dietary patterns were inversely associated with high-sensitivity C-reactive protein levels among people with MARD [Mediterranean diet score, per 1 point: ß (95% CI): -9.2% (-15.6; -2.3); DASH, per 5 points: -13.6% (-24.2; -1.6); overall PDI and hPDI, per 10 points: -19.2% (-34.3; -0.5) and -16.1% (-28.8; -1.1), respectively], the PDIs were related to blood lipid concentrations among people with SAID, SIRD, and MOD.

CONCLUSIONS/OUTLOOK

Although only minor differences in dietary pattern adherence were observed across the endotypes, associations with cardiovascular risk factors differed between them. However, evidence is insufficient for endotype-specific dietary recommendations.

VS20-08

ASSOCIATION OF A LIFESTYLE INDEX WITH SCORES OF DIABETES-RELATED DISTRESS, DEPRESSION SYMPTOMS, HEALTH-RELATED QUALITY OF LIFE AND WELL-BEING AMONG INDIVIDUALS WITH NEW-ONSET DIABETES: A CROSS-SECTIONAL STUDY

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INTRODUCTION
Individuals with diabetes are at higher risk of developing depression and tend to have a lower health-related quality of life (HRQoL) compared to the general population. Adherence to a healthy lifestyle may have the potential to improve depression symptoms and HRQoL in individuals with diabetes. Thus, the aim of this study was to investigate the association between a lifestyle index with scores of diabetes-related distress, depression symptoms, HRQoL and well-being in individuals with new-onset diabetes.

METHODS
For this cross-sectional study 503 individuals diagnosed within the past 12 months with type 1 (n=212) and type 2 (n=291) diabetes from the German Diabetes Study (GDS) were included. The lifestyle index was generated based on healthy diet, moderate alcohol intake, recreational physical activity and non-smoking, ranging from 0 to 4 points. Associations between the lifestyle index and scores of diabetes-related distress (Problem Areas in Diabetes Questionnaire (PAID)), depression symptoms (Allgemeine Depressionsskala (ADS-L)), HRQoL (The 36-Item Short-Form Health Survey (SF-36)) and well-being (WHO-5 Well-Being Index (WHO-5 Index)) were investigated using adjusted linear regression models.

RESULTS
Adhering to all compared to ≤1 healthy lifestyle factor was associated with lower scores of depression symptoms (ADS-L: [β (95% CI): -2.86 (-5.27, -0.45)]) and diabetes-related distress (PAID: [-5.50 (-10.55, -0.44)]), as well as with higher scores of the SF-36 physical/mental component summary scores [2.68 (0.60, 4.77) / 4.43 (1.13, 7.73)] and well-being (WHO-5: [11.86 (6.15, 17.57)])
(Table 1). An increase per one additional healthy lifestyle factor was associated with more beneficial patient-related outcome scores.

CONCLUSIONS/OUTLOOK
Adherence to a healthy lifestyle might be associated with more beneficial scores of patient-reported outcomes. More research in prospective studies is needed.

Lifestyle Index	n	ADS-L (Score: 0-60)*	PAID (Score: 0-100)*	SF-36 physical component summary score (Score: 0-100)†	SF-36 mental component summary score (Score: 0-100)†	WHO-5 Index (Score: 0-100)†
≤1 points	69	Reference	Reference	Reference	Reference	Reference
2 points	141	-1.66 (-3.99, 0.67)	-3.89 (-8.74, 0.96)	2.74 (0.73, 4.74)	3.20 (0.03, 6.37)	7.26 (1.75, 12.77)
3 points	171	-1.93 (-4.21, 0.34)	-3.97 (-8.72, 0.79)	2.29 (0.34, 4.25)	3.13 (0.03, 6.22)	8.66 (2.70, 13.47)
4 points	122	-2.86 (-5.27, -0.45)	-5.50 (-10.55, -0.44)	2.68 (0.60, 4.77)	4.43 (1.13, 7.73)	11.86 (6.15, 17.57)
per 1 point	503	-0.75 (-1.44, -0.05)	-1.18 (-2.64, 0.28)	0.62 (0.02, 1.22)	1.06 (0.12, 2.01)	3.07 (1.43, 4.71)

Table 1: Results of the linear regression investigating the association between the lifestyle index

Models are adjusted for age, sex, socioeconomic status, body mass index, number of comorbidities (myocardial infarction, stroke, heart failure, cancer, respiratory disease, kidney disease, liver disease, disability), diabetes type, family history of diabetes and diabetes medication

* lower scores are indicating less depression symptoms (ADS-L) and less diabetes-related distress (PAID)

† higher scores are indicating higher health-related quality of life (SF-36) and higher well-being (WHO-5 Index)

VS20-09

ADHERENCE TO DIETARY PATTERNS AND CANCER OUTCOMES IN INDIVIDUALS WITH TYPE 2 DIABETES: A SYSTEMATIC REVIEW WITH META-ANALYSES OF PROSPECTIVE OBSERVATIONAL STUDIES

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INTRODUCTION
Individuals with type 2 diabetes (T2D) are at an increased risk for several comorbidities including cancer. Diet plays an important role in the management of T2D as well as in the prevention of cancer. Thus, we aim to systematically summarise the evidence on dietary patterns and the risk of cancer in individuals with T2D.

METHODS
A systematic search was conducted in PubMed and Web of Science until June 2022. An alert from PubMed was used to identify new studies until March 2023. We included prospective studies investigating dietary patterns in association with cancer outcomes in individuals with T2D. We calculated summary risk ratios (SRR) with 95% CI using random effects models. The risk of bias of primary studies and certainty of evidence (CoE) of associations were evaluated using validated tools.

RESULTS
Overall, we included 17 studies, mainly on total cancer (n=6), and gastrointestinal cancer sites (n=11). Three and 14 studies were judged as being at moderate and serious risk of bias, respectively, mainly due to the insufficient adjustment for confounders. We found very uncertain meta-evidence for the association between a higher adherence to the DASH diet and cancer outcomes (SRR: 0.59; 95% CI: 0.34, 1.03; n=3) compared to a lower adherence. No clear associations were found for the Mediterranean diet (SRR: 0.90; 95% CI: 0.42, 1.90; n=2), Healthy Eating Index (SRR: 1.15; 95% CI: 0.48, 2.74; n=2), glycemic index (SRR: 1.15; 95% CI: 0.81, 1.64; n=3), or glycemic load (SRR: 1.12; 95% CI: 0.88, 1.43; n=2) and cancer, rated as very low CoE. No association was found for pro-inflammatory patterns or Low-carbohydrate Score and cancer.

CONCLUSIONS/OUTLOOK
We present first meta-evidence for the associations of adherence to dietary patterns and cancer outcomes in individuals with T2D. Diet may play a role in cancer prevention among individuals with T2D, but so far the CoE is limited due to the small number of primary studies and cancer cases included in the studies.

28. SEPTEMBER 2023
11:15 AM – 12:45 PM

VS21 | AG-SESSION – AG2 PÄDIATRISCHE EPIDEMIOLOGIE

VS21-01

ERGEBNIS DER SEHSCHÄRFE UND TEILNAHME BEI NACHSORGEUNTERSUCHUNGEN NACH KATARAKTOPERATIONEN BEI KINDERN IN KINSHASA IN DEN JAHREN 2001-2021: VORLÄUFIGE ERGEBNISSE BASIEREND AUF KLINISCHEN DATEN DES ST. JOSEPH HOSPITAL.

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INTRODUCTION
Etwa 90% der blinden Kinder kommen aus Ländern mit niedrigem und mittlerem Einkommen. Die häufigste Ursache für Blindheit im Kindesalter ist Katarakt. Die Operation (OP) einer Katarakt kann zur Verbesserung der Sehleistung führen, allerding ist eine regelmäßige Nachsorge notwendig. Eine geringe Teilnahme an der Nachsorge ist sowohl medizinisch als auch statistisch eine Herausforderung, denn fehlende Informationen können zu verzerrten Ergebnissen führen. Es ergeben sich zwei Forschungsfragen: Welche Faktoren beeinflussen die Nichtteilnahme an der ersten Nachsorge? Welche Faktoren beeinflussen das Ergebnis der Sehschärfe bei der ersten Nachsorge?

METHODS
Die Studie umfasst Kinder, die im Zeitraum von 2001 bis 2021 im St. Joseph Hospital (Kinshasa, Demokratische Republik Kongo) eine Katarakt-OP erhielten. Die binäre logistische Regression wurde verwendet, um die Nichtteilnahme an der Nachsorge zu analysieren (N=1125 Katarakt-OP), die ordinale logistische Regression zur Analyse der Sehschärfe bei der Nachsorge (N=719 Katarakt-OP), beide gruppiert nach Patienten ID. Aufgrund der hohen Anzahl fehlender Werte erfolgte eine multiple Imputation als Sensitivitätsanalyse.

RESULTS
Weibliches Geschlecht, junges Alter, sehr gute Sehschärfe nach OP und Erkrankung beider Augen führten zu einer geringeren Teilnahme an der Nachsorge. Ein schlechtes Ergebnis der Sehschärfe bei der Nachsorge waren mit weiblichem Geschlecht, jungem Alter, Blindheit nach der OP und Nystagmus verbunden. Fehlende Werte erschienen “zufällig”, die Analyse der vollständigen Fälle (ohne fehlende Werte) unterschied sich kaum von der Analyse mit imputierten Werten.

CONCLUSIONS/OUTLOOK
Es wird empfohlen, den in der Analyse identifizierten Gruppen besondere Aufmerksamkeit zu schenken, um sie besser in die Nachsorge zu integrieren. Das höhere Risiko eines schlechten Ergebnisses der Sehschärfe bei jüngeren Kindern ist überraschend und erfordert weitere Analysen. Für weitere Untersuchungen sollte eine Reduzierung fehlender Werte angestrebt werden.

VS21-02

HYPOTHETICAL BEHAVIORAL INTERVENTIONS AND THEIR EFFECTS ON OVERWEIGHT/OBESITY INCIDENCE IN CHILDREN AND ADOLESCENTS

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INTRODUCTION
In view of the high burden of childhood overweight/obesity (OW/OB), it is of utmost importance to identify targets for interventions that may have the largest effects on preventing OW/OB in early life. Using methods of causal inference, we studied the long-term effects of hypothetical interventions on OW/OB based on a large European cohort.

METHODS
Our sample comprised 10 877 children aged 2 to <10 years at baseline who participated in the well-phenotyped IDEFICS/I.Family cohort. Children were followed over 13 years from 2007/08 to 2020/21. Applying the parametric g-formula, the risk of developing OW/OB was estimated under various hypothetical behavioral interventions. Interventions that impose adherence to recommendations (e.g. max 2 h/day screen time) as well as interventions “shifting” the behavior by a certain amount (e.g. decreasing screen time by 30 min/day) were compared to “no intervention” (i.e. maintaining the natural behavior).

RESULTS
The 13-year risk of developing OW/OB was 30.7% under no intervention and 25.4% when multiple interventions were imposed jointly. Meeting screen time and moderate-to-vigorous physical activity (MVPA) recommendations were found to be most effective, reducing the incidence of OW/OB by -2.2 [-4.4;-0.7] and -2.1 [-3.7;-0.8] percentage points (risk difference [confidence interval]), respectively. If all children were members in a sports club, the incidence of OW/OB could be reduced by -1.6 [-2.7;-0.4] percentage points over a 13-year period. Shift interventions for MVPA and sleep duration showed similar effects as compared to interventions that require to strictly meet MVPA/sleep recommendations.

CONCLUSIONS/OUTLOOK
The risk of developing OW/OB over a 13-year period could be reduced moderately by 17 percent by jointly implementing six hypothetical behavioral interventions throughout childhood and adolescence. The most effective interventions were to meet screen time and MVPA recommendations.

VS21-03

PHYSICAL ACTIVITY AMONG CHILDREN AND ADOLESCENTS DURING THE COVID-19 PANDEMIC IN EUROPE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION
COVID-19 pandemic-restrictions, like school closures, resulted probably in limitations for children's and adolescents' (CA) physical activity (PA); however, the effect magnitude is unclear for Europe. This review aims to assess PA changes during the COVID-19 pandemic and the restriction impact on PA among CA in Europe.

METHODS
We performed systematic literature searches in 7 databases with a peer-reviewed search strategy. Inclusion criteria were studies with CA ≤ 19 years living in Europe reporting total PA (TPA) or moderate-to-vigorous PA (MVPA) during the COVID-19 pandemic with a pre-pandemic baseline. We used the Oxford Stringency Index and School Closure Index as indicators for (school) restriction stringency. Risk of bias (RoB) was rated with the 'Risk of Bias in Non-randomized Studies of Exposure' (ROBINS-E) instrument. PROSPERO: CRD42023395871.

RESULTS
Of 14,891 nonduplicate records, 25 studies and 2 reports met full inclusion criteria, mainly carried out in 2020 and spring 2021. For TPA (meta-analysis of 14 studies, 8 with low RoB; including self-reported data and accelerometer measurements [AM]) a standardized mean difference (SMD) of -0.57 (95% CI, -0.95 to -0.20) was revealed and a reduction of -47.7 minutes (95% CI, -115.9 to 20.5) per day when considering only AM. The meta-analysis for MVPA (12 studies, 9 with low RoB; including self-reported data and AM) resulted in a SMD of -0.43 (95% CI, -0.75 to -0.10) and a decline of -12.0 minutes (95% CI, -27.1 to 3.1) per day in only AM. Subgroup analyses indicated a significant association of school closures with higher declines in TPA and MVPA as well as steady reduction levels over the reported measurement periods.

CONCLUSIONS/OUTLOOK
Among CA in Europe, TPA and MVPA declined during the COVID-19 pandemic, this decline was higher in periods of school closures. Our findings suggest that school closures should be implemented with greatest caution. Additionally, strategies to increase PA and a long-term monitoring of further trends are required.

VS21-04

CAUSAL EFFECTS OF BIRTH WEIGHT AND BODY SIZE OVER THE LIFE COURSE ON AUTOIMMUNE DISORDERS: A MULTIVARIABLE MENDELIAN RANDOMIZATION STUDY

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INTRODUCTION

Based on Barker's hypothesis, some observational studies investigated the associations between birth weight and autoimmune disorders. Apart from issues with statistical power regarding low-prevalence diseases and well-known shortcomings of the observational study design, there are no studies that account for changes in body measurements or other potential mechanisms over the life course.

METHODS

Based on genetic information of up to 806,834 participants, this study investigated the associations and potential mediation mechanisms between birth weight from a fetal and maternal perspective and rheumatoid arthritis, psoriasis, psoriatic arthritis, and multiple sclerosis. Performing a two-sample Mendelian randomization (MR), the radial inverse-variance weighted approach was used iteratively in primary analyses. Robustness of the results was confirmed in several sensitivity analyses. Potential time-dependent mediation mechanisms were identified through network-clustering and assessed using multivariable MR.

RESULTS

Genetically predicted birth weight (fetal effect) was positively associated with rheumatoid arthritis (OR=1.44; 95% CI: [1.17; 1.77]; *Padj*=0.005) but not with psoriasis, psoriatic arthritis, or multiple sclerosis. This association was found to be mediated by BMI in adulthood rather than childhood. The direct effect of birth weight attenuated after adjustment for BMI (OR=1.19; 95% CI: [0.88; 1.62]; *Padj*=1), which mediated 17% of the association over the life course.

CONCLUSIONS/OUTLOOK

Birth weight seems to be a risk factor for the manifestation of rheumatoid arthritis later in life. This risk can be attributed to the fetal rather than maternal component and can be regulated by controlling BMI in adulthood. Approaches to prevent and minimize risk of rheumatoid arthritis could include preventing obesity in adults with high birth weight. Refuted associations and mediation mechanisms should be investigated in further studies.

VS21-05

PSYCHOSOCIAL FACTORS PREDICTING PARENT-REPORTED ADHD IN AN ADMINISTRATIVE SAMPLE. FIRST RESULTS OF THE CONSORTIUM PROJECT INTEGRATE-ADHD

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INTRODUCTION
The INTEGRATE-ADHD consortium project was set up to compare administrative and epidemiologically reported ADHD diagnostic data, since there had been relevant differences between the two data sources in the past. To this end, parents of children with an administrative ADHD diagnosis were interviewed online using the questionnaires from the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) health survey and its in-depth module on child mental health, the BELLA study. A number of psychosocial indicators are available in the dataset, including parental psychopathology, parental distress, psychosocial resources, and health literacy. The aim of this contribution is to characterize parents who did not report their child's administrative ADHD diagnosis using these psychosocial indicators in order to better understand the discrepancies between administrative and epidemiological data sources.

METHODS
Parents of 5,512 children aged 0 to 17 years who are insured by the third largest German statutory health insurance (DAK-Gesundheit) and presented with at least one verified administrative ADHD diagnosis in the insurance year 2020 answered online an epidemiological survey on their child's ADHD diagnosis.

RESULTS
The data acquisition has just been finished and the data analysis is currently running. First results will be presented in September.

CONCLUSIONS/OUTLOOK
INTEGRATE-ADHD results contribute to a better understanding of population-based ADHD prevalence estimates. They serve to improve the diagnostics and care of ADHD-affected children and adolescents and their families and to identify fields of action for health policy and self-administration in the German health care system.

VS21-06

ATTENTION PERFORMANCE IN CHILDREN AND ADOLESCENTS AND ITS INFLUENCING FACTORS. RESULTS OF THE LEIPZIG SCHOOL NUTRITION STUDY

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INTRODUCTION
There is currently inconclusive evidence for the effects of various leisure activities on attention performance in children. For this reason, we aim to generate more robust evidence to design a subsequent prevention intervention trial.

METHODS
The Leipzig school nutrition study is a cross-sectional study. From 2018 to 2020, we collected data from primary (Grade 4) and secondary school students (Grades 6-8) and their families. Data includes physical activity, dietary behavior, media consumption, socio–economic status (SES), anthropometry, and attention performance ("Frankfurter Aufmerksamkeits-Inventar 2(FAIR-2)"). Associations between attention and influencing factors were estimated using hierarchical linear regression. Analyses were adjusted for age, SES, and school type.

RESULTS
34 schools from 13 districts were recruited, and 1215 students were included. Children in upper secondary schools ($ß_{adj.}$=23.6, p<0.001), with higher SES (ß=1.28, p<0.001), and if their parents limit the time of internet use, show a higher attentional performance ($ß_{adj.}$= 5.2, p=0.012). Children doing no leisure-time sports ($ß_{adj.}$= -4.18, p=0.046) or students in Grade 7 who have at least one electronic medium such as a PC in their room ($ß_{adj.}$ = -13.0, p=0.005) had lower attention performance percentiles. Children who read books for at least one hour per day during the week showed better attention performance ($ß_{adj.}$= 4.35, p= 0.020). After adjusting for age and social status, there were no associations between attention and nutrition.

CONCLUSIONS/OUTLOOK
The main findings are that SES and school type were related to attentional performance. Children who participate in sports in their leisure time, whose parents limit their online time, and those without electronic devices in their room showed better attention performance. These findings should inform the development of future prevention programs.

POSTER

26. SEPTEMBER 2023
1:45 PM – 2:45 PM

PS1 | POSTERSESSION – AG6 GENETISCHE EPIDEMIOLOGIE + AG10 UMWELTMEDIZIN, EXPOSITIONS-UND RISIKOABSCHÄTZUNG + AG11 PHARMAKOEPIDEMIOLOGIE

PS1-01

INTERACTION OF A GENETIC SUM SCORE OF HEIGHT-ASSOCIATED ALLELES WITH SOCIOECONOMIC POSITION IN THE HEINZ NIXDORF RECALL STUDY

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INTRODUCTION

Height is influenced by genetic, environmental, and social factors, similar to other anthropomorphic features. Here, we investigate potential interactions between socioeconomic position (SEP) and a height-related polygenic sum score (PRS_{height}) and how it affects height in a population-based cohort.

METHODS

Single nucleotide polymorphisms (SNP) for calculating the PRS_{height} were available for 4,455 participants (aged 45-75 years) of the Heinz Nixdorf Recall Study. Education and paternal occupation as early/mid-life SEP indicators were assessed at study baseline. Years of formal education were used continuously, or categorized into groups with ≤10, 11–13, 14–17, and ≥18 years. Paternal occupation was grouped by managers/professionals, technicians/associate professionals, qualified employees/workers, and unskilled employees/workers. The PRS_{height} was calculated using a sum score method in PRSice-2 (9012 SNPs, p-value $5x10^{-8}$, clumping r^2 0.1) using summary statistics of the latest genome-wide meta-analysis for height. Interaction analyses were performed based on age- and sex-adjusted linear regression models including PRS_{height}xSEP interaction terms.

RESULTS

Socioeconomic inequalities in height were found with lower height observed for groups of lower SEP (Table 1, Model 1a-1c). A 0.04 cm higher body height was observed per additional effect allele of the PRS_{height} (Table 1, Model 2). Table 2 shows the results of the linear regression models for height including main effects and PRS_{height}xSEP interaction terms (model 3). Effect size estimates for all interaction terms were small and did not indicate strong interaction.

CONCLUSIONS/OUTLOOK

We aimed at investigating whether a sum score of genetic variants associated with height interacts with education and paternal occupation as SEP indicators in a population-based study. The presented results did not indicate a strong interaction between the genetic determinants of human height and early/mid-life SEP.

Model 1		
a) Height (cm) ~ Education + sex + age		
	N	β(95% CL)
Intercept	4444	192.36 (190.17;194.55)
Sex		-12.23 (-12.62;-11.85)
Age (per year)		-0.19 (-0.21;-0.16)
Education (per year)		0.40 (0.32;0.48)
a) Height (cm) ~ Education grouped + sex + age		
Intercept	4444	187.75 (186.27;189.23)
Sex		-12.28 (-12.67;-11.90)
Age (per year)		-0.19 (-0.21;-0.16)
Education ≥ 18 years		Ref.
Education >13-17 years		-1.15 (-1.83;-0.46)
Education >10-13 years		-2.30 (-2.92;-1.67)
Education ≤ 10 years		-3.58 (-4.40;-2.77)
a) Height (cm) ~ Paternal occupation + sex + age		
Intercept	4211	189.29 (187.75;190.82)
Sex		-12.79 (-13.16;-12.41)
Age (per year)		-0.2 (-0.24;-0.19)
Manager and professionals		Ref.
Technicians and associate professionals		-1.04 (-1.77;-0.31)
Qualified (skilled) employees/workers		-2.02 (-2.65;-1.39)
Unskilled employees/ workers		-2.60 (-3.41;-1.80)
Model 2		
Height (cm) ~ PRS_{height} + sex + age		
Intercept	4455	-175.07 (-192.83;-157.32)
Sex		-12.89 (-13.21;-12.58)
Age (per year)		-0.22 (-0.24;-0.20)
PRS_{height}		0.041 (0.039;0.043)

Table 1: Linear regression models for body height

Age- and sex-adjusted effects and corresponding 95% confidence limits (95% CL) for body height in linear regression models including main effects of education per year (model 1a), education group (model 1b), and paternal occupation groups (model 1c) as indicators of socioeconomic position (SEP), and a height-associated polygenetic risk score PRS_{height} (model 2).

	Model 3: Height (cm) ~ SEP + age + sex + PRS_{height} + PRS_{height} *SEP
	β(95% CL)
Education years	
Intercept	-135.91 (-238.54;-33.28)
Education (per year)	-3.59 (-10.82;3.64)
PRS_{height}	0.035 (0.024;0.046)
PRS_{height} *education	0.0004 (-0.0004;0.0012)
Age (per year)	-0.20 (-0.22;-0.18)
Sex	-12.37 (-12.69;-12.04)
Education years grouped	
Intercept	-175.67 (-228.95;-122.39)
≤ 10 years	28.52 (-44.50;101.53)
>10-13 years	-16.83 (-75.27;41.61)
>13-17 years	-23.13 (-87.79;41.53)
≥ 18 years	Ref.
PRS_{height}	0.040 (0.034;0.046)
≤ 10 years * $PRS_{height:EDU}$	-0.003 (-0.012;0.004)
>10-13 years * $PRS_{height:EDU}$	0.002 (-0.005;0.008)
>13-17 years * $PRS_{height:EDU}$	0.002 (-0.005;0.010)
≥ 18 years * PRS_{height}	Ref.
Age (per year)	-0.20 (-0.22;-0.18)
Sex	-12.41 (-12.74;-12.08)
Paternal occupation	
Intercept	-174.36 (-231.69;-117.02)
Manager and professionals	Ref.
Technicians and associate professionals	-10.81 (-82.09;60.48)
Qualified (skilled) employees/workers	-12.82 (-74.87;49.23)
Unskilled employees/ workers	-25.64 (-103.71;52.43)
PRS_{height}	0.042(0.036;0.048)
Manager and professionals * PRS_{height}	Ref.
Technicians and associate professionals * PRS_{height}	0.0011 (-0.0067;0.0089)
Qualified (skilled) employees/workers * $PRS_{height:OCC}$	0.0012 (-0.0056;0.0080)
Unskilled employees/ workers * PRS_{height}	0.0026 (-0.0060;0.0112)
Age (per year)	-0.22 (-0.24;-0.20)
Sex	-12.88 (-13.20;-12.56)

Table 2: Linear regression models for body height including interaction terms

Age- and sex-adjusted effects and corresponding 95% confidence limits (95% CL) for height in linear regression models including main effects and interaction terms of a height associated PRS, and indicators of socioeconomic position education (years), and paternal occupation (with managers and professionals as reference).

PS1-02

JOINT LINKAGE AND ASSOCIATION ANALYSIS USING GENEHUNTER-MODSCORE WITH AN APPLICATION TO THE GERMAN NATIONAL CASE COLLECTION FOR FAMILIAL PANCREATIC CANCER (FAPACA)

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INTRODUCTION
Joint linkage and association (JLA) analysis combines two disease-gene mapping strategies: linkage in families and association in populations. JLA analysis can increase mapping power, especially when the evidence for both linkage and association is low to moderate. Similarly, an association analysis based on haplotypes instead of single markers can increase power when the association pattern is complex.

METHODS
We present an extension to the GENEHUNTER-MODSCORE software that enables a JLA analysis using pedigrees and unrelated individuals. Our new JLA method is an extension of the MOD score approach in linkage analysis, which jointly estimates trait-model and association parameters. Association is modelled using marker-trait locus haplotypes of a single diallelic trait locus and up to three single-nucleotide variants. Linkage information is extracted from additional multi-allelic flanking markers. Optimization of model parameters is achieved utilizing the derivative-free optimization algorithm COBYLA. We investigated the statistical properties of our JLA test using simulations, and we compared our approach to the single-marker JLA test implemented in PSEUDOMARKER. Because the null distribution of our JLA test is unknown, we implemented and evaluated a simulation routine. Finally, we analyzed pedigree data from the FaPaCa registry to demonstrate the applicability of our new method.

RESULTS
We demonstrated the validity of our JLA method and identified scenarios with complex association patterns, for which haplotype-based tests outperformed the single-marker tests. The analysis of the FaPaCa data identified several promising loci potentially involved in the etiology of familial pancreatic carcinoma.

CONCLUSIONS/OUTLOOK
Our new JLA-MOD score method proves to be a valuable gene mapping and characterization tool. It is particularly useful when either linkage or association information alone provides insufficient power to map the disease gene.

PS1-03

GENE EXPRESSION VARIABILITY IN LONG-TERM SURVIVORS OF CHILDHOOD CANCER AND CANCER-FREE CONTROLS IN RESPONSE TO IONIZING IRRADIATION – THE KIKME STUDY

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INTRODUCTION

Differential expression analysis is usually adjusted for variation. When focussing the expression variability (EV), studies have used methods affected by low expression levels and did not examine healthy tissue. Thus, we aimed to calculate an unbiased EV in samples of childhood cancer survivors and cancer-free controls from the KiKme Study in response to ionizing radiation.

METHODS

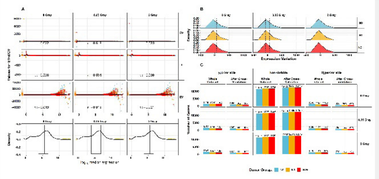
Skin fibroblasts of donors with a first primary neoplasm in childhood (N1), donors with at least one second primary neoplasm (N2+), as well as cancer-free donors (N0) were obtained (52 each) and exposed to 0, 0.05, and 2 Gray (Gy). Genes were classified by EV per donor group and radiation dose and examined for over-represented functional signatures.

RESULTS

We found 22 genes with considerable EV differences between donor groups, of which 11 genes were associated with response to ionizing radiation, stress, and DNA repair. The largest number of genes exclusive to one donor group and variability classification were all detected in N0: hypo-variable genes after 0Gy (n=49), 0.05Gy (n=41), and 2Gy (n=38), as well as hyper-variable genes after any dose (n=43). While after 2Gy *positive regulation of cell cycle* was hypo-variable in N0, *(regulation of) fibroblast proliferation* was over-represented in hyper-variable genes of N1 and N2+. In N2+, 30 genes were uniquely classified as hyper-variable after 0.05Gy and were associated with the *ERK1/ERK2 cascade*. For N1, no exclusive gene sets with functions related to the radiation response were detected in our data.

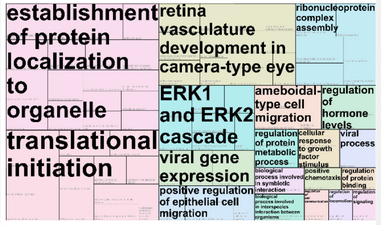
CONCLUSIONS/OUTLOOK

N2+ showed high degrees of variability in pathways for the cell fate decision after genotoxic insults that may lead to multiplication of DNA-damage via proliferation, where apoptosis and removal of the damaged genome would have been appropriate. Such a deficiency could potentially lead to a higher vulnerability towards side effects of exposure to high doses of ionizing radiation, but following low-dose applications employed in diagnostics, as well.



Comparison of methods for quantification of expression variability and distribution and variability

Figure 1: A Comparison of different metrics for expressional variability. **B** Density plots showing the distribution of the EV. **C** Bar charts showing the number of genes that were classified as hypo-, non-, and hyper-variable, using the whole data set and the number of genes with stable classification confirmed by cross-validation. All data were stratified by exposed radiation dose (0, 0.05, and 2 Gray).



Tree map summarizing over-represented Gene Ontology terms

Figure 2: Tree map summarizing over-represented Gene Ontology terms for genes that were only classified as hyper-variable (n = 30) in fibroblasts of long-term survivors of childhood-cancer with at least one second primary neoplasm in reaction to exposure to 0.05 Gray

PS1-04

SUICIDAL POISONING WITH DRUGS: THE MOROCCAN POISON CONTROL CENTER EXPERIENCE

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INTRODUCTION
Suicide is a serious public health problem around the world. Each year, 800,000 people worldwide die by suicide and approximately 20 times more attempt suicide. The present study was conducted to determine the main characteristics of suicidal poisoning with drugs in Morocco.

METHODS
This is a descriptive retrospective analysis of deliberate self-poisoning cases, reported between 2014 and 2017 to the Moroccan Poison Control Center.

RESULTS
During the period of study, 1,611 suicide attempts by self-poisoning including 19 cases of successful suicide were recorded. Of these, 77.2% were females with a female-male ratio of 3.4. According to the results, 7 females were pregnant. Teenagers and young adults aged 15-29 years were concerned in 31.3% of cases. For this age group, the number of suicide attempts is 221times higher than that for successful suicides. The average age of the patients was 21±12.3 years. Gastrointestinal signs and symptoms were reported in 34.5% of patients. The poisoning effects vary depending on the type of drug consumed, the dose taken and the delay before treatment.

CONCLUSIONS/OUTLOOK
The number of self-poisoning victims is generally underestimated because many suicides are actually classified as ‘’accidental deaths”. Suicide prevention strategies must be developed to reduce the risk factors for suicide.

PS1-05

GENETIC EVIDENCE FOR IL6, TNF AND COMPLEMENT C3 INHIBITORS IN PERIODONTOLOGY

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INTRODUCTION

Since tissue destruction in periodontitis is mediated primarily by an exaggerated inflammatory response, intentional alteration of the host as an adjunctive therapy may contribute to its management. Proteins mediate the effect of both genetic variation and drug action, and independent variation in the genome is inherited at random, much like treatment allocation in a clinical trial. Variants in a gene encoding a drug target, that alter its expression or function, might be used as a tool to anticipate the effect of drug action on the same target. We applied drug target Mendelian randomization (MR) to test repurposing of interleukin 6 (IL6) and tumor necrosis factor (TNF) inhibitors and used MR to predict the outcome of a phase 3 trial of complement C3 in periodontitis.

METHODS

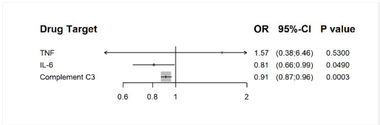
Genetic variants in the close vicinity of the *IL6R* and *TNFR1* genes associated with C-reactive protein in a genome-wide association study (GWAS, N=575,531) were used to proxy therapeutic inhibition of IL-6 signaling and blockade of TNF receptors. Similarly, cis-acting variants for C3 were selected from GWAS of 5,368 individuals. For these genetic variants selected as instruments, associations with periodontitis were obtained from a GWAS of 17,353 cases and 28,210 controls in the Gene-Lifestyle Interactions in Dental Endpoints (GLIDE) consortium. Wald ratios for multiple variants were combined using inverse-variance weighted models.

RESULTS

Genetically proxied inhibition of IL6 signaling lowered the odds of periodontitis (odds ratio (OR) = 0.81; 95% confidence interval (CI): 0.66;0.99; P = 0.049). We found no evidence for an effect of TNFR1 inhibition on periodontitis risk (OR = 1.57, 95% (CI): 0.38;6.46; P = 0.53). Inhibition of C3 reduced periodontitis risk (OR = 0.91; 95% CI: 0.87–0.96; P = 0.0003).

CONCLUSIONS/OUTLOOK

Genetically proxied inhibition of IL6 and C3 was associated with lower odds of periodontitis. IL-6 and C3 inhibitors might be targets for adjunct periodontitis therapy.



Effect of drug target inhibition on the risk of periodontitis

Risk of periodontitis was found reduced by inhibition of IL-6 signaling and complement C3. Inhibition of the TNF receptor showed no effect.

OR: odds ratio; CI: confidence interval

PS1-06

COMPLETENESS OF CARBON MONOXIDE POISONING SURVEILLANCE DATA

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INTRODUCTION
Carbon monoxide is the leading cause of unintentional poisoning deaths worldwide. This “silent killer” is responsible for several hundred deaths each year. The aim of this study is to evaluate the completeness of carbon monoxide poisoning surveillance in the Tanger-Tétouan-Al Hoceima region in North West Morocco.

METHODS
We used the two-source capture-recapture method to estimate the number and completeness of carbon monoxide poisoning surveillance in the Tanger-Tétouan-Al Hoceima region over a three-year period from 2014 to 2016. The two-sources used in this study were Moroccan Poison Control Center (MPCC) database and hospital registries in the study region.

RESULTS
During the period of study, a total of 1,767 cases of carbon monoxide poisoning were identified by the two sources after removing duplicates, 800 cases were reported to the Moroccan Poison Control Center, 1,183 cases were notified to the provincial hospital registries and 216 cases were common to both sources. The estimated total number of poisoning cases was 4,381 (95% CI: 3,930-4,833). The completeness of poisoning surveillance for the national database of poisoning and hospital registries was estimated to be 18.26% and 27%, respectively.

CONCLUSIONS/OUTLOOK
Improvement of the completeness of poisoning surveillance system is needed to estimate the true incidence of poisoning in Morocco.

PS1-07

ACUTE ORGANOPHOSPHORUS PESTICIDE POISONING IN MOROCCO: EPIDEMIOLOGICAL ASPECTS

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INTRODUCTION

Acute pesticide poisoning is a major public health problem, especially in developing countries. The aim of this study is to describe the epidemiological characteristics of acute poisoning with organophosphorus pesticides in Morocco.

METHODS

This is a descriptive retrospective study of acute pesticide poisoning cases, reported to the Moroccan Poison Control Center.

RESULTS

During the period of study, a total of 984 cases of acute organophosphorus pesticide poisoning were reported in Morocco, 29 of them fatal. The average age of the patients was 23.2±13.6 years. Fifty-seven percent of the cases were females with a female-male ratio of 1.4. According to the results, 56.2% of pesticide exposures happened in urban areas. More than three-quarters of incidents occurred at home (78.2%). Organophosphorus pesticides were used intentionally in 35.5% of cases. The results show that 84.5% of all poisoning cases were symptomatic. The symptoms of poisoning were mainly gastrointestinal (77%) and neuropsychiatric (19%).

CONCLUSIONS/OUTLOOK

Many situations involving pesticide exposure are linked to education and certain socio-economic conditions. These conditions tend to occur more often in developing countries. Preventive measures should be taken to rationalize pesticide use, which pose a real public health problem, not only for users, but also for the general population.

PS1-08

THE ASSOCIATION OF SEASON WITH THE DEVELOPMENT OF POSTOPERATIVE DELIRIUM (POD) OR POSTOPERATIVE COGNITIVE DYSFUNCTION (POCD): *RESULTS OF THE BIOCOG COHORT STUDY*

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INTRODUCTION
Older surgical patients especially are susceptible to post-operative delirium (POD) or post-operative cognitive dysfunction (POCD). Current research focused on individual-patient criteria as potential risk factors. Few analyses investigated environmental indicators e.g. season as a potential risk factor for POD, which is a known influencing item for cognitive test performance of patients in general.We aim to examine the associations between season and POD/POCD.

METHODS
This analysis based on a subset of the bi-centric EU-funded prospective observational cohortstudy BioCog (NCT02265263). Patients over 65 years old and undergoing elective surgery at Charité Berlin were recruited before surgery and followed up for 7 days/until discharge for POD; at 3-month follow-up, repeat cognitive testing determined POCD. Season was based on the date of surgery. Odds ratios (OR) and 95%-CI using a logistic regression model were calculated for the association between season and POD/POCD; adjusted for age and sex.

RESULTS
Data from 673 patients (53.5% male) were used for the analysis of the outcome POD. Of these, 418 were eligible for the analysis of POCD.

From 673 patients, 139 developed POD (21%). 50/418 patients of the 3-month follow-up developed POCD (12%).

POD was found in 22%, 20%, 23% and 17% in spring, summer, autumn and winter. Compared to spring, seasons were not associated with POD (OR, 95%-CI: summer: 0.88, 95%-CI [0.52 – 1.49]; autumn: 1.06, 95%-CI [0.63 – 1.78]; winter: 0.74, 95%-CI [0.44 – 1.24]).POCD was found in 10%, 12%, 17% and 10% in spring, summer, autumn and winter. Compared to spring, seasons were not associated with POCD (OR, 95%-CI: summer: 0.83, 95%-CI [0.35 – 2.00]; autumn: 1.10, 95%-CI [0.46 – 2.67]; winter: 1.67 (95%-CI [0.71 – 3.91]).

CONCLUSIONS/OUTLOOK
In the retrospective analysis, we found no association between season and POD or POCD. Further research should evaluate the contribution of other seasonal-related factors such as temperature.

26. SEPTEMBER 2023
1:45 PM – 2:45 PM

PS2 | POSTERSESSION – AG4 EPIDEMIOLOGISCHE METHODEN + AG12 ERHEBUNG UND NUTZUNG VON SEKUNDÄRDATEN (AGENS)

PS2-01

DEVELOPMENT OF A STANDARDISED SCREENING INSTRUMENT ON MENTAL HEALTH FOR PATIENTS PRESENTING AT CENTRES FOR RARE DISEASES

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INTRODUCTION

Patients presenting in Centres for Rare Diseases (CRD) show complex symptoms, requiring multiprofessional expertise. Many patients suffer from unnoticed mental disorders. Currently, mental health experts (MHE) are rarely involved in the diagnostic process. The aim of this study was to test the feasibility of developing a new short screening instrument for mental disorders and to test its predictive value.

METHODS

Data were derived from 1300 patients participating in ZSE-DUO (Dual guidance structure in Centres for Rare Diseases), a multicentre study in 11 CRD (funding by G-BA, Grant 01NVF17031), evaluating the benefit of involving a MHE in the diagnostic process. Patients completed standardized questionnaires on anxiety (GAD-7), depression (PHQ-9), dissociation (DSS-4), psychopathology (SCL-K-9) and quality of life (SF-12, EQ-5D-5L) prior to and during their first CRD visit. Explorative factor analysis (EFA) was performed for item reduction. Reliability of the factor structure was assessed by Cronbach's α. Model fit was tested using confirmatory factor analysis (CFA). The predictive value of the new screening instrument was tested by calculating AUC.

RESULTS

The extracted 18-item model had a 4-factor structure with acceptable to high reliability (see table 1). Excluding the DSS-4, a summary score was calculated ranging from 0-45, with the lowest score representing the best mental health. In the CFA, the model fit indices for the extracted factor structure did meet the established thresholds. The predictive value of the new screening instrument on any mental disorder was moderate (AUC=0.68).

CONCLUSIONS/OUTLOOK

The design of a new short screening instrument for mental health in patients presenting at CRD was feasible. However, due to the heterogeneity of the mental disorders in this patient group, it was difficult to predict them using the new screening instrument. Hence, the individual assessment of patients by MHE is necessary. Further analyses are planned focusing on particular mental disorders.

Originating questionnaire	Item	Z-transformed scale	Factor	Cronbach's α
GAD-7	Nervousness, anxiousness, or tension	0-3	Anxiety/ depression	0.87
	Not being able to stop or control worrying	0-3		
	Quick anger or irritability	0-3		
	Feeling anxious, as if something bad is going to happen	0-3		
PHQ-9	Feeling depressed, melancholy or hopeless	0-3		
	Suicidal thoughts/wanting to harm oneself	0-3		
SCL-K-9	Vulnerability in emotional matters	0-4		
SF-12	Restriction in climbing stairs	0-2	Mobility/ activities of daily life	0.81
	Restriction of moderately difficult activities	0-2		
EQ-5D-5L	Mobility	0-4		
	Caring for oneself	0-4		
PHQ-9	Difficulty falling asleep or staying asleep or increased sleep	0-3	Energy/ Fatigue	0.73
	Fatigue, or feeling of having no energy	0-3		
SF-12	Feeling full of energy	0-5		
DSS-4	Sensation that body does not belong to you	0-10	Dissociation	0.61
	Problems with hearing/ sounds coming from far away	0-10		
	Sensation that people/things/world are not real	0-10		
	Sensation that body/ body parts are insensitive to pain	0-10		

Table 1: Extracted factor structure.

PS2-02

WOHER STAMMEN DIE ANGABEN ZU KÖRPERGRÖSSE UND KÖRPERGEWICHT UND WIE AKTUELL SIND DIESE SELBSTANGABEN VON BEFRAGUNGSTEILNEHMENDEN?

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INTRODUCTION

In Befragungsstudien wird die Körpergröße durch Befragte häufig überschätzt und das Körpergewicht unterschätzt, so dass der Body Mass Index (BMI) zu niedrig berechnet wird. Die daraus abgeleitete Prävalenzen zu Übergewicht und Adipositas werden daher unterschätzt. Ziel der vorliegenden Befragung war, herauszufinden, woher die Angaben zu Größe und Gewicht stammen und wie aktuell sie sind.

METHODS

In der repräsentativen Studie Gesundheit in Deutschland aktuell (GEDA 2022) liegen für Juli bis Oktober 2022 Selbstangaben zu Größe und Gewicht für Erwachsene (18+J., n=3.088) vor. Es wurde nach dem Zeitpunkt der letzten Messung gefragt, woher die Angabe stammt, ob eine Waage vorhanden ist und ob das angegebene Gewicht mit dieser Waage gemessen wurde. Um Abweichungen der Stichprobe von der Bevölkerungsstruktur zu korrigieren, wurden die Analysen mit einem Gewichtungsfaktor durchgeführt. Prävalenzen mit 95%-Konfidenzintervallen (95%-KI) werden berichtet.

RESULTS

Die Angabe zur Körpergröße stammt bei 45,9% (43,1-48,7%) aus dem letzten Jahr, bei 35,0% (32,2-37,8%) ist die Messung länger als ein Jahr her, bei 19,1% (17,1-21,3%) länger als 10 Jahre. 54,8% (52,0-57,6%) geben an, durch eine/n Arzt/Ärztin/med. Personal gemessen worden zu sein, 19,8% (17,7-22,1%) nennen eine Angabe aus dem Personalausweis und 20,3% (18,1-22,6%) eine Selbstmessung. 67,2% (64,5-69,7%) der Bevölkerung antworten, ihr Gewicht in den letzten 4 Wochen und 11,9% (10,2-13,8%) in den letzten 3 Monaten gemessen zu haben. 84,0% (81,6-86,2%) teilen mit, dass sie eine Waage haben, und davon geben 85,9% (83,5-88,1%) an, dass sie das Gewicht auch mit dieser Waage gemessen haben.

CONCLUSIONS/OUTLOOK

Während die letzte Messung der Größe deutlich länger zurückliegt, scheint die Angabe zum Gewicht bei vielen Personen relativ aktuell. Diese Einschränkungen müssen berücksichtigt werden, wenn Analysen zum BMI auf Selbstangaben beruhen. Präzisere Angaben zu Größe und Gewicht können nur mit standardisierten, aktuell durchgeführten, Messungen ermittelt werden.

PS2-03

LOSS TO FOLLOW-UP IN A POPULATION-BASED HEALTH STUDY OF OLDER PEOPLE IN GERMANY: RESULTS OF GESUNDHEIT 65+

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INTRODUCTION

The aims are to present a) the extent to which early or late baseline participation in a population-based health study is associated with loss to follow-up and b) what factors predict loss to
follow-up.

METHODS

Gesundheit 65+ is a population-based longitudinal epidemiological study on the health situation of people 65+ years in Germany. Based on two-stage stratified random sampling from 128 local population registries 3,694 people participated at baseline (T0; response 30.9%) between 06/2021 and 04/2022 (47.9% women, mean age 78.8 years) and were followed up at month 4 (T1) and month 8 (T2) by a health questionnaire/interview. Attrition rates total and stratified by early or late baseline participation were determined. Logistic regression models were used to predict loss to follow-up with register-based information or baseline self-reported health variables, respectively.

RESULTS

Loss to follow-up relative to T0 was 14.3% at T1 and 15.8% at T2. The rates were lower for baseline early than for late participants (T1 8.8 vs. 26.2%; T2 10.5 vs. 27.1%). Loss to follow-up was predicted at T1 and T2 by being 80+ years, being single, having a non-German citizenship, living in a nursing home, a more socially deprived or rural area. Gender was not significant. In an additional regression adjusted for age, gender and education, loss to follow-up at T1 was significantly predicted by reporting depressive symptoms, current smoking, receiving long-term care benefits, and absence of multimorbidity at baseline. However, sensory or mobility limitations and subjective memory impairment were not significantly associated. Predictors of loss to follow-up at T2 differed slightly.

CONCLUSIONS/OUTLOOK

Late vs. early baseline participation, often achieved only through more cost intensive recruitment measures, was also related to poorer reachability at follow-ups in Gesundheit 65+. Loss to follow-up was associated with sociodemographic and health variables. Weights will be applied to account for bias in the follow-up data.

PS2-04

THE EXPERIENCE OF AN EPIDEMIOLOGICAL METHOD PLATFORM IN LARGE-SCALE RESEARCH PROJECTS

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INTRODUCTION

The Epidemiology Core Unit (ECU) is part of the Network University Medicine (NUM) infrastructure called NUM clinical epidemiology and study platform (NUKLEUS). It consists of an interdisciplinary team at five sites in Germany and unites different areas of expertise.

METHODS

The ECU offers support to researchers in the NUM infrastructure in all project phases from study planning to evaluation. It advises researchers on the methodologically adequate implementation of new clinical epidemiological questions and study designs in the NUM research infrastructure and accompanies use and access applications for National Pandemic Cohort Network (NAPKON) data. NAPKON was initiated to create data platforms, using COVID-19 as an example, for faster collection of pandemic data in the future. The data are available following a use and access procedure. The ECU also assists with sample size calculation, selection of eligible patients and outcome variables, handles primary coding of NAPKON study data, provides regular reports on data quality and descriptive analyses of cohort data and assists with patient reported outcome measures (PROM) scale selection and analysis.

RESULTS

The ECU developed an R package called epicodr for easy import, primary coding, and export of NAPKON data in collaboration with the Transfer Office, which distributes NAPKON data after approval by the Use and Access Committee. Several video tutorials have been released to illustrate, e.g., the use of the epicodr package or the selection of project-specific adequate PROMS. Further tutorials are planned.
Until today, the ECU provided assistance in 8 of 67 use and access applications, 19 sample size and 14 feasibility calculations, in 22 data analyses and with 22 variable selections.

CONCLUSIONS/OUTLOOK

The ECU services were initially implemented in NAPKON and are now easily accessible via a helpdesk ticket system. Within 2023, the scope of consulting services will be expanded to integrate NUM-external, healthcare-related data into NUM-research projects.

PS2-06

PSYCHISCHE GESUNDHEIT UND GESUNDHEITSBEZOGENE LEBENSQUALITÄT BEI ERWACHSENEN MIT DIABETES MELLITUS IN DEUTSCHLAND: ERGEBNISSE EINES DATENLINKAGE VON BEFRAGUNGS- UND GKV-ROUTINEDATEN

Baumert J.[1], Nübel J.[1], Thamm R.[1], Vogelgesang F.[1], Du Y.[1], Heidemann C.[1], Frerk T.[2], Grobe T.[2], Saam J.[3], Thom J.[1], Scheidt-Nave C.[1]

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INTRODUCTION
Diabetes mellitus (DM) weist eine hohe Komorbidität mit psychischen Symptomen und Störungen auf, welche die gesundheitsbezogene Lebensqualität, das Selbstmanagement und den Krankheitsverlauf ungünstig beeinflussen können. Es wurde untersucht, inwieweit sich dies in Befragungs- und GKV-Routinedaten widerspiegelt.

METHODS
Datenbasis ist die Datenlinkage-Studie OptDatPMH. Die Studienpopulation umfasste n = 6.558 BARMER-Versicherte ab 18 Jahren, deren Abrechnungsdaten mit Selbstangaben in einem Gesundheitsfragebogen personenbezogen verknüpft wurden. Für diese Analyse wurden dokumentierte Diagnosen für DM (ICD-Kodes E10-E14) und psychische Störungen (F00-F99) berücksichtigt, wenn diese in mind. zwei der Quartale 04/2020–03/2021 kodiert waren. Im Fragebogen wurden psychische Symptome (Depressive Symptomatik: PHQ-9, Angstsymptomatik: GAD7, Paniksyndrom: PHQP) sowie die subjektive Gesundheit und gesundheitsbezogene Lebensqualität (SF-12) erfasst.

RESULTS
Dokumentierte psychische Störungen (ohne Nikotinabhängigkeit/-missbrauch, F17) waren häufiger bei Versicherten mit (38,8%) vs. ohne DM (25,0%). Unterschiede zeigten sich für unipolare Depressionen (20,2% vs. 12,4%), Angststörungen (7,0% vs. 5,1%), alkoholbezogene Störungen (3,0% vs.1,3%) und somatoforme Störungen (13,3% vs. 6,5%). Bei Menschen mit DM bestand häufiger eine depressive Symptomatik (20,1% vs. 16,6%), ein schlechterer Gesundheitszustand (44,7% vs. 18,3%) und eine niedrigere Lebensqualität im Bereich der körperlichen Gesundheit (MW: 41,2 vs. 49,9). Für Angstsymptome, das Paniksyndrom und die psychische Lebensqualität zeigten sich keine signifikanten Unterschiede.

CONCLUSIONS/OUTLOOK
BARMER-Versicherte mit DM weisen in Befragungs- und Routinedaten sowohl eine schlechtere psychische und subjektive Gesundheit als auch eine niedrigere körperliche Lebensqualität auf im Vergleich zu denen ohne DM. Psychische Gesundheit und gesundheitsbezogene Lebensqualität sollten Gegenstand der Behandlung von DM sein.

PS2-07

DIAGNOSIS INFORMATION ON OBESITY FROM SURVEY AND ROUTINE DATA – DO THEY MATCH?

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INTRODUCTION
In Germany, according to self-reported height and weight, almost 20% of the population is affected by obesity, but only 10% receive an obesity diagnosis in routine data of statutory health. The aim of the present analysis in the OptDatPMH project is to quantify discrepancies of diagnosis information on obesity between survey and individually linked routine data.

METHODS
6,658 participants of a representative drawn sample of a health insurance provider (BARMER) were asked in a questionnaire about self-reported body height and weight as well as a physician-based diagnosis on obesity in the last 12 months. Obesity is defined as a BMI ≥ 30 kg/m². Self-reported data was individually linked to the ICD diagnosis E66 (obesity) from routine data from the same period.

RESULTS
A physician-based diagnosis on obesity in the last 12 months was reported by 11.5% [95%-CI: 10.5-12.5] of the respondents, of whom, however, almost half had no diagnosis on obesity documented in the routine data (5.1% [4.4-5.8]). Overall, a diagnosis on obesity in routine data was documented for 11.6% [10.7-12.7] of the participants, nearly half of them (5.2% [4.6-5.9]) did not report this diagnosis in the survey. Among participants with a BMI ≥ 30 kg/m², only 44.7% [41.1-48.4] had a diagnosis documented in routine data. An additional 20.2% [17.3-23.3] reported a diagnosis on obesity in the survey, although this was not documented in the routine data.

CONCLUSIONS/OUTLOOK
There are obvious discrepancies between a diagnosis of obesity in survey and routine data. Possible explanations include problems in the conversation between doctor and patient or a diagnosis forgotten or concealed in the survey. Also, the medical documentation could be biased due to incorrect coding or under-reporting of a diagnosis on obesity. It is important to minimize differences between self-reported and routine data to increase self-awareness and data quality about obesity.

PS2-08

HÄNGT DAS HERZINFARKTRISIKO EHER VON INDIVIDUELLEN ODER VON WOHNORTSMERKMALEN AB? VERGLEICH DER PRÄDIKTIONSKRAFT ZWISCHEN INDIVIDUELLEN SES-MERKMALEN UND DEM GERMAN INDEX OF SOCIAL DEPRIVATION

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INTRODUCTION
Das Risiko eines Herzinfarkts und anderer kardiovaskuläre Erkrankungen zeigt einen klaren sozialen Gradienten auf. Die Analysen erfordern Informationen zum sozialen Status (SES) der Personen. In Befragungsstudien werden solche Merkmale personenbezogen erhoben. In Routinedaten liegen sie nicht immer vor. Daher werden häufig wohnortbezogene Deprivationsindices zur Bestimmung des SES verwendet. Am Beispiel des Herzinfarkts vergleichen wir die Erklärungskraft von personenbezogenen und wohnortbezogenen SES-Merkmalen in GKV-Daten.

METHODS
Anhand der Daten der AOK Nds (n=2 349 805) wird das Risiko eines Herzinfarkts im Zeitraum 2016-2018 bestimmt. Die Zuschreibung des SES erfolgt mithilfe des German Index of Social Deprivation (GISD). Außerdem sind Informationen zum Bildungsabschluss, Beruf und Einkommen der versicherten Personen enthalten. In einer stufenweisen Regression wird das Risiko des Herzinfarkts anhand des GISD und der personenbezogenen SES-Merkmale bestimmt. In den vorläufigen Berechnungen wurde GISD anhand der 3stelligen Postleitzahl zugewiesen.

RESULTS
Die Ergebnisse zeigen den Gradienten für die Herzinfarktinzidenz für beide Merkmale: Basierend auf personenbezogenen Einkommensdaten wurde OR=0,73 für Männer und OR=0,66 für Frauen für die unterste von drei Einkommensgruppen ermittelt, verglichen mit der höchsten Einkommensgruppe (jeweils p<0,001). Bei der Verwendung des GISD-K, das in drei Kategorien vergröbert wurde, ist der Gradient schwächer: OR=0,88 für Männer (p=0,006) und OR=0,72 für Frauen (p<0,001). Beide Merkmale bleiben höchstsignifikant und zeigen ähnliche Gradienten in einem Gesamtmodell wie in Einzelmodellen.

CONCLUSIONS/OUTLOOK
Beide Merkmale haben ihre Erklärungskraft für das Risiko eines Herzinfarkts und scheinen daher unterschiedliche Dimensionen der Ungleichheit widerzuspiegeln. Der Vorteil der Nutzung des GISD könnte im geringeren Anteil von fehlenden Werten liegen (ca. 2% vs. ca. 30% bei Einkommen). Wir möchten gerne die Bedeutung dieser Ergebnisse beim Workshop diskutieren.

26. SEPTEMBER 2023
1:45 PM – 2:45 PM

PS3 | POSTERSESSION – AG8 KREBSEPIDEMIOLOGIE (1/2)

PS3-01

POTENTIALLY AVOIDABLE CANCER MORTALITY DUE TO SOCIOECONOMIC DEPRIVATION IN GERMANY BETWEEN 2003 AND 2019 – AN ECOLOGICAL CAUSE-OF-DEATH ANALYSIS

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INTRODUCTION

Cancer is among the leading causes of death with substantial socioeconomic inequalities in incidence and mortality. The aim of our study is to examine how many cancer deaths could be avoided if socioeconomic differences in mortality were equalised at the area level in Germany.

METHODS

German official cause-of-death statistics from 2003 to 2019 were linked to the district-level German Index of Socioeconomic Deprivation (GISD). The annual age-standardised mortality rate for all cancers combined and for selected cancers (e.g. cancers of the lung, colorectum, stomach, pancreas, breast, prostate) was calculated by GISD quintiles (Q1–least deprived to Q5–most deprived). Expected deaths were calculated according to scenarios assuming mortality reductions in more deprived areas (S1: all districts have the same mortality as Q1; S2: districts improve by one quintile; S3: districts in Q4 and Q5 improve to Q3). The difference between observed and expected deaths was used to calculate the number of potentially avoidable cancer deaths through more health equity.

RESULTS

In almost all cancers, mortality decreased over time, with stronger declines in less deprived districts. The highest number of avoidable deaths was observed for cancers with the highest inequalities in mortality. This is true, for instance, for lung, colorectum, and stomach cancer. In S1, an increase in potentially avoidable deaths over time was observed for almost all cancers considered, in particular for the most deprived districts. A similar but somewhat weaker trend was also observed in S2 and S3.

CONCLUSIONS/OUTLOOK

The study shows potentials to avoid cancer deaths if mortality in more deprived populations could be improved.

PS3-02

CANCER PREVENTION AND MIGRATION: EXAMINING COLORECTAL CANCER SCREENING DISPARITIES IN GERMANY

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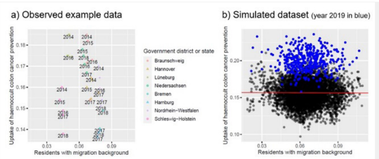

Figure 1. Power estimation

Simulated panel dataset of 400 districts over a time period of 15 years. Based on the effect of introducing mammography screening among migrants, a relative risk of 0.7 was assumed for screening uptake among people with a migrant background compared to non-migrants before 2019, and an increase in uptake of 50% for non-migrants and 20% for people with a migrant background. b) simulated dataset highlighting 2019 (organised screening program)

INTRODUCTION

The German health care system offers several programs for the early detection of cancer. In Germany, people with a migration background have lower rates of preventive care, including dental and health check-ups and skin and cervical cancer screening. This study aims to (i) determine and quantify the potential gap in colorectal cancer (CRC)-prevention uptake among people with a migration background and to (ii) examine the effects of the organized CRC-screening program introduced in 2019.

METHODS

A panel dataset is constructed from the following secondary data, using all 401 districts of Germany from 2005 to 2019 as the unit of observation: Microcensus, cancer registry data, *Versorgungsatlas* and German Index of Socioeconomic Deprivation (GISD). First, a mixed model is utilised to analyse the association between the fraction of people with a migration background and the uptake of preventive examinations. Second, the model will be extended by possible confounders such as the GISD, population density, federal state, etc. Third, an interrupted time series approach is used to assess the effects of the organized CRC-screening program on the outcome.

A power analysis of the effect of the organized CRC program on screening uptake based on data on the effect of introducing mammography screening among migrants was performed (Figure1).

A detailed analysis using the Census 2011 and Census 2022 including a difference-in-differences approach will follow. These will also examine different groups of people with a migrant background seperately.

RESULTS

The analysis of the simulated dataset estimated a Type-I-error rate of about 4% and a power above 70%.

CONCLUSIONS/OUTLOOK

Analysing the Census 2011 and Microcensus will be finished by August. In November with it´s release, the Census 2022 will follow

PS3-03

OUTLIVE-CRC – COLON CANCER IN YOUNG ADULTS (18-49) FROM A PATIENT DATA AND BIOBANKING PERSPECTIVE

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On behalf of the OUTLIVE-CRC consortium

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INTRODUCTION
Colorectal cancer (CRC) is increasing in individuals younger than 50 years. These patients' five-year survival rate is 65%, with a 10-40% recurrence rate. As part of the German Federal Ministry of Education and Research's initiative "National Decade against Cancer," the OUTLIVE-CRC study aims to improve young CRC patients' prognoses and quality of life, focusing on tertiary prevention.

METHODS
OUTLIVE-CRC pursues multiple avenues to address its study aims. Biomedical research to establish predictive and prognostic biomarkers for CRC towards advanced and automated liquid biopsy is accompanied by surveys querying CRC patients aged 18-49 for their experiences regarding therapy, quality of life, and other domains. The Interdisciplinary Center for Biobanking-Lübeck's (ICB-L) infrastructure hosts high-quality biospecimen and associated data. From the analysis of blood, stool, and tissue samples and multi-OMICS data, a multimarker risk panel will be developed and used in conjunction with clinical parameters to detect the recurrence of CRC at an early stage and identify patients with an increased risk of recurrence. Patient representatives will be involved in the project in an advisory and co-design capacity.

RESULTS
Standards for sample collection, processing and storage have been established tailored to the project. The set-up of sample collection from healthy controls and CRC patients has started, and the first CRC patients have submitted an initial questionnaire.

CONCLUSIONS/OUTLOOK
To strengthen patient orientation, the involvement of patient representatives is increasingly being established. Follow-up questionnaires will be designed with the help of patient representatives to meet their needs. Through integrated data management, the project is well-positioned to cope with the complexity of modern inter- and transdisciplinary research and to respond to emerging, unanticipated research questions. Collaborations with partnering clinics are being expanded to increase the number of cases.

PS3-04

DID CANCER PATIENTS IN RHINELAND-PALATINATE HAVE AN INCREASED MORTALITY RISK DURING COVID-19 PANDEMIC?

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INTRODUCTION

The Cancer Registry of Rhineland-Palatinate has been epidemiologically recording cancers since 1998 and clinically and epidemiologically since 2016.

Cancer patients were particularly at risk during the pandemic due to their often serious illness and the necessarily stressful therapy with a temporarily limited immune system, the partial health care and their older age.

This study descriptively examines the extent to which primarily older cancer patients died. Urban and rural (district) differences were also examined.

METHODS

Monthly deaths/rates were calculated for patients older than 65 years and living in Rhineland-Palatinate (January 2020- June 2022). The death dates refer to patients who died from or with their cancer.

Rates are graphically compared to the monthly COVID-19 mortality rates over 60 years (limited coverage) and to mortality rates of all deceased over 65 years in Rhineland-Palatinate (Federal Statistical Office of Germany, Robert-Koch Institute).

Diseases studied: all cancers, prostate, colon, lung and breast cancer.

RESULTS

Monthly mortality rates for all causes of death and COVID-19 mortality rates rose sharply in Rhineland-Palatinate in winter 2020/21 and - reduced by vaccinations - also increased in 2021/22.

In parallel, there were distinct increases in death rates in some winter month especially for men with prostate and lung cancer and women with pancreatic tumors. COVID-19 mortality increased faster in cities than in counties in 2020/2021. For cancer, there were small differences in urban-rural mortality.

CONCLUSIONS/OUTLOOK

COVID-19 may have caused more cancer patients to die in some winter months than in (most) previous years. Reasons for high mortality can be the increased risk of death from COVID-19 in old age (e.g. prostate cancer). Some patients with poor-prognosis cancers such as pancreatic and lung cancer may have been diagnosed later than necessary due to reduced health care during pandemic measures.

PS3-05

IMPACT OF FIELD CREW SERVICE ON QUALITY AND QUANTITY OF CANCER REGISTRY DATA IN RHINELAND-PALATINE

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INTRODUCTION

In Germany population-based clinical cancer registries have been established in each federal state. In Rhineland-Palatinate cancer registration originally started on the level of epidemiological data, covering a population of approximately 4 million inhabitants. For this aim an epidemiological cancer registry was founded in 1997. In 2016 cancer registration in Rhineland-Palatinate was expanded to clinical data. By now, information of more than 800,000 patients are available in the dataset of the Clinical-Epidemiological Cancer Registry of Rhineland-Palatinate. This data collection provides the basis of real-world studies focussing on incidence and mortality rates as well as patient care and treatment. The reliability of such analyses is highly dependent on the completeness and quality of included data. Accordingly, the performance of a cancer registry is highly dependent on the compliant reporting behaviour of medical facilities. In order to relieve physicians as much as possible in complying with their reporting obligations, the Cancer Registry of Rhineland-Palatinate established a field service in 2020. This is a so far unique service by a cancer registry in Germany.

METHODS

This special service serves to support medical institutions in the documentation and transmission of data on oncological diagnoses, therapies and progress data to the cancer registry. In addition, members of the field crew also offer individual training to staff members of the respective facility. All services of the field crew a free of charge in Rhineland-Palatinate.

RESULTS

These efforts showed meanwhile considerable success. As of yet, more than 80,000 reports were transferred by the field service and information on more than 7,000 patients was transferred to the Cancer Registry solely due to the efforts of this service.

CONCLUSIONS/OUTLOOK

We conclude that the establishment of a field crew is an essential and indispensable factor to achieve complete documentation of oncological cases in cancer registration.

PS3-06

OVERALL SURVIVAL AND LANDMARK SURVIVAL ESTIMATES BY STAGE FOR PATIENTS WITH LUNG CANCER TREATED WITH EITHER SURGERY ALONE OR SURGERY PLUS ADJUVANT SYSTEMIC ANTICANCER TREATMENT – AN ANALYSIS BASED ON GERMAN CANCER REGISTRY DATA

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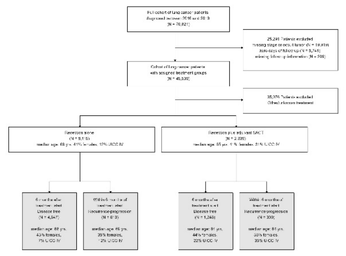
INTRODUCTION
Data derived from population-based clinical cancer registration allows to describe survival as a function of treatment. We aim to describe overall and landmark survival estimates overall and stratified by stage, treatment and disease status six months after diagnosis.

METHODS
We pooled data from four cancer registries (Baden-Württemberg, Hamburg, North Rhine-Westphalia, Schleswig-Holstein; covering 35% of the German population). We included patients with lung cancer (ICD-10 C34; diagnosis: 2016-2019) and residence in the respective federal state at time of diagnosis. Treatment data (provided by registries) was used to classify patients as resected (surgery alone; within 6 months after diagnosis), resected plus adjuvant systemic anticancer treatment (adj. SACT; within 84 days after surgery) or other/unknown treatment. Follow up data on recurrences or progression was also provided by the registries. Vital status was achieved by the registries via linkage with registration offices' data. We report Kaplan-Meier survival estimates.

RESULTS
Overall, 10,454 patients (median age: 68 years; females: 41%; Figure) with surgery or surgery plus adj. SACT were included in our analysis. Overall 1-year survival was 77% (5-year estimate: 29%; Table). Survival decreased with increasing stage. Stratification by treatment revealed that patients with UICC II or above and surgery as compared to surgery plus SACT had lower survival estimates. When disease status six months after surgery was considered, one-year landmark survival estimates were almost 90% in disease-free patients of stages I to IIIA, but remarkably lower in patients with early recurrences/progression. Stage IV disease-free patients had a one-year landmark survival estimate of 65% (with recurrence/progression: 39%).

CONCLUSIONS/OUTLOOK
Albeit low survival in general, patients with early stage lung cancer and those without early recurrences experience a comparably good survival. This information could be used to (better) inform patients about survival prospects.



Figure

Flow chart and description of the sample included in the survival analyses

	1-year survival probability (%)	3-year survival probability (%)	5-year survival probability (%)
Overall survival (n=10,454)	77	52	29
Overall survival by stage			
Stage I (n=4,321)	91	72	48
Stage II (n=2,380)	83	59	27
Stage IIIA (n=1,586)	77	43	19
Stage IIIB (n=453)	60	25	-
Stage IIIC (n=49)*	48	10	-
Stage IV (n=1,665)	43	15	7
Overall survival by stage and treatment			
Surgery alone			
Stage I (n=4,169)	91	72	48
Stage II (n=1,653)	79	52	Not reported, n<5
Stage IIIA (n=1,032)	71	37	Not reported, n<5
Stage IIIB (n=309)	55	21	-
Stage IV (n=930)	37	13	Not reported, n<5
Surgery plus SACT			
Stage I (n=152)	95	69	-
Stage II (n=727)	92	75	Not reported, n<5
Stage IIIA (n=554)	88	53	-
Stage IIIB (n=144)	71	30	-
Stage IV (n=735)	51	17	-
Landmark survival by stage, treatment and disease status			
Surgery alone – disease free			
Stage I (n=2,822)	96	79	Not reported, n<5
Stage II (n=896)	91	64	Not reported, n<5
Stage IIIA (n=482)	87	51	-
Stage IIIB (n=132)	73	39	-
Stage IV (n=305)	66	24	Not reported, n<5
Surgery alone – progression/recurrence			
Stage I (n=250)	70	13	-
Stage II (n=150)	58	7	-
Stage IIIA (n=109)	71	9	-
Stage IIIB (n=27)	48	Not reported, n<5	
Stage IV (n=72)	45	-	-
Surgery plus SACT – disease free			
Stage I (n=96)	98	75	-
Stage II (n=482)	95	81	Not reported, n<5
Stage IIIA (n=316)	92	66	-
Stage IIIB (n=76)	82	31	-
Stage IV (n=269)	64	29	-
Surgery plus SACT – progression/recurrence			
Stage I (n=17)	59	Not reported, n<5	
Stage II (n=96)	61	9	-
Stage IIIA (n=115)	59	Not reported, n<5	
Stage IIIB (n=28)	32	-	-
Stage IV (n=141)	35	Not reported, n<5	

Table

Kaplan-Meier survival estimates for lung cancer patients overall, by stage, treatment and disease status six months after diagnosis (overall survival, landmark survival)

Legend: * Stage IIIC was introduced with TNM-8 and only seen in patients diagnosed in 2019

PS3-07

PRE-DIAGNOSTIC CIRCULATING RESISTIN CONCENTRATIONS AND MORTALITY AMONG INDIVIDUALS WITH COLORECTAL CANCER IN THE EUROPEAN PROSPECTIVE INVESTIGATION INTO CANCER AND NUTRITION STUDY

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INTRODUCTION

Resistin, a protein involved in inflammation, was suggested to be implicated in the promotion and progression of colorectal cancer (CRC) due to its purported role in advancing the disease through the creation of a vicious-inflammatory circle. We, therefore, aimed to investigate the association between pre-diagnostic serum resistin levels and mortality among individuals with CRC.

METHODS

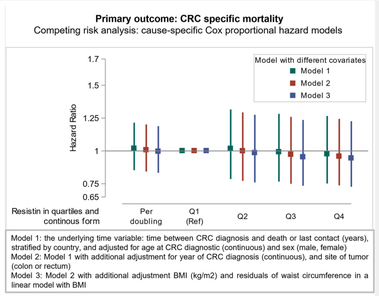
Data from 1,343 incident CRC cases from the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort were analyzed. Resistin levels were measured in pre-diagnostic blood samples. The primary and secondary endpoints were CRC-specific mortality and all-cause mortality, respectively. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated across quartiles of resistin concentrations from cause-specific Cox proportional hazard models controlling for competing risks for CRC-specific mortality, and from Cox proportional hazard models for all-cause mortality. The association was further examined after stratifying by potential effect modifiers (sex, tumor subsite, tumor stage, BMI, and time to CRC diagnosis).

RESULTS

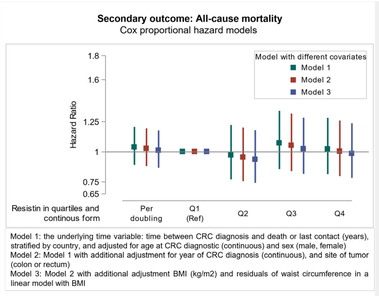
Blood samples were obtained on average 4.8 years prior to CRC diagnosis. After being diagnosed, patients were followed up for a median duration of 8.2 years, during which 474 deaths caused by CRC and 147 deaths from other reasons were recorded. We observed no significant association between resistin concentrations and CRC-specific mortality in maximal-multivariable adjusted models ($HR_{Q4 vs. Q1}$ = 0.95, 95% CI: 0.73-1.23; p_{trend} = 0.97) or all-cause mortality ($HR_{Q4 vs. Q1}$ = 0.99, 95% CI: 0.79 -1.24; p_{trend} = 0.87). No associations were found in any subgroup analyses.

CONCLUSIONS/OUTLOOK

Our results suggest that pre-diagnostic resistin concentrations are not associated with an increased risk of either CRC-specific or all-cause mortality among individuals with incident CRC.



Hazard ratios (HRs) and 95% confidence intervals (CIs) for CRC specific mortality



Hazard ratios (HRs) and 95% confidence intervals (CIs) for all-cause mortality

26. SEPTEMBER 2023
1:45 PM – 2:45 PM

PS4 | POSTERSESSION – AG2 PÄDIATRISCHE EPIDEMIOLOGIE + AG16 SOZIALEPIDEMIOLOGIE

PS4-01

DELIBERATE SELF-POISONING AMONG PRE-PUBESCENT CHILDREN IN MOROCCO: AN ALARMING PUBLIC HEALTH ISSUE

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INTRODUCTION
Suicide is a rare event among pre-pubescent children, but clinical evidence suggests that this age group can experience suicidal thoughts and engage in suicidal behavior, including attempts or completed suicide. Moreover, children at this developmental stage typically do not have a full understanding of death as an irreversible event. The objective of this study was to examine the issue of self-poisoning as a means of suicide in this population.

METHODS
This is a retrospective study of reported cases of suicidal poisoning among children aged 7 to 9 years in Morocco from 1980 to 2014. The data of this study was collected by the Moroccan Poison Control Centre.

RESULTS
Between 1980 and 2014, 43 cases of suicide by poisoning were notified, resulting in one death. The highest number of cases (n=6) reported in 2012 and 2013. Most cases were registered in urban areas (84.8%). The median age of children was 9 years old (Q1-Q3: 8-9), and the average time of suicide was 15H17 ± 1H26. More than 80% of the victims were taken to the emergency department, with a median duration of consultation of 4 hours (Q1-Q3: 1 hour 34 minutes – 14 hours 45 minutes). The sex-ratio of girls to boys was 1.39. In the majority of cases (63.8%), domestic drug ingestion was the cause of poisoning. Symptoms were present in 62.8% of cases, with the most common being vomiting (n=10), nausea (n=8) and drowsiness (n=7). Other gastrointestinal and neurological symptoms were also observed, with one case resulting in coma. However, there was a lack of data on the management of these suicidal cases, and notably, five children had attempted suicide at least twice.

CONCLUSIONS/OUTLOOK
Morocco's monitoring system for suicide attempts has some flaws, and the country is facing a serious public health issue from a socio-sanitary standpoint. Corrective actions are urgently needed, including the provision of adequate and quality care, as well as preventive measures such as informative programs, supervision, orientation and follow-up.

PS4-02

MOTHERS WITH EARLY ONSET BREAST CANCER TAKING PART IN A REHABILITATION PROGRAM REPORT REDUCED MENTAL HEALTH FOR THEIR 4 TO 15-YEAR-OLD CHILDREN

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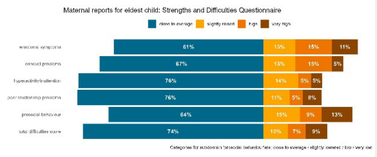
INTRODUCTION
Around 15% of female breast cancer (BC) patients are less than 55 years of age at diagnosis. The clinical characteristics of early onset BC and the aggressive cancer treatment along with the societal role of women at this stage of life contribute to physical and psychological distress. The latter also affects their families (particularly their children), with unclear direction though.

METHODS
Our survey involved 496 women (<55 years; mean: 40 years), who had non-metastatic BC and participated along with their children (4-15 years; mean: 8 years) in the rehabilitation program “Get well together“ between January 2019 and July 2021. BC patients provided information on aspects such as their health status and quality of life (EORTC QLQ-C30, PHQ), family dynamics (Oslo-3-item-social support scale, Family Environment Scale), and the mental health of their eldest child (Strengths and Difficulties Questionnaire; SDQ). To evaluate the latter, we compared the SDQ-scores with those of the German norm population. We also identified factors that predict the children’s mental health (total difficulties score) via multivariable linear regression.

RESULTS
For the majority of children, mothers reported no emotional or behavioural deficits. However, the mean SDQ-scores deviated negatively from the norm population on almost all scales. Deficits were particularly pronounced for “emotional stress”, with 15% showing high and a further 11% exhibiting very high difficulties (Figure). Factors positively influencing children’s mental health were an increasing number of siblings, female sex of the child, a good family environment and a better maternal mental health (Table).

CONCLUSIONS/OUTLOOK
The mental health of children as a fragile construct is facing a great challenge when confronted with maternal BC. It is therefore important to offer support for a good family environment, for maternal mental health and to carefully monitor also the children’s mental health to possibly intervene.



Figure

Maternal reports on mental health for their eldest child taking part in the rehabilitation program (SDQ total difficulties score and scales for subdomains)

Table

Predictors for children’s mental health as measured with the SDQ total difficulties score (higher scores indicate a higher extent of problems/difficulties; maternal report for eldest child) – results from the multivariable linear regression analysis

	non-standardized regression coefficient beta	p-value
Contextual factors		
Rehab stay before or during COVID-19 pandemic (before, during)	0.225	0.907
Waiting time between diagnosis and rehab stay (=0, 0-12, >12 months)	-0.555	0.282
Children's characteristics		
Sex of the eldest child (male, female)	-1.63	0.002
Age of the eldest child in years (min 4, max 15)	0.008	0.937
Descriptors of family life and social support		
Number of children in household (min 1, max 5)	0.786	0.031
Single parenting (yes, no)	-0.720	0.266
Family environment (scores range: 0-100; low values indicate problematic environment; the higher the better)	0.109	<0.001
Social support (scores range: 3-14; low values indicate low support; the higher the better)	-0.031	0.827
Social status (middle, high)	-0.361	0.521
BC patient's characteristics		
Age in years at diagnosis	-0.058	0.280
Mental health (score range: 0-100; low values indicate low mental health; the higher the better)	-0.093	<0.001
Received systematic anticancer treatment (chemotherapy) (no, yes)	0.355	0.644
Received radiotherapy (no, yes)	0.456	0.586
Received hormone therapy (no, yes)	0.543	0.337

PS4-03

ADDRESSING ADOLESCENT SUICIDAL POISONING IN MOROCCO: A CALL TO ACTION

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INTRODUCTION
Adolescent suicide is a significant public health concern worldwide, with serious consequences for individuals, families, and communities. Suicide attempts can cause severe physical and psychological harm, with lasting effects on mental health and well-being. This study aimed to examine the epidemiological profile of suicidal poisoning among adolescents in Morocco.

METHODS
This is a retrospective study of suicidal poisoning among adolescents aged 15 to 19 years, reported to the Moroccan Poison Control Center (MPCC) between 1980 and 2014.

RESULTS
Over the study period, a total of 7,544 suicide attempts among adolescents were recorded, with a median age of 17 years. Females accounted for the majority of cases (81.7%), resulting in a female-to-male ratio of 4.46. Suicide attempts were more common in urban areas (85.9%) compared to rural areas. Drugs were the most commonly used substances (52%), followed by pesticides or agricultural products (31.7%). The signs and symptoms of poisoning varied depending on the substance ingested, the quantity, and the time elapsed before treatment. Neurological, gastrointestinal, respiratory, and cardiovascular complications were common symptoms. Of the 4,872 cases with available outcome data, 151 (3.1%) resulted in death, while the remaining cases survived with or without sequelae.

CONCLUSIONS/OUTLOOK
This study highlights the need for comprehensive monitoring and reporting mechanisms to address adolescent suicide, which is one of the leading causes of death among young people, and likely underestimated due to undiagnosed and unreported instances.

PS4-04

ASSOCIATIONS BETWEEN MEDIA USE AT BEDTIME AND SLEEP: DIFFERENCES BETWEEN GIRLS AND BOYS

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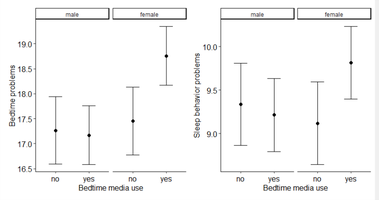

Associations of bedtime media use with bedtime problems (left) and sleep behavior problems (right)

INTRODUCTION
While it is known that media use and sleep difficulties are associated in children and adolescents, it is still unclear which type of media use (long daily screen time or media use at bedtime) is most strongly associated with sleep difficulties. This study investigates both types of associations, with a specific focus on the moderation of associations by sex and age.

METHODS
Data were collected between 2021 and 2022 within the LIFE Child cohort study in Leipzig, Germany. 453 ten- to 14-year-old children reported on their use of electronic media (daily screen time in minutes/day, use at bedtime (yes/no), number of media devices owned by the child) and on their sleep difficulties (bedtime problems, sleep behavior problems, daytime sleepiness), as assessed with the Sleep Self Report. Associations between media use and sleep difficulties and interactions with age and sex were assessed using linear regression analyses.

RESULTS
On average, children spent 140 minutes per day using electronic media and owned 2 to 3 media devices (with boys owning significantly more devices than girls). Furthermore, most of the children (57%) used electronic media at bedtime. Analyses revealed significant associations between the use of media at bedtime and bedtime problems (in girls only), sleep behavior problems (in girls only), and daytime sleepiness (in both sexes). In contrast, daily screentime was not associated with any of the sleep difficulties. The number of media devices owned by the child was associated with bedtime problems (in girls only), and this association lost statistical significance once media use at bedtime was included as another predictor.

CONCLUSIONS/OUTLOOK
The findings highlight the potentially sleep-disturbing effect of electronic media at bedtime. Furthermore, they suggest that this effect is stronger in girls than in boys.

PS4-05

THE PREVALENCE OF EMOTIONAL ABUSE IN CHILDREN LIVING IN SUB-SAHARAN AFRICA – A SYSTEMATIC REVIEW

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INTRODUCTION

Besides sexual and physical maltreatment, emotional child abuse is another form of violence, but, for several reasons, is less visible and has therefore remained underrepresented in research until recently. The aim of this study is to put a focus on the prevalence of emotional abuse in low-income states like the low-income countries in the Sub-Saharan region of Africa.

METHODS

Searching PubMed, Google scholar, and web of science during February and April 2021 a total of 2264 articles were identified, 27 met the inclusion criteria. Additionally, the results of the public data sets of 13 VAC (Violence Against Children and Youth), which are studies conducted by UNICEF capturing information about experienced sexual, physical, or emotional violence in 13–24-year-olds, as well as 56 MIC studies were integrated into the study. The MIC (Multiple Indicator Cluster) studies conducted by the CDC research the disciplinary methods used with children aged 1-14 years in the past month by older household members.
Finally in a meta-analytic approach, we aimed to calculate a pooled estimate of the prevalence.

RESULTS

In general countries displayed a high prevalence. A standardized use of a uniform definition of emotional abuse might help to display a more homogenous data set in the future, giving the opportunity for pooled estimates of prevalence

CONCLUSIONS/OUTLOOK

Countries in Sub-Saharan Africa displayed a high prevalence of emotional abuse in children and demonstrate the urgent need for improved prevention strategies.
Further, many assessment tools do not include information about the age at onset of abuse, relationship of perpetrator to victim or frequency of abuse. Therefore, a more detailed questionnaire used across countries would be able to better detect trends and inform meaningful preventive strategies. A uniform definition of emotional abuse and its standardized use might help to display a more homogenous data set in the future, giving the opportunity for pooled estimates of prevalence.

PS4-06

EVALUATING EPIDEMIOLOGICAL AND ADMINISTRATIVE DATA ON ADHD BY CLINICAL ASSESSMENT: FIRST RESULTS OF THE CONSORTIUM PROJECT INTEGRATE-ADHD

Schlack R.[1], Beyer A.-K.[1], Beck L.[1], Hölling H.[1], Jans T.[2], Hetzke L.[2], Berner A.[3], Weyrich S.[2], Romanos M.[2], Gilbert M.[3], Kaman A.[3], Reiss F.[3], Ravens-Sieberer U.[3], Witte J.[4], Fiessler C.[5], Widmann J.[5], Heuschmann P.[5], Riederer C.[6]

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INTRODUCTION
Attention-deficit/hyperactivity disorder (ADHD) is one of the most frequently diagnosed mental disorders in children and adolescents both in Germany and worldwide. The diagnosis of ADHD, however, has repeatedly been subject to controversial public and scientific discussions. For example, administrative prevalence rates have increased over the years, while epidemiological data reported stability or even a decline. Moreover, the clinical validity of both data sources is unknown. Therefore, the consortium project INTEGRATE-ADHD compares administrative and epidemiological ADHD diagnostic data directly through a data linkage approach and examines their validity by means of a guideline-based clinical diagnosis. The primary goal is to contribute to more accurate population-based prevalence estimates of child and adolescent ADHD and to clarify putative contradictions between the various data sources.

METHODS
Parents of 5,512 children aged 0 to 17 years who are insured by the third largest German statutory health insurance (DAK-Gesundheit) and present with at least one verified administrative ADHD diagnosis in the insurance year 2020 answered online questions on the lifetime and 12-month prevalence of a health care professional's diagnosis of ADHD of their child. Additionally, a random sub-sample of n=202 took part in an AMWF-S3 guideline-based clinical ADHD assessment.

RESULTS
Administrative and epidemiological ADHD data are directly compared and clinically validated. The data analysis is currently running, first results will be presented in September.

CONCLUSIONS/OUTLOOK
Facilitating a 'three-dimensional view' on the diagnostics of ADHD, this data linkage project combines administrative, epidemiological and clinical diagnostic data on ADHD. The results allow for the determination of fields of action for health policy and the self-administration of the German healthcare system. Recommendations for stakeholders in the field of ADHD are derived and discussed.

PS4-07

UPTAKE OF COLORECTAL CANCER SCREENING AMONG MIGRANTS AND NON-MIGRANTS IN GERMANY: RESULTS OF A POPULATION SURVEY.

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INTRODUCTION
Colorectal cancer screening can help to reduce the incidence and mortality of colorectal cancer. While some studies report lower participation in colorectal cancer screening among migrants compared to non-migrants, others indicate a higher uptake among this population group. A major limitation of these studies is that they generally do not consider the possible influence of social factors or the role of intersectional differences.

The aim of the present study was to examine potential differences, including intersectional differences by sex and age, in fecal occult blood testing and colonoscopy between migrants and non-migrants in Germany based on a nationwide population survey.

METHODS
Using data from the Robert Koch Institute's 2014/2015 German Health Update (GEDA) survey, multivariable logistic regression analyses were performed to compare the use of fecal occult blood tests and colonoscopies between non-migrants, migrants from EU countries, and migrants from non-EU countries. The analysis included 11,757 men and women aged 50 years and older.

RESULTS
The study showed that migrants from the EU (aOR = 0.73; 95% CI: 0.57, 0.94) and non-EU countries (aOR = 0.39; 95% CI: 0.31, 0.50) were less likely to utilize fecal occult blood testing than non-migrants. No differences (migrants from the EU: aOR = 1.06; 95% CI: 0.86, 1.31 and non-EU countries: aOR = 0.88; 95% CI: 0.70, 1.11) in colonoscopy utilization were observed.

CONCLUSIONS/OUTLOOK
With respect to fecal occult blood testing, the findings may be indicative of barriers that migrants face in the utilization of this screening measure. Adequate strategies that consider the diversity of the population and that also cater to migrants are necessary to support informed decision making in health care users. Several limitations should be taken into account when interpreting the results, including possible bias due to recall error and the potential underrepresentation of migrants with poor German language skills.

PS4-08

CHANGES IN SOCIAL BEHAVIORAL DEVELOPMENTAL RISKS IN PRESCHOOL CHILDREN AFTER THE FIRST COVID-19 WAVE – RESULTS FROM A PROSPECTIVE COHORT STUDY

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INTRODUCTION

The COVID-19 pandemic affected children and adolescents severely, with previous studies (mainly focusing on 6- to 18-year olds) showing, for example, a significant increase in mental health problems due to the pandemic restrictions. Moreover, preschool closures were frequent, especially at the onset of the pandemic, resulting in a lack of social-pedagogical promotion of preschoolers' competencies by pedagogical staff. Yet, the impact of the pandemic on developmental risks in the social-emotional domain of preschool children is largely unknown. Therefore, the aim of this study was to assess longitudinal changes in preschoolers' social behavioral developmental risks between before the pandemic and after the first COVID-19 wave.

METHODS

In this prospective longitudinal dynamic cohort study social behavioral developmental risks were annually assessed with the "Dortmund Developmental Screening for Preschools (DESK 3-6 R)". Therefore, pre-pandemic DESK 3-6-R data from 3-year-olds at survey wave 3 (DESK-R-SW3, 2019) and data from 4-year-olds after the first COVID-19 wave at survey wave 4 (DESK-R-SW4, 2020) were used. In addition, data assessed in previous survey waves (SW1 to SW2 and SW2 to SW3) were analyzed to contextualize the observed changes.

RESULTS

A total of N=786 children were included in the analysis. In the pre-pandemic DESK-R-SW3 the proportion of children with social behavioral developmental risks was 18.2%, whereas in DESK-R-SW4 after the first COVID-19 wave the proportion decreased to 12.4%. The prevalence rate ratio (PRR) was therefore 0.68 (p=0.001). Compared to data from the previous survey waves (SW1-SW2: PRR=0.88; SW2-SW3: PRR=0.82), this result represents a notable improvement.

CONCLUSIONS/OUTLOOK

In this prospective longitudinal cohort study, we found no increase in social behavioral developmental risks among preschool children after the first COVID-19 wave. Further studies are needed to examine long-term effects of the pandemic on preschoolers' social behavioral developmental risks.

PS4-09

COHORT PROFILE: EVALUATION OF THE TARGETED INDIVIDUAL PROMOTION IN GERMAN PRESCHOOLS USING THE REVISED DORTMUND DEVELOPMENTAL SCREENING FOR PRESCHOOLS DESK 3-6 R (PROJECT "GIF MV")

Ernst V., Franze M., Kästner A., Hoffmann W.

University Medicine Greifswald, Institute for Community Medicine, Greifswald Mecklenburg-Western Pomerania, Germany

INTRODUCTION

This dynamic cohort was established to evaluate the targeted individual promotion of children affected by developmental risks as part of the German federal state law for child day-care and preschools in Mecklenburg-Western Pomerania (MWP). The project has been conducted in preschools in regions with a low socio-economic profile since 2011.

METHODS

Since 2017, the revision of the standardized Dortmund Developmental Screening for Preschools (DESK 3-6 R) has been applied. Developmental risks of 3 to 6-year-old children in the domains of motor, linguistic, cognitive and social competencies are monitored annually. The cohort is followed up and allows the analysis of individual trajectories.

RESULTS

In 2020, n=7,678 children from n=152 preschools participated. At the baseline (2017), n=8,439 children participated. Due to the defined age range of this screening, 3,000 to 4,000 5-6-year-old children leave the cohort annually. Simultaneously, an approximately equal number of 3-year-old children enters the cohort per annual survey wave. N=702 children participated in all 4 survey waves. Results reveal that 15.8% of all participating children yield social-emotional risks. Nevertheless, evidence for the effectiveness of the targeted individual promotion is visible in a significant decrease in the number of children affected by developmental risks.

CONCLUSIONS/OUTLOOK

Socioeconomic hotspots tend to present special challenges for early education. Longitudinal prospective monitoring the development of children in these hotspots is an important step towards the development of evidence-based recommendations for both educational institutions (preschools, elementary schools) and social policy. Furthermore, the cohort provides trajectories on the basis of SW 1 to 3 (2017-2019) to compute expected values e.g. for SW 4 (2020) which can be compared with the measured values in SW 4. This method makes it possible to evaluate the effect of closing preschools as a preventive measure to stop the spread of COVID-19.

PS4-10

ZUSAMMENHANG VON PRÄVALENZ KINDLICHER ENTWICKLUNGSGEFÄHRDUNGEN UND REGIONALER DEPRIVATION IN MECKLENBURG-VORPOMMERN (M-V): EIN PLÄDOYER FÜR REGIONALE KLEINRÄUMIGE DATEN

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INTRODUCTION
Kindliche Entwicklungsgefährdungen (EG) im motorischen und sozial-emotionalen Bereich sind assoziiert mit sozioökonomischer Benachteiligung. Letztere haben oft neben der individuellen eine regionale Komponente (regionale Deprivation). Forschungshypothese: Es besteht eine statistisch signifikante positive Korrelation zwischen EG-Prävalenz und sozioökonomischer Deprivation.

METHODS
Zur Prävalenzbestimmung wurden Daten eines standardisierten Entwicklungsscreenings genutzt, das in Kitas in M-V in sozialräumlich schwieriger Lage seit 2011 jährlich durchgeführt wird (Datenbasis: Erhebung 2019). Regionale Deprivation wurde mittels eines RKI-Index ermittelt (GISD für Jahr 2019 berechnet auf Basis von ganz Deutschland, Auflösung: regionale Gemeinde und PLZ-Ebene-5). Mittels ArcGIS Pro erfolgte ein Verschneiden von Prävalenzraten und GISD-Scores. Statistisches Verfahren: Generalized Linear Regression.

RESULTS
Ganz M-V liegt am oberen, deprivierteren Ende der GISD-Skala. Die Varianz des GIS-Scores ist sehr gering. Für die Assoziation mit EG wurde wider Erwarten keine Signifikanz erreicht. R^2 war so gering, dass das Modell nur wenig Erklärungskraft hat.

CONCLUSIONS/OUTLOOK
Es liegen keine Hinweise für eine ausgeprägte Assoziation zwischen EG-Prävalenz und regionaler Deprivation vor. Dies könnte damit erklärt werden, dass das RKI die Werte auf die Ebene der Gemeinden projiziert. Die in vielen Fällen räumlich höher aufgelösten Kita-Screening-Daten werden ihrerseits für den GISD auf großräumigere Einheiten projiziert. In zukünftigen Analysen werden GISD-Daten auf noch kleinräumigerer Ebene (z.B. 5 x 5 km Raster) benötigt, um regionale Unterschiede genauer bestimmen zu können und um Gebiete mit potenziell hohen Präventions- und Versorgungsbedarfen zu ermitteln. Wo dies gelingt könnten Präventions- und Versorgungsbedarfe in den Regionen besser erkannt und in der Planung berücksichtigt werden.

PS4-11

INTERNAL AND EXTERNAL HEALTH RESOURCES AS MODERATORS OF THE RELATIONSHIP BETWEEN EMPLOYMENT BIOGRAPHY AND HEALTH

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INTRODUCTION

The aim of this research project is to investigate how the relationship between employment biography and health is influenced by health resources. This study will analyze personality traits as internal and social capital as external health resources, and investigate their potential interrelation with employment status and health.

METHODS

This analysis uses data from the 2019 German Socioeconomic Panel. An ordinal logistic regression was used, with the dependent variable being the self-rated health status. The main independent variables are the current employment status, as well as the Big Five personality traits and a social capital variable. Furthermore, the analysis controlled for sex, age, marital status, and the number of job changes.

RESULTS

The results shows that both part-time and unemployment are significantly negatively associated with subjective health compared to full-time employment, even after accounting for all covariates. Furthermore, a highly significant relationship is observed between all five personality dimensions and health and between social capital and health. Subsequently, models incorporating interaction effects revealed, that the models that assumed interaction effects between employment status and conscientiousness and between employment status and social capital shows significant results.

CONCLUSIONS/OUTLOOK

The current analysis has demonstrated significant associations between current employment status, personality traits, and social capital with self-rated health. The results also suggest that medium or high levels of conscientiousness and high levels of social capital serve as protective resources that moderate the negative association between unemployment and health. The present analyses provide only an initial indication, as the study design is cross-sectional and does not allow for causal inferences. The research project is still in progress and will be expanded to incorporate longitudinal data in the next step.

Table: Ordinal logistic regression model with and without interaction effects

	model 1		model 2		model 3	
	coeff.	p	coeff.	p	coeff.	p
employment status						
full-time employed (ref.)	0		0		0	
part-time / marginally employed	-0,196	**	-0,273	*	0,075	
unemployed	-0,727	***	-1,087	***	-0,954	***
neuroticism						
low (ref.)	0		0		0	
medium	-0,78	***	-0,79	***	-0,778	***
high	-1,613	***	-1,617	***	-1,609	***
extraversion						
low (ref.)	0		0		0	
medium	0,251	***	0,251	***	0,256	***
high	0,247	**	0,247	**	0,255	***
conscientiousness						
low (ref.)	0		0		0	
medium	0,206	**	0,069		0,202	**
high	0,188	*	-0,04		0,179	*
agreeableness						
low (ref.)	0		0		0	
medium	0,229	***	0,227	***	0,231	***
high	0,335	***	0,333	***	0,341	***
openness						
low (ref.)	0		0		0	
medium	0,113		0,112		0,114	
high	0,375	***	0,375	***	0,373	***
social capital						
low (ref.)	0		0		0	
medium	0,095		0,095		0,068	
high	0,295	**	0,294	**	0,244	*
employment status#conscientiousness						
full-time#low (ref.)			0			
part-time/marginal#medium			0,054			
part-time/marginal#high			0,279			
unemployed#medium			0,417	*		
unemployed#high			0,577	**		
employment status#social capital						
full-time#low (ref.)					0	
part-time/marginal#medium					-0,26	
part-time/marginal#high					-0,38	
unemployed#medium					0,201	
unemployed#high					0,536	*
N	6.422		6.422		6.422	
Mc Fadden R^2	0,07		0,0706		0,707	

*** = p<0,001 / ** = p<0,01 / * = p<0,05 / ° = p<0,1

Ordinal logistic regression model with and without interaction effects

This table shows detailed information of the current analysis. The central results of the ordinal logistic regression with and without interaction effects are presented.

27. SEPTEMBER 2023
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PS5 | POSTERSESSION – AG7 EPIDEMIOLOGIE DER HERZKREISLAUF- UND STOFFWECHSELERKRANKUNGEN

PS5-01

TRENDS IN SMOKING-ATTRIBUTABLE CARDIOVASCULAR MORTALITY IN GERMANY 1992-2021

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INTRODUCTION

Despite comparatively weak tobacco control, smoking has steadily declined in Germany over the last 30 years. At the same time, while cardiovascular mortality rates have been decreasing in recent decades, population ageing leads to increasing numbers of deaths. To explore the contribution of smoking to cardiovascular mortality against the background of these different trends at a population level, this study sought to quantify trends in smoking-attributable cardiovascular mortality (SACVM).

METHODS

Smoking and mortality statistics from 1992 to 2021 were obtained from the German Statistical Office, from which absolute and relative SACVM was calculated separately for each cardiovascular cause of death causally associated with smoking. The impact of population ageing was explored by comparing crude and age-standardized SACVM, respectively. To estimate the impact of population ageing on future SACVM, a forward projection until 2035 was modelled assuming constant mortality rates and a continuation of smoking trends.

RESULTS

Results suggest that total absolute SACVM strongly declined over time, from about 71,900 cases in 1992 to about 41,000 cases in 2021, with a stronger drop in men than in women. Somewhat stronger declines were seen for age-adjusted SACVM, with differences between crude and age-standardized SACVM being somewhat more distinct in men. Relative SACVM decreased overall, from 17.3% in 1992 to 14.6% in 2021. Sex-specific relative SACVM however showed differing trends: a strong decrease in men and a slight increase in women. The forward projection of SACVM indicates a slight decline in men and a marked increase in women.

CONCLUSIONS/OUTLOOK

Results indicate a strong decline in SACVM over the past three decades, but which was partly compensated by opposing trends in population ageing. Comprehensive tobacco control polices and an intensification of smoking cessation programs are required to curb the smoking-associated public health burden.

PS5-02

ASSOCIATION BETWEEN AIR TEMPERATURE AND THE INCIDENCE OF TYPE 2 DIABETES IN GERMANY: AN ECOLOGICAL STUDY

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INTRODUCTION
Previous studies suggest that higher annual average air temperature (AT) might increase the risk of type 2 diabetes (T2D). Since few studies investigated this relation on the population level, we aimed to estimate the association between AT and T2D incidence in Germany.

METHODS
The annual number of incident cases of T2D in 401 counties was identified by ICD-10 codes documented in claims data from all statutory health insurances between 2014 and 2019. County-level AT was based on data from the National Meteorological Service (Deutscher Wetterdienst). We estimated the association between AT and T2D incidence using negative binomial regression with the observed number of cases on the county level as the dependent variable. To adjust for age and sex, the expected number of cases was included as an offset variable and calculated based on the age and sex distribution of the counties and the incidence rate on the national level in 2014. AT was modelled as a linear term which gave the best fit in the family of natural cubic splines with 3 knots. In a second model we additionally adjusted for calendar year, county-level socioeconomic deprivation, population density and soil sealing. Both models included random intercepts for the counties to account for repeated measurements and unobserved county-level confounders.

RESULTS
Between 2014 and 2019 we observed approximately 460,000 incident T2D cases among 63 million people at risk for T2D each year. The incidence rate ratio (IRR) for a one °C increase of AT was 1.01 (95-% confidence interval [CI]: 1.00-1.02) in both models, corresponding to an IRR of 1.07 (95-%CI: 1.02-1.13) when comparing the highest vs. lowest observed AT.

CONCLUSIONS/OUTLOOK
We found a small association between AT and T2D incidence, indicating that AT is unlikely to be an important driver of current T2D incidence in Germany. Future work should investigate this issue based on individual data and consider potentially lagged effects of AT on T2D risk.

PS5-03

RISK PHENOTYPES OF DIABETES AS PREDICTORS FOR COVID-19-RELATED DEATH AND SEVERITY: UPDATE OF A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION
To provide an overview of the current body of evidence on risk phenotypes of diabetes associated with COVID-19-related death and severity, we updated our living systematic review and meta-analysis on this topic.

METHODS
The literature search was conducted in four databases until 1st December 2022. Studies investigating phenotypes with death or severity of COVID-19 in persons with diabetes and confirmed COVID-19 infection were included. Summary relative risks (SRR) and 95% confidence intervals (95% CI) were calculated using a random effects model. The GRADE approach was used to evaluate the certainty of evidence (CoE).

RESULTS
We included 169 studies. The CoE was strengthened and high for COVID-19-related death for male sex, older age, blood glucose, insulin use, metformin use (inversely), and pre-existing comorbidities (cardiovascular, chronic kidney and chronic obstructive pulmonary disease). We obtained new robust evidence for associations between obesity (SRR [95% CI]: 1.18 [1.04; 1.34], n=21 studies), HbA1c (≥53-75 mmol/mol: 1.18 [1.06; 1.32], n=8), GLP1-RA use (0.83 [0.71; 0.97], n=9), heart failure (1.33 [1.21; 1.47], n=14), the Charlson index (per 1 unit: (1.33 [1.13; 1.57], n=2), higher CRP levels (per 5 mg/L: 1.07 [1.02; 1.12], n=10), AST (per 5 U/L: 1.28 [1.06; 1.54], n=5), eGFR (per 10 ml/min/1,73 m^2: 0.80 [0.71; 0.90], n=6), LDH (per 10 U/L: 1.03 [1.01; 1.04], n=7) and lymphocytes (per $1x10^9$/L: 0.59 [0.40; 0.86], n=6) with COVID-19-related death. Similar findings were observed for COVID-19 severity with additional new evidence on vaccination status (0.32 [0.26; 0.38], n=3), hypertension (1.23 [1.14; 1.33], n=49), neuropathy (1.17 [1.07; 1.28], n=5), cancer (1.37 [1.07; 1.75], n=24) and higher IL-6 levels (1.13 [1.03; 1.25], n=6).

CONCLUSIONS/OUTLOOK
Individuals with a more severe course of diabetes had a poorer prognosis of COVID-19-related outcomes than individuals with a milder course of diabetes.

PS5-04

COMPARISON BETWEEN IN-HOSPITAL AND OUT-OF-HOSPITAL ACUTE MYOCARDIAL INFARCTIONS: RESULTS FROM THE RHESA STUDY

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INTRODUCTION

The federal state of Saxony-Anhalt has one of the highest morbidity and mortality of acute myocardial infarction in Germany. Patients who are already hospitalized can also suffer a myocardial infarction, contributing to the overall burden of the disease. This study aims to 1) estimate the proportion of in-hospital myocardial infarctions in Saxony-Anhalt and 2) compare the patients' characteristics and clinical outcomes between in-hospital and out-of-hospital myocardial infarctions.

METHODS

This is a registry study using data from the Regional Myocardial Infarction Registry of Saxony-Anhalt (RHESA). Only patients who were treated in the hospital were included. Patient characteristics and outcomes were compared based on where myocardial infarction occurred (in-hospital vs out-of-hospital). The association between 30-day and place of myocardial infarction was assessed using generalized additive models.

RESULTS

Among the 4272 included patients, the proportion of in-hospital myocardial infarctions was 11.4 %. Patients with in-hospital myocardial infarction were older and more comorbid than those with out-of-hospital myocardial infarctions. Non ST-segment elevation was more common among patients with in-hospital myocardial infarctions compared to out-of-hospital myocardial infarctions (75.4 % vs 60.3 %). Compared to out-of-hospital myocardial infarctions, patients with in-hospital myocardial infarctions had higher odds of 30-day mortality (Odds ratio = 1.85, [1.32-2.59]).

CONCLUSIONS/OUTLOOK

In-hospital myocardial infarctions contributed to about one ninth of AMI morbidity and showed higher odds of 30-day mortality than out-of-hospital myocardial infarctions. It remains unclear, whether worse prognosis of in-hospital myocardial infarctions is due to residual confounding or other aspects.

Myocardial infarctions	out-of-hospital		in-hospital	
	N (%)	95% CI	N (%)	95% CI
Total = 4272	3785 (88.6%)		487 (11.4%)	
Age (years) mean ± SD	69.39 ± 13.36	68.97-69.82	72.23 ± 12.29	71.1-73.3
Male	2475 (65.4)	63.9-66.9	310 (63.7)	59.3-67.8
Body mass index (kg/m²) mean ± SD	28.32 ± 4.45	28.17-28.46	28.62 ± 4.49	28.2-29.0
Diabetes	1289 (33.6)	32.6-35.6	202 (41.1)	37.2-45.9
Hypertension	3237 (85.5)	84.4-86.6	411 (84.4)	81.0-87.4
Hyperlipidemia	1976 (52.2)	50.6-53.8	209 (42.9)	38.6-47.3
Stroke	343 (9.4)	8.2-10.0	63 (13.6)	10.2-16.1
Heart failure	795 (21)	19.7-22.3	166 (34.1)	30.0-38.4
Chronic kidney disease	938 (24.8)	23.4-26.2	201 (41.3)	37.0-45.7
None smoker Smoker Former smoker	2117 (55.9) 1175 (31) 493 (13)	54.3-57.5 29.6-32.5 12.0-14.1	271 (55.6) 142 (29.2) 74 (15.2)	51.2-60.0 25.3-33.3 12.2-18.6
Non-ST segment elevation AMI	2283 (60.3)	58.8-61.9	367 (75.4)	71.4-79.0
ST segment elevation AMI	1502 (39.7)	38.1-41.2	120 (24.6)	21 -28.6
30-day mortality	312 (8.2)	7.4-9.2	61 (12.5)	9.8-15.7

Table 1:

Patients' characteristics. Numerical variables presented in the form mean ± standard deviat

Factors	Adjusted OR	95% CI
In-hospital AMI (reference: out of hospital AMI)	1.85	1.32-2.59
Age (in years)	1.05	1.04-1.07
Male (reference female)	1.10	0.83-1.45
STEMI (reference NSTEMI)	2.40	1.85-3.11
Non-smokers Smokers Previous smokers	1 1.34 0.65	 0.94-1.91 0.42-1.02
Diabetes	1.33	1.03-1.72
Hypertension	0.95	0.63-1.43
Dyslipidemia	1.11	0.83-1.48
Stroke	1.64	1.16-2.31
Chronic kidney disease	1.33	0.99-1.79
Heart failure	1.22	0.91-1.63

Table 2:

The generalized additive model odds ratio output for outcome: 30-day mortality. Output for

PS5-05

TRAJECTORIES OF GLYCEMIC TRAITS EXHIBIT SEX-SPECIFIC ASSOCIATIONS WITH HEPATIC IRON AND FAT CONTENT: RESULTS FROM THE KORA-MRI STUDY

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INTRODUCTION
Non-alcohol fatty liver disease (NAFLD) represents a major disease burden in the population. While the bidirectional association between NAFLD and diabetes is established, little is known about the association of hepatic iron content and glycemia. Moreover, analyses of sex-specified effects and of dynamic changes in glycemia are scarce.

METHODS
We investigated 7-year sex-specific trajectories of glycemia and related traits (HbA1c, fasting glucose, fasting insulin, HOMA-IR, 2-h glucose, and cross-sectional 2-h insulin) in a sample from a population-based cohort (N=365, 41,1% female). Hepatic iron and fat content were assessed by 3T-Magnetic Resonance Imaging (MRI) in s^{-1} and %, respectively. Two-step multi-level models, adjusted for glucose-lowering medication and confounders were applied.

RESULTS
In women and men, markers of glucose metabolism correlated with hepatic iron and fat content. Deterioration of glycemia was associated with increased hepatic iron content in men (normoglycemia to prediabetes: beta = 2.21 s^{-1}, 95%-CI [0.47 s^{-1}, 3.95 s^{-1}]). Additionally, deterioration of glycemia (e.g. prediabetes to diabetes: 1.27 log(%), [0.84 log(%), 1.70 log(%)]) and trajectories of glucose, insulin und HOMA-IR were significantly associated with hepatic fat content in men. Similarly, deterioration of glycemia as well as trajectories of glucose, insulin and HOMA-IR were significantly associated with increased hepatic fat content in women (e.g., trajectory of fasting insulin: 0.63 log(%); [0.36 log(%), 0.90 log(%)]).

CONCLUSIONS/OUTLOOK
Unfavorable 7-year trajectories of markers of glucose metabolism are associated with increased hepatic fat content, particularly in women, whereas the association with hepatic iron content was less clear. Monitoring changes of glycemia in the sub-diabetic range might enable early identification of hepatic iron overload and steatosis.

PS5-06

ASSOCIATIONS BETWEEN ANTHROPOMETRIC MARKERS DERIVED FROM A BODY SCANNER AND RELATIVE FAT-FREE MASS IN A POPULATION-BASED STUDY

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INTRODUCTION

Low relative fat free mass (FFM) is associated with an increased risk of chronic diseases and mortality, *but* FFM assessment in clinical routine is time consuming and currently not being done. Our aim was to identify easily accessible anthropometric markers for FFM derived by either bioelectrical impedance analysis (BIA) or air dis*placement plethysmography (ADP), which may be useful in clinical practice.*

METHODS

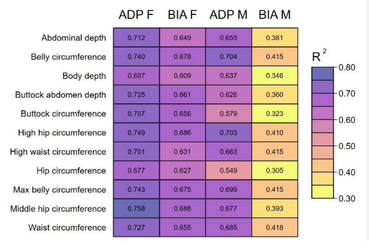
We analyzed data of 1,593 individuals (784 women; 49.2%, age range 28 – 88 years) enrolled in the population-based Study of Health in Pomerania (SHIP-TREND 1). Forty-seven anthropometric markers were derived from a body scanner. FFM was assessed by BIA and ADP. Anthropometric measurements were associated with FFM by sex-stratified linear regression models adjusted for body height and age. Anthropometric markers were ranked according to the coefficient of determination (R^2) derived from these regression models.

RESULTS

Circumferences of high hip, belly, middle hip, waist and high waist *were the anthropometric markers, which* showed the strong*est* associations with FFM *(Figures 1 & 2)*. These *associations* were stronger in females than in males. *Particularly in males, a*ssociations of anthropometric markers with FFM measured by ADP were greater compared to FFM assessment by BIA. Manually measured waist and hip circumference showed slightly weaker associations with the FFM compared to automated measurements.

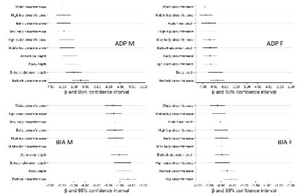
CONCLUSIONS/OUTLOOK

Single anthropometric body scanner *markers* were more strongly associated with FFM assessed by ADP compared to FFM determined by BIA. Circumferences *assessed by body scanner* showed stronger associations with FFM than manual measurements. The detected anthropometric *markers* could be helpful in assessing FFM in clinical routine.



Body scan markers, which showed the strongest associations with relative fat-free mass (FFM)

Models were adjusted for body height, age (and time between core and BIA examination [for BIA FFM]). ADP F = FFM from ADP in females, BIA F = FFM from BIA in females, ADP M = FFM from ADP in males, BIA M = FFM from BIA in males.



βcoefficients for the ten anthropometric markers which were most strongly associated with FFM

Models were adjusted for body height, age, (and time between core and BIA examination [for BIA FFM]). ADP M = FFM from ADP in males, BIA M = FFM from BIA in males, ADP F = FFM from ADP in females, BIA F = FFM from BIA in females.

PS5-07

IS COVID-19 ASSOCIATED WITH WORSE NEONATAL OUTCOMES IN PREGNANT WOMEN WITH GESTATIONAL DIABETES MELLITUS? EVALUATION AND ANALYSIS OF TWO PREGNANCY REGISTRIES BEFORE AND DURING THE SARS-COV-2 PANDEMIC.

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INTRODUCTION
Is COVID-19 in pregnant women with gestational diabetes mellitus (GDM) a risk factor for worse neonatal outcomes compared to GDM-pregnancies before the SARS-CoV-2 pandemic?

METHODS
The analysis is based on two nationwide registries, (i) the “COVID-19 Related Obstetric and Neonatal Outcome Study” (CRONOS), a multi-centre prospective observational study, initiated in April 2020, and (ii) a large German registry of pregnant women with diabetes mellitus (GestDiab). In total, 325 pregnant women with GDM and COVID-19 from the CRONOS registry and 4.598 pregnant women with GDM from GestDiab, registered 2018 and 2019, were eligible for analysis. The primary neonatal endpoints, compared between both registries using multivariable logistic regression, were defined as (1) combined: admission to neonatal intensive care unit (NICU), stillbirth, and neonatal death; (2) premature birth before 37+0 weeks of gestation; (3) large for gestational age (LGA). Secondary endpoints were: NICU-admission, small for gestational age (SGA), maternal insulin therapy, and caesarean delivery.

RESULTS
Women in CRONOS were younger (32 vs. 33 years), and had a higher median BMI (28.2 vs. 27.0 kg/m^2); 23.2% of women were vaccinated against COVID-19. Compared to pregnant women with GDM before the pandemic, pregnancies with GDM and COVID-19 were more frequently associated with the combined neonatal endpoint (aOR 1.67; 95% CI: 1.23; 2.27), preterm delivery (aOR 1.55; 95% CI: 1.07; 2.2), whereas we found no difference in LGA (aOR 0.90; 95%-CI: 0.63; 1.27), all adjusted for maternal BMI, age, insulin therapy, and week of gestation of GDM diagnosis. Additionally we found a higher frequency of NICU admission (aOR 1.66; 95% CI: 1.20; 2.28), but no difference in SGA, insulin therapy, and caesarean delivery in CRONOS.

CONCLUSIONS/OUTLOOK
GDM combined with COVID-19 in the mother is associated with increased risk for adverse outcomes of their neonates. Intensified clinical monitoring of these neonates is warranted.

PS5-08

DEPRESSIVE SYMPTOMS AMONG ADULTS WITH AND WITHOUT DIABETES: TIME TRENDS FROM GERMAN HEALTH SURVEYS 2008-2022

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INTRODUCTION

Depressive symptoms are known to be more prevalent among adults with diabetes mellitus (DM) compared to those without DM. Given the increased burden of DM and mental health in the context of the COVID-19 pandemic, we investigated potential changes in depressive symptoms among adults with and without DM between 2008 and 2022 in Germany.

METHODS

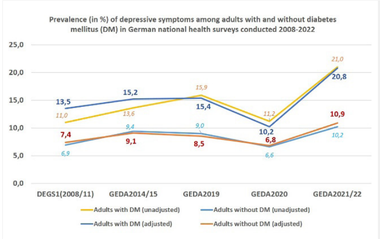
Data on depressive symptoms measured by the *Patient Health Questionnaire* depression scale (PHQ-*8*) and self-reported DM in the past 12 months were drawn from nationwide health surveys DEGS1 and GEDA waves conducted between Nov 2008-Dec 2011 (t1), Nov 2014-Jul 2015 (t2), Apr 2019-Sep 2020 [differentiated as Apr-Dec 2019 (t3) and Jan-Sept 2020 (t4)] and Jul 2021-Jun 2022 (t5), including 7,115, 22,909, 11,058, 9,841, and 6,625 18-79-year-olds, respectively. Prevalence estimates and odds ratios (ORs) with 95% confidence intervals (CI) were derived from logistic regression adjusted for age, sex, education, region, living alone and social support. Survey-specific weights were used.

RESULTS

Prevalence of depressive symptoms among adults with DM was 13.5% (95% CI 8.9-18.0%) at t1, 15.2% (12.8-17.6%) at t2, 15.4% (11.1-19.6%) at t3, 10.2% (6.2-14.2%) at t4 and 20.8% (14.6-26.9%) at t5, compared to 7.4% (6.5-8.3%), 9.1% (8.6-9.6%), 8.5% (7.6-9.5%), 6.8% (5.9-7.8%) and 10.9% (9.5-12.3%) at t1-t5 among adults without DM. Prevalence at t4 was significantly lower than that of all other time points except for t1 among both adults with and without DM. Differences in depression prevalence between adults with and without DM were significant for all time points [ORs: t1=2.01 (1.29-3.13), t2=1.93 (1.54-2.41), t3=2.13 (1.43-3.16), t5=2.34 (1.51-3.63)], except at t4 [1.36 (0.79-2.35)]. No interaction was found between DM and time points (p=.835).

CONCLUSIONS/OUTLOOK

The prevalence of depressive symptoms has run in parallel among adults with and without DM over time, with a decline in both prevalence and difference in the first year of the pandemic and an increase in both afterwards.



Prevalence (in %) of depressive symptoms among adults with and without diabetes mellitus (DM)

PS5-09

THE METABOLIC FINGERPRINT OF CARDIORESPIRATORY FITNESS

Bork J.[1,2], Markus M.[1,2], Ewert R.[1], Nauck M.[2,3], Friedrich N.[2,3], Völzke H.[2,4], Dörr M.[1,2], Bahls M.[1,2]

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INTRODUCTION

High cardiorespiratory fitness (CRF) is associated with a lower risk for all-cause mortality and cardiovascular diseases (CVD). Metabolomics provide deep insight in cellular processes and are influenced by multiple factors. We aimed to identify a metabolic fingerprint related to CRF.

METHODS

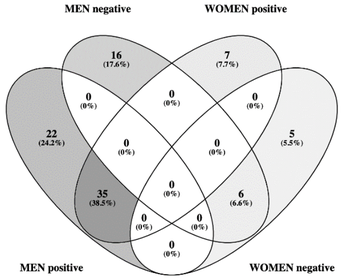
Data from the Study of Health in Pomerania (SHIP) (SHIP-START-2; n=933 and SHIP-TREND-0; n=697) was used. CRF was measured by symptom-limited cardio-pulmonary exercise testing (CPET) on a cycle ergometer according to a modified Jones protocol. (Non)targeted mass spectrometry was used to measure plasma metabolites. Subjects with missing data, asthma bronchiale, chronic bronchitis, COPD, eGRF <60ml/min/1.73m², left ventricular ejection fraction <50% or pregnancy were excluded. Data was log2 transformed. Linear regression models were adjusted for age, smoking and height and stratified by sex.

RESULTS

In SHIP-START-2 we found 99 metabolites with positive associations for CRF. These included mostly lipids (n=90, especially glycerophopholipids (n=86)) and amino acids (n=9). A total of 33 metabolites had inverse association with CRF. These included 16 acylcarnitines, seven amino acids, two biogenic amines and two energy derivates. In SHIP-TREND-0 we identified 46 positive associations, most of them in lipids (n=30, including n=25 glycerophospholipids), but also four amino acids, two xenobiotics, one biogenic amine and one energy derivate. A total of 71 metabolites had inverse associations with CRF. The majority of those were lipids (n=19), but there were also 16 amino acids, 10 peptides, four nucleotides, two carbohydrates and two cofactors/vitamins as well as one biogenic amine. A total of 16 metabolites with inverse and eight with positive association to CRF had unknown functions.

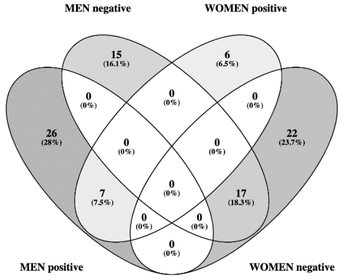
CONCLUSIONS/OUTLOOK

The results show, that CRF has an impact on the metabolic fingerprint, which is notably represented by alterations in the lipid profile.



SHIP-2

Visualization of the positive and negative associations in the sex-specific subgroups in SHIP-2 cohort, with a focus on overlapping metabolites between the groups.



SHIPT-0

Visualization of the positive and negative associations in the sex-specific subgroups in SHIPT-0 cohort, with a focus on overlapping metabolites between the groups.

PS5-10

INDIVIDUAL TRAJECTORIES OF CARDIORESPIRATORY FITNESS (VO_2MAX) OVER TIME – AN UNDERRATED PREDICTOR OF ALL-CAUSE MORTALITY? JOINT MODELING OF LONGITUDINAL AND SURVIVAL DATA OVER SEVERAL FOLLOW-UPS OF THE STUDY OF HEALTH IN POMERANIA (SHIP-START) IN GERMANY.

Pottien J.[1,2], Heilke H.[1,2], Felix S.[1,2], Markus M.[1,2], Ittermann T.[2,3], Laukkanen J.[4], Dörr M.[1,2], Friedrich N.[2,5], Ewert R.[1], Kaczmarek S.[1,2], Lehnert K.[1,2], Bahls M.[1,2], Gross S.[1,2]

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INTRODUCTION
Single timepoint measurements of high cardiorespiratory fitness (CRF) are related with low prospective mortality. Whether individual trajectories over time are also associated with mortality remains unclear. Therefore, weexplored the association of long-term change in CRF with all-cause mortality.

METHODS
CFR was assessed using cardiopulmonary exercise testing on a bicycle ergometer at repeated follow-up examinations of the population-based Study of Health in Pomerania, Germany (n=2,364, female: 1,241 (52.5%), mean age: 46.5 years (15.0), mean BMI: 27.0 kg/m² (4.5)).

We used joint modeling adjusted for baseline and/or time-varying covariables to investigate the relationship between change in maximal exercise-based O_2 consumption (VO_2max) over time and its association with all-cause mortality (events=366). We explored whether model-based current VO_2max values, slopes or both were associated with mortality.

RESULTS
Adjusting for baseline status of covariables only, VO_2max trajectories declined over time (7.83 ml/min/year [9.56; 6.10], p<0.001) which was highly pronounced ($p_{interaction}$<0.001) in participants (n=765 [32.4%]) with metabolic syndrome (MetS) (17.62 ml/min/year [20.11; 15.12], p<0.001).

Current VO_2max values (HR: 1.55 [1.46, 1.65] per 100 ml/min, p<0.001) and time slopes (HR: 1.26 [1.08; 1.48] per 10 ml/min/year, p=0.003) were inversely associated with mortality independent of MetS (Figure 1).

Allowing time-varying covariables (e.g. diabetes, CVD) revealed similar time-trajectories (w/o MetS: 13.67 ml/min/year [15.84; 11.51], p<0.001; w/ MetS: 20.57 ml/min/year [23.60; 17.54], p<0.001, $p_{interaction}$<0.001) but only current VO_2max values remained associated with mortality (HR: 1.53 [1.44; 1.63] per 100 ml/min, p<0.001).

CONCLUSIONS/OUTLOOK
Prospectively,a “dynamic score” containingrepeated measurements of CRF may provide increased value over single point measurements and thus may predict CVD risk better.

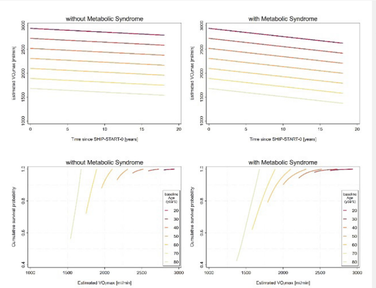

Figure 1

Time trajectories (upper panels) of VO_2max for participants without (left) and with (right) metabolic syndrome for ages of 20–80 years at baseline. Lower panels show respective predicted cumulative survival probabilities against the estimated VO_2max. The longitudinal sub-model was adjusted for baseline age, sex, smoking status, BMI, education, betablocker intake while the survival sub-model was adjusted for baseline untreated/treated systolic blood pressure, diabetes status, smoking status, sex and prevalent CVD.

PS5-11

INDIVIDUAL LDL-C TRAJECTORIES OVER TIME AND ALL-CAUSE MORTALITY IN NORTHEAST GERMANY: JOINT MODELING OF LONGITUDINAL AND SURVIVAL DATA OVER FOUR FOLLOW-UPS OF THE STUDY OF HEALTH IN POMERANIA (SHIP-START-0/1/2/3) IN GERMANY.

Heilke H.[1,2], Pottien J.[1,2], Ittermann T.[2,3], Felix S.[1,2], Markus M.[1,2], Friedrich N.[2,4], Nauck M.[2,4], Dörr M.[1,2], Bahls M.[1,2], Gross S.[1,2]

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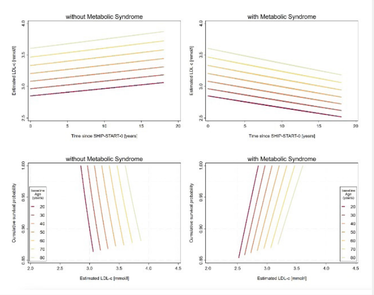

Figure 1

Time-trajectories of LDL-c for participants without (left) and with (right) metabolic syndrome. The longitudinal sub-model was adjusted for age, sex, BMI, diabetes status, smoking status, statin intake, and alcohol intake at baseline, while the survival sub-model was adjusted for untreated/treated systolic blood pressure, diabetes status, smoking status, sex, and prevalent CVD at baseline.

INTRODUCTION

Increased low-density lipoprotein (LDL-c) are major risk factors for death from cardiovascular disease (CVD). Whether individual trajectories over time are related to individual risk of mortality is still unclear. Therefore, we are investigating how individual long-term changes in serum lipids are associated to all-cause mortality?

METHODS

We used data of four follow-up time points of the Study of Health in Pomerania (SHIP-START-0/1/2/3, max. follow-up time: 21.5 years, n=2,366, females: 1,253 (53.0%), age: 46.4 years (SD=15.1), BMI: 26.9 kg/m² (4.5), total CHOL: 5.35 mmol/l (1.08), HDL-c: 1.30 mmol/l (0.39), LDL-c: 3.27 mmol/l (0.91), TG: 1.81 mmol/l (1.16)).

LDL-c levels were obtained with the same method at each time point. Joint models adjusted for (1) baseline or (2) time-varying covariables were applied. We explored whether estimated current LDL-c values, slopes, or both were associated with all-cause mortality.

RESULTS

Adjusting for covariables at baseline, LDL-c trajectories increased over time (0.0017 mmol/l/year [0.0013; 0.0022], p<0.001) while decreased (0.0030 mmol/l/year [0.0037; 0.0022], p<0.001, $p_{interaction}$<0.001) for those participants (n=754 (31.9%)) with metabolic syndrome (MetS).

Current LDL-c values were inversely associated with mortality independent of MetS ($p_{interaction}$=0.57, HR: 0.244 [0.072; 0.825], p=0.023), see Figure 1.

Allowing time-varying covariables (e.g. diabetes, CVD) revealed similar time-trajectories (w/o MetS: 0.0021 mmol/l/year [0.0016; 0.0027], p<0.001, w/ MetS: 0.0011 mmol/l/year [0.0019; 0.0002], p=0.016, $p_{interaction}$<0.001) but no direct association of LDL-c with mortality anymore (HR: 0.39 [0.12; 1.35], p=0.14).

CONCLUSIONS/OUTLOOK

Surprisingly inverse associations of LDL-c with mortality seem to be rather due to medication in those participants with a high CVD risk, while our results indicate no independent direct LDL-c effect on mortality beyond mediation through developing e.g. diabetes or CVD over time.

PS5-12

LOWER PHYSICAL FITNESS IS ASSOCIATED WITH LOWER SPHINGOSINE-1-PHOSPHATE LEVELSTHE STUDY OF HEALTH IN POMERANIA (SHIP)

Schielke J.[1], Ittermann T.[2,3], Groß S.[1,2], Moritz E.[2,4], Nauck M.[2,5], Friedrich N.[2,5], Schwedhelm E.[6,7], Rauch B.[8], Völzke H.[2,3], Chamling B.[1], Felix S.[1,2], Bahls M.[1,2], Dörr M.[1,2], **Markus M.**[1,2,9]

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INTRODUCTION
Cardiorespiratory fitness is inversely associated with cardiovascular disease and mortality. Changes in sphingosine-1-phosphate (S1P) levels have been associated with a multitude of cardiovascular diseases. Previous studies showed that exercise training was associated with increased S1P levels. However, the associations of physical fitness (PF) with S1P concentrations in general population is not clear.

METHODS
We performed cross-sectional analyses of 3.385 subjects (2,029 women; 52.9 %), aged 20 to 83 years, from the SHIP-TREND-0 cohort of the population-based Study of Health in Pomerania (SHIP). We analyzed the associations of cardiorespiratory fitness (CRF) and muscular fitness (MF) with S1P levels as determined by cardiopulmonary exercise testing (CPET) and handgrip strength (HGS) examination, respectively, using multivariable-adjusted linear regression models.

RESULTS
A 1 L/min lower peak oxygen uptake (VO2peak) was associated with a 0.02 µmol/L (95%-confidence interval [CI]: 0.00 to 0.04, p = 0.034) lower S1P concentration in men and a 0.03 µmol/L (95%-CI: 0.00 to 0.07), p = 0.042) lower S1P concentration in women. A 10 kg lower HGS was associated with a 0.02 µmol/L (95%-CI: 0.00 to 0.03; p < 0.001) lower S1P concentration in men. There were no associations of HGS with S1P concentration in women.

CONCLUSIONS/OUTLOOK
In this population-based sample, lower CRF was associated with lower serum concentrations of S1P for both men and women. Furthermore, lower MF was associated with lower serum concentration of S1P in men, whereas we found no association of MF and S1P concentration in women. Since the broad evidence for the deleterious effects of decreased PF, these findings may support the hypothesis, that lower levels of S1P might be related to deleterious cardiovascular outcomes.

28. SEPTEMBER 2023
9:30 AM – 10:30 AM

PS6 | POSTERSESSION – AG8 KREBSEPIDEMIOLOGIE (2/2) + AG3 EPIDEMIOLOGIE DER ARBEITSWELT

PS6-01

WEARABLE-DERIVED CIRCADIAN RHYTHM AND BREAST CANCER INCIDENCE: FINDINGS FROM THE UK BIOBANK

Waibel J.

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INTRODUCTION

Existing research suggests possible adverse health effects of circadian rhythm disruption, including increased risk of breast cancer in women. The observational evidence, however, is mixed and previous studies are largely based on self-reported exposure data. Wrist-worn activity trackers have the potential to continuously and noninvasively measure sleep-activity patterns. We aimed to examine the relationship of circadian rhythm status and breast cancer incidence using objective exposure data derived from accelerometry.

METHODS

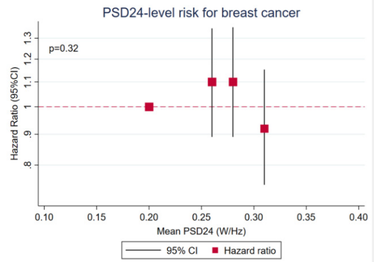
Data from 44,706 women without previous breast cancer diagnosis in the UK Biobank who wore a wearable device for seven days between 2013 and 2015 were analysed and hazard ratios (HRs) with 95% confidence intervals (CIs) were calculated using multivariable-adjusted Cox regression. Circadian rhythm status was assessed using two measurements based on the sleep-activity cycle: 24h rhythmicity via power spectral density (PSD24) and circadian misalignment via social jetlag.

RESULTS

During median 4.7 years of follow-up, 719 breast cancer cases occurred. PSD24 was not associated with breast cancer risk; the HR was 0.93 (95% CI 0.74-1.15) in the top fourth of PSD24, i.e. strongest rhythmicity, versus the bottom fourth implying weakest rhythmicity. Social jetlag was not associated with breast cancer; the HR was 1.23 (95% CI 0.99-1.53) for participants with high versus no social jetlag. These estimates remained similar after performing sensitivity analyses.

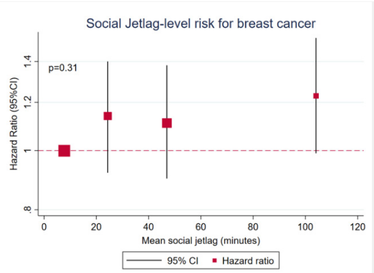
CONCLUSIONS/OUTLOOK

The findings of this prospective study with objectively measured circadian rhythm status do not support an association of 24h rhythmicity or circadian misalignment with excess risk, though the number of cases is still relatively small and moderate associations cannot be excluded. Further analyses after longer follow-up, focusing on more extreme groups, and with cancer subtype information are warranted to investigate potential health effects of circadian rhythm disruption.



Association of circadian rhythm status derived via PSD24 with risk of invasive breast cancer in 44,7

PSD24 was grouped into fourths. Hazard ratios for the association are plotted against the mean exposure measurement value within each category. Number of events are shown for each group. The analyses were stratified by age, region of recruitment and socioeconomic status, and adjusted for family history of breast cancer, ethnicity, age at menarche, menopausal status, parity, use of oral contraption, HRT use, smoking status, alcohol consumption, BMI, vegetable intake, and breast cancer screening status



Association of circadian rhythm status derived via social jetlag with risk of invasive breast cancer

Social jetlag was categorised in quarters. Hazard ratios for the association are plotted against the mean exposure measurement value within each category. Number of events are shown for each group. The analyses were stratified by age, region of recruitment and socioeconomic status, and adjusted for family history of breast cancer, ethnicity, age at menarche, menopausal status, parity, use of oral contraption, HRT use, smoking status, alcohol consumption, BMI, vegetable intake, and breast cancer screening status.

PS6-02

BREAST CANCER IN MOROCCAN WOMEN: COMPREHENSIVE OVERVIEW OF CLINICAL SIGNS

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Laboratory of Biology and Health, Faculty of Science, Ibn Tofail University, Kenitra, Morocco

INTRODUCTION

Breast cancer is a significant health concern and is the leading cause of cancer-related deaths among women worldwide. In 2020, breast cancer caused 684,996 deaths globally, with 3,695
cases reported in Morocco alone. The aim of this study was to provide a comprehensive overview of the clinical signs observed in Moroccan women affected by breast cancer.

METHODS

This retrospective study was conducted at the Reference Center for Reproductive Health in Kenitra and included all patients diagnosed with breast cancer between 2013 and 2018. We conducted a thorough review of the patients' sociodemographic and clinical data to gather information.

RESULTS

During the study period, 973 cases of breast cancer were diagnosed in women, with an average age of 51.15 ± 12 years. Of these cases, almost 65% were from urban areas, and 10% of the women had a family history of breast cancer. Additionally, 54% of the cases reported using hormonal contraception. Clinical examination revealed that a breast nodule was the most common revealing sign, accounting for 845 cases, and it was fixed in 89% of these cases. Axillary adenopathy was palpated in 527 women, while supraclavicular adenopathy was present in 13 women. The most common sign of breast contour and areola-mammary anomalies was retraction. Skin surface abnormalities were noted in 133 women, with orange peel being the most common, accounting for 38% of cases. Lastly, 15 women had a hemorrhagic discharge.

CONCLUSIONS/OUTLOOK

Clinical signs play a crucial role in indicating the potential risk of breast cancer. Therefore, the diagnostic value of clinical examination cannot be overstated, as it provides essential information to guide paraclinical investigations. The findings of this study highlight the need for increased awareness and early detection of breast cancer in Moroccan women, especially those with a
family history of breast cancer or those who use hormonal contraception.

PS6-03

LIFESTYLE FACTORS ON QUALITY OF LIFE AMONG GERMAN BREAST CANCER SURVIVORS, 5 YEARS POST-DIAGNOSIS.

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INTRODUCTION
With an increasing number of women surviving breast cancer, improving health-related quality of life (HRQoL) becomes an important aspect in long-term health management. In this study we examined whether lifestyle factors have an impact on HRQoL and the symptom of fatigue in post-menopausal women with breast cancer.

METHODS
Women diagnosed with incident breast cancer (n=1976) were recruited into a population-based study in Germany from 2002-2005 and followed up until 2009.From the baseline interview data, a lifestyle adherence score (range 0-8) was created based on the 2018 WCRF/AICR Cancer Prevention Recommendations. Lifestyle factors included were body mass index (BMI), physical activity, dietary intake (fruits/vegetables, dietary fibre, fast food, meat, sugar drinks, alcohol consumption), and smoking status. HRQoL was based on the EORTC QLQ-C30 questionnaire which assessed global health status, functioning level (physical, emotional, social, role and cognitive) and fatigue on scales from 1-100 at follow-up. The association between lifestyle adherence score and HRQoL were investigated using multivariable linear regression models.

RESULTS
The average WCRF/AICR lifestyle adherence score was 4.26 (standard deviation (SD)=1.00). Increasing adherence was significantly associated with better global health (β=1.77; 95% CI 0.76,2.79) and all functioning scales, comprising physical (β=3.0; 95% CI 2.14-3.86), role (β =1.51; 95% CI 0.24-2.78), emotional (β=2.26; 95% CI 1.09-3.43), cognitive (β=1.16; 95% CI 0.07-2.25), social (β=1.28; 95% CI 0.10-2.46) functioning, and reduced fatigue (β=-2.39; 95% CI -3.58-1.20) among breast cancer survivors.

CONCLUSIONS/OUTLOOK
Lifestyle behaviors at diagnosis showing greater adherence to WCRF/AICR recommendations have a positive impact on HRQoL about five years after diagnosis. These findings indicate that breast cancer survivors should be encouraged to follow these guidelines to improve their HRQoL.

PS6-04

CANCER-RELATED FATIGUE AT THE END OF RADIOTHERAPY AND OVERALL SURVIVAL IN BREAST CANCER PATIENTS: ASSESSING THE PROGNOSTIC VALUE AFTER 15+ YEARS OF FOLLOW-UP

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INTRODUCTION

Cancer-related fatigue (CRF) is a common symptom of cancer patients and long-term survivors. The aim of this analysis is to investigate whether baseline assessments of patient-reported CRF at the end of radiotherapy (RT) have prognostic value for overall survival in breast cancer patients (stage 0-III) who received breast-conserving surgery.

METHODS

We used data from the prospective multicentre ISE study in which female patients with non-metastatic breast cancer were enrolled after breast-conserving surgery and before primary RT between 1998 and 2001 in the Rhine-Neckar-Karlsruhe area in Germany. Patients did not receive chemotherapy. Along with demographic, staging and treatment data, patient-reported quality of life was assessed at multiple time points using the EORTC QLQ-C30. A vital status follow-up was conducted in 2019. The association between clinically important levels of CRF (defined by normalized scores ≥39, PMID: 27267486) two to six weeks after the end of RT and overall survival was investigated using Kaplan-Meier curves and logrank test.

RESULTS

Of 437 patients with available fatigue assessments, 38% reported clinically important levels of CRF (Table 1). The median follow-up time was 19 years, during which 80 patients without (29%) and 59 patients with CRF (36%) died. While survival was comparable at the beginning of follow-up, patients with CRF at the end of RT showed a lower overall survival rate than those without CRF after five years, although the difference is not statistically significant (Figure 1; logrank P=0.1).

CONCLUSIONS/OUTLOOK

Preliminary analyses suggest potential systematic differences in long-term survival between breast cancer patients with and without CRF at end of RT, which may be a relevant screening tool for risk-adapted aftercare. Results derived from multivariable Cox proportional hazards models adjusting for confounders including BMI, total dose of RT and comorbidities will be presented at the conference.

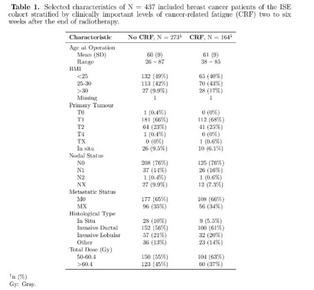

Table 1. Selected characteristics of N = 437 included breast patients of the ISE cohort stratified by clinically important levels of cancer-related fatigue (CRF) two to six weeks after the end of radiotherapy.

Characteristic	No CRF, N = 273[1]	CRF, N = 164[1]
Age at Operation		
Mean (SD)	60 (9)	61 (9)
Range	26 – 87	38 – 85
BMI		
<25	132 (49%)	65 (40%)
25-30	113 (42%)	70 (43%)
>30	27 (9.9%)	28 (17%)
Missing	1	1
Primary Tumour		
T0	1 (0.4%)	0 (0%)
T1	181 (66%)	112 (68%)
T2	64 (23%)	41 (25%)
T4	1 (0.4%)	0 (0%)
TX	0 (0%)	1 (0.6%)
In situ	26 (9.5%)	10 (6.1%)
Nodal Status		
N0	208 (76%)	125 (76%)
N1	37 (14%)	26 (16%)
N2	1 (0.4%)	1 (0.6%)
NX	27 (9.9%)	12 (7.3%)
Metastatic Status		
M0	177 (65%)	108 (66%)
MX	96 (35%)	56 (34%)
Histological Type		
In Situ	28 (10%)	9 (5.5%)
Invasive Ductal	152 (56%)	100 (61%)
Invasive Lobular	57 (21%)	32 (20%)
Other	36 (13%)	23 (14%)
Total Dose (Gy)		
50-60.4	150 (55%)	104 (63%)
>60.4	123 (45%)	60 (37%)

[1] n (%); Gy: Gray.

Table 1. Selected characteristics of N = 437 included breast cancer patients.

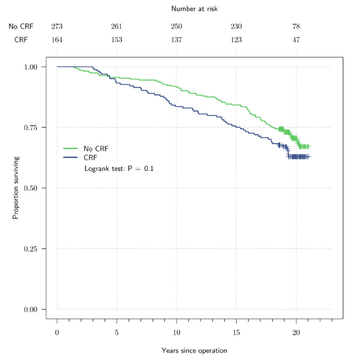

Figure 1. Kaplan-Meier curves for N = 437 included breast cancer patients.

Kaplan-Meier curves for N = 437 included breast cancer patients stratified by clinically important levels of cancer-related fatigue (CRF) two to six weeks after the end of radiotherapy.

PS6-05

COGNITIVE, EMOTIONAL, PHYSICAL AND OVERALL FATIGUE IS HIGHLY PREVALENT AMONG WOMEN WITH EARLY ONSET BREAST CANCER TAKING PART IN A REHABILITATION PROGRAM

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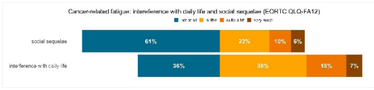
INTRODUCTION
Breast cancer (BC) itself and BC treatment may result in cancer-related fatigue. Especially women with early onset BC and those with aggressive treatment are prone to suffer from fatigue.
We aim to describe the prevalence of fatigue among women with early onset BC using a novel assessment tool.

METHODS
Our survey involved 542 women (<55 years; mean: 40 years at diagnosis) who had non-metastatic BC and who participated in the rehabilitation program “get well together” (along with at least one child <12 years) between June 2017 and December 2018. BC patients provided information on aspects such as quality of life and fatigue (EORTC QLQ-C30, -FA12). We used the age-specific 75th percentiles of the FA12-fatigue scores of the German norm population to classify BC survivors as having abnormal high fatigue values (Hinz et al. 2018). Further, we used the threshold of 39 points on the C30-fatigue scale to identify scores indicating clinical importance (Giesinger et al. 2020).

RESULTS
Women participating in our survey where approximately about 1 year being diagnosed with early onset BC. Still, about 25% reported that fatigue interfered with daily activities at least “quite a bit” and 16% stated that people close to them have no understanding for their fatigue (social sequelea; Figure).

The proportion with abnormal high values was 58% for cognitive, 52% for emotional, and 51% for physical fatigue. About 64% of the BC patients scored values above the threshold for clinical importance for the C30-fatigue scale (single item; Table).

CONCLUSIONS/OUTLOOK
Among survivors of early onset BC, cancer related fatigue remains a severe problem, interfering with daily life and social activities. Giving the special situation of early onset BC and the societal role of mothers, it seems crucial to educate about fatigue as well as to monitor and intervene early with moderate physical activity, cognitive training and/or psychological counselling – all of which are used to prevent and treat long-term cancer-related fatigue.



Figure

Cancer-related fatigue – interference with daily life and social sequelae of fatigue (items from EORTC QLQ-FA12, answers on a 4-point Likert scale)

	Women with early onset breast cancer	German norm population*
Fatigue (EORTC QLQ-C30)		
Mean (SD)	51.1 (26.7)	Mean: 31.8
Median (25th-75th percentile)	44.4 (33.3-66.7)	
Value above threshold of 39	63.5%	
Cognitive fatigue (EORTC QLQ-FA12)		
Mean (SD)	22.6 (26.7)	Mean: 10.3
Median (25th-75th percentile)	16.6 (0-33.3)	
Value above the age-specific 75th percentile of the norm population	57.7%	
Emotional fatigue (EORTC QLQ-FA12)		
Mean (SD)	22.4 (27)	Mean: 15.9
Median (25th-75th percentile)	11.1 (0-33.3)	
Value above the age-specific 75th percentile of the norm population	51.9%	
Physical fatigue (EORTC QLQ-FA12)		
Mean (SD)	40.7 (27)	Mean: 27.7
Median (25th-75th percentile)	40 (20-60)	
Value above the age-specific 75th percentile of the norm population	50.6%	

Note: higher scores (range: 0-100) indicate higher levels of fatigue.
* Norm population: C30 according to Nolte et al. 2020 (weighted mean of age groups 18-39 and 40-49 years), FA12 according to Hinz et al. 2018 (weighted mean of age groups 18-39 and 60-59 years)

Table

Cancer-related fatigue as measured with EORTC QLQ-C30 and FA12 among women with early onset breast cancer (BC) – Distribution of scores, proportion with abnormal high values and values above the threshold indicating clinical importance, respectively

PS6-06

SYSTEMATIC REVIEW ON THE EFFECTIVENESS OF PSYCHOLOGICAL MOBILE HEALTH APPLICATIONS ON MENTAL HEALTH OF BREAST CANCER SURVIVORS

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INTRODUCTION
Breast cancer survivors are more likely to report psychological distress and unmet need for support compared to healthy controls. Psychological mobile health interventions might be used in follow-up care of breast cancer patients to improve their mental health outcomes.

METHODS
We searched MEDLINE, PsychINFO, Cochrane and PROSPERO databases for articles reporting controlled trials examining the effectiveness of psychological mobile health interventions compared to routine care regarding mental health outcomes of adult breast cancer survivors. This work followed the PRISMA statement and was registered (PROSPERO CRD42022312972). Two researchers independently reviewed publications, extracted data and assessed risk of bias.

RESULTS
After screening 204 abstracts published from 2005 until 2023, eleven randomized trials involving 2,249 patients with mean age between 43.9 and 56.2 years were identified meeting the inclusion criteria. All interventions used components based on cognitive behavioural therapy. Most studies (9/11) applied self-guided interventions. Five studies reported percentages of participants never started (mean=8.3%) or discontinued the intervention earlier (mean=23.4%). Three of seven studies reported a significant intervention effect for distress. One of five studies showed an effect of the intervention compared to a control group on depression and anxiety, one of four on fear of recurrence, and one of three on self-efficacy, respectively.

CONCLUSIONS/OUTLOOK
We found no clear evidence of effects of psychological mobile health interventions on participants' mental health. A wide range of interventions was used and participants tended to be younger breast cancer survivors. Future studies should accurately describe applied interventions and their theoretical background, and address potential barriers for those who never started or discontinued the intervention.

PS6-07

PATIENT TYPOLOGISATION FOR NEEDS-BASED AND MORE EFFECTIVE COACHING OF PATIENTS WITH HORMONE RECEPTOR POSITIVE BREAST CANCER: METHODS OF THE PATYP STUDY

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INTRODUCTION
Breast cancer has the highest cancer incidence in females worldwide. New therapies have prolonged survival, therefore, breast cancer is becoming more and more a chronic disease. This leads to an increased need for counselling and support. Various delegation models, such as patient coaching by specially trained oncology nurses, have shown positive effects on complications and therapy adherence. In addition, long-term adherence to endocrine therapy reduces long-term progression free survival substantially. It has been proposed to personalise therapeutic approaches according to the segmentation model developed by Bloem & Stalpers to improve treatment adherence. Here we present study design of the PaTyp study that aims to investigate whether coaching based on patient type leads to an increase in adherence to endocrine therapy in patients with breast cancer.

METHODS
PaTyp is a open-label, parallel armed cluster randomised controlled trial. It is planned to includ thirty outpatient centres administering endocrine therapy to breast cancer survivors across Germany. In the intervention clusters, specially trained oncology nurses conduct coaching sessions regarding to the patient type classified according to control and acceptance. In a nested pilot trial in the intervention clusters, the ACTonCancer app will be used to explore its additional support potential.

RESULTS
Overall, it is planned to include 360 patients being followed up for 12 months. Adherence to endocrine therapy will be monitored using self-reported diaries as primary endpoint. In addition, the influence of coaching on quality of life, health literacy and symptom development as secondary endpoints will be investigated.

CONCLUSIONS/OUTLOOK
The coaching intervention studied in PaTyp, which is personalised to the patient, might improve long-term care of breast cancer patients.

PS6-08

CANCER-RELATED FATIGUE: RESULTS FROM A SURVEY ON KNOWLEDGE AND MANAGEMENT AMONG HEALTH CARE PROFESSIONALS IN GERMANY

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INTRODUCTION
Although cancer-related fatigue is one of the most frequent and burdensome symptoms during and after cancer therapy, it is often disregarded and insufficiently treated. Reliable data on the actual fatigue management in Germany is lacking. Therefore, we investigated the level of knowledge, attitudes, and support provided by health care professionals (HCPs) in Germany regarding cancer-related fatigue, to identify areas for further improvement in fatigue management.

METHODS
The multi-modal LIFT project comprised a cross-sectional survey including 476 HCPs (148 oncologists/physicians, 144 psycho-oncologists, 184 nurses working with cancer patients) who were either recruited systematically (e.g. via the German hospital directory) or invited by associations, or via online advertising. The online survey encompassed questions on knowledge of fatigue guidelines and interventions, self-efficacy, counseling and the role of fatigue in professional training.

RESULTS
More than two-thirds of HCPs reported not knowing the NCCN or ESMO guidelines for fatigue management. Differences between the professions were observed. While more than 80% of psycho-oncologists felt well informed about fatigue and reported high self-efficacy, 38% of nurses felt poorly informed and reported low self-efficacy in counseling. Knowledge gaps existed concerning the evidence of exercise training as efficient treatment for fatigue. Knowing that exercise training is effective was related to an increased frequency to recommend it to patients. Working in certified institutions was associated with greater knowledge.

CONCLUSIONS/OUTLOOK
To improve care of cancer patients suffering from fatigue, awareness and knowledge need to be enhanced among HCPs in Germany. Multidisciplinary trainings may be reasonable to promote the existing guidelines on fatigue management and their implementation into clinical practice.

PS6-09

CONDUCIVE FACTORS AND BARRIERS FOR FAVORABLE SITTING AND MOVEMENT BEHAVIOR IN DIFFERENT OFFICE ENVIRONMENTS AND WHILE WORKING AT HOME— RESULTS FROM QUALITATIVE INTERVIEWS OF THE SITFLEX STUDY

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INTRODUCTION
Long periods of sitting (> 8h/d) are associated with adverse health consequences. Employees with office jobs spend about 70% of working time sitting and working from home may increase daily sitting time. In the SITFLEX field study, we examined the influence of work environments (mobile work at home, traditional open-plan office, activity-based flex office) on sitting and movement behavior during sedentary work objectively with accelerometers and qualitatively with interviews. The qualitative study aimed to identify modifiable factors influencing sedentary behavior at work.

METHODS
From June to August 2022, guideline-supported interviews with employees (n=25) in office work were conducted to inquire about conductive factors and barriers to favorable sitting and movement behavior in the office and while working at home. The evaluation was carried out content-analytically according to Mayring based on the COM-B model of behavior (Capability, Opportunity, Motivation – Behavior).

RESULTS
Physical characteristics of the office environment such as a spacious office designs are conducive. Social incentives, such as walking to/with colleagues, also promote physical activity. These incentives are missing in the home office. A work (task) design that gives employees the chance to take time for sitting breaks is favorable. The following barriers stand in the way. Sitting at a desk for long periods of time is associated with productive work. In the case of cognitive demands, sitting is experienced as economically sensible due to the low motor demands. Concentration and high work demands reduce the physical self-awareness and sitting breaks are forgotten.

CONCLUSIONS/OUTLOOK
The results allow initial recommendations for interrupt sitting and encourage movement during work in the office and at home.

PS6-10

INTERDISZIPLINÄRES NETZWERK „SEDENTÄRE ARBEIT“

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INTRODUCTION
Immer mehr Menschen verbringen einen Großteil ihrer Arbeits- und Freizeit sedentär – sie sitzen lange, teilweise mit wenigen Unterbrechungen. Dabei kommt es zu körperlicher Unterforderung, welche Risiken u. a. für das Muskel-Skelett-, das Herz-Kreislauf-System sowie den Stoffwechsel birgt. Durch die digitale Entwicklung könnte sich dies noch verstärken.

METHODS
Zur zielgerichteten Forschung und Umsetzung der Erkenntnisse ist interdisziplinäres Zusammenarbeiten und Austauschen geplant. In einem Netzwerk sollen die Ergebnisse aus verschiedenen Fachrichtungen – Arbeitsmedizin, Epidemiologie, Sport- und Gesundheitswissenschaften – für die Gestaltung von Empfehlungen für Arbeitsplätze bzw. Beschäftigte mit vorwiegend sedentärer Arbeit zusammengebracht werden.

RESULTS
Auf Initiative der BAuA wurden einige Projekte auf einer Veranstaltung der AG Epidemiologie in der Arbeitswelt im März 2023 vorgestellt. Viele Interessierte, die im Netzwerk mitarbeiten wollen, haben sich gemeldet. Die Gründung des Netzwerks zur sedentären Arbeit ist für den Sommer 2023 geplant.

CONCLUSIONS/OUTLOOK
Zur effektiven Arbeit im Netzwerk werden weitere interessierte Partner aus Wissenschaft und Praxis gesucht.

PS6-11

CUMULATIVE NIGHT SHIFT WORK AND CARDIOVASCULAR DISEASE AMONG EMPLOYEES IN GERMANY: 5-YEAR FOLLOW-UP OF THE GUTENBERG HEALTH STUDY (GHS)

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INTRODUCTION

Cumulative night work was associated with arterial stiffness at the baseline of the Gutenberg Health Study (GHS). We aimed to examine if there was an increased five-year risk of incident cardiovascular disease (CVD) resulting from cumulative night shift work.

METHODS

In the population-based prospective GHS, we examined working participants between 35 and 64 years at baseline and after five years. A complete job history and an assessment of night shift work in the 10 years prior to baseline were obtained and categorized as low (1-220 nights≙up to 1 year), middle (221-660 nights≙1 to 3 years) and high night shift exposure (>660 nights≙3 years). Hazard ratios (HR) describing the association between night work and incident CVD (ICD-10 I21; I25.10; I46; I48; I63) were estimated using Cox proportional hazard models for competing risks.

RESULTS
At baseline, 1 092 of 8 167 working participants (45.1% women; mean age 48.4 [SD 7.6] years) performed night shift work. Altogether, 7 607 participants were analysed for CVD incidence. During the five-year follow-up, 38 competing events (non-CVD deaths) and 202 incident cardiovascular events occurred, 171 in non-night shift and 31 in night shift workers. The crude incidence rates (IR) for CVD events per 1 000 person-years were 6.36 (95% CI 4.48–9.03) for night shift workers and 5.28 (95% CI 4.55–6.13) for day workers. Survival analyses showed a temporal shift in the occurrence of CVD events of about 0.5 to 1.5 years earlier in night workers compared to day workers depending on the amount of night work. The adjusted HRs for incident CVD events were 1.18 (95% CI 0.64–2.20), 1.26 (95% CI 0.68–2.36) and 1.20 (95% CI 0.68–2.13) for employees in the low, middle and high night shift work categories, respectively.

CONCLUSIONS/OUTLOOK
Our results indicate a slight tendency that night shift work might be negatively associated with cardiovascular health. Analyses of the 10-year follow-up with more events may clarify the long-term impact.

PS6-12

SCHWEISSRAUCH: DETERMINANTEN DER EXPOSITION - EXPERIMENT VERSUS PRAXIS

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INTRODUCTION
Die IARC-Einstufung von Schweißrauch als humankanzerogen und der aktuelle Arbeitsplatzgrenzwert für alveolengängiges Mangan (MnA)von 20 µg/m³ rückt die Minderung der Exposition gegenüber Schweißrauch in den Fokus des Gesundheitsschutzes in Schweißbetrieben. Hier wird der Einfluss von Determinanten der Exposition im Experiment mit Beobachtungen an realen Arbeitsplätzen verglichen.

METHODS
Für die InterWeld-Pilotstudie wurden 40 manuelle MAG-Schweißungen eines Musterbauteils von einem Lehrschweißer unter kontrollierten Bedingungen durchgeführt. Dabei wurden die Dicke der zu schweißenden Bleche und die Absaugung an der Entstehungsstelle variiert. Die resultierenden Expositionen wurden via Gefahrstoffmessungen im Atembereich des Schweißers ermittelt und mit Messdaten von 95 vergleichbaren Arbeitsplätzen in 20 verschiedenen Betrieben verglichen (WELDOX). Die Laboranalysen wurden im IFA nach den geltenden Standards durchgeführt.

RESULTS
Wirksame Absaugung an der Entstehungsstelle führte bei InterWeld zu einer medianen Schweißrauchkonzentration von 0,35 mg/m³ im A-Staub (A). Für nicht abgesaugte Schweißungen ergab sich ein Median von 1,50 mg/m³ (A). In WELDOX errechneten sich mit und ohne Absaugung Mediane von 0,66 und 2,45 mg/m³ (A). Die Mediane für MnA unter diesen Bedingungen lagen bei 22 und 210 µg/m³ bei InterWeld und 44 und 230 µg/m³ bei WELDOX.

Für das Schweißen von dicken Blechen (≥ 10 mm) mit wirksamer Absaugung ergaben sich mediane Schweißrauchkonzentrationen von 0,63 mg/m³ bei InterWeld (N=15) und 0,88 mg/m³ bei WELDOX (N=6). Abgesaugtes Schweißen von dünnen Blechen (<10 mm) führte zu Schweißrauchkonzentrationen von 0,24 mg/m³ (InterWeld, N=14) und 0,44 mg/m³ (WELDOX, N=14).

CONCLUSIONS/OUTLOOK
Der Einfluss der Determinanten war im Experiment etwas ausgeprägter als im Produktionsalltag. Präzisere Schätzungen des Potentials der Einzelmaßnahmen unter realen Bedingungen werden von einer Interventionsstudie erwartet (InterWeld-Feldstudie).

28. SEPTEMBER 2023
9:30 AM – 10:30 AM

PS7 | POSTERSESSION – AG5 ERNÄHRUNGSEPIDEMIOLOGIE + AG17 EPIDEMIOLOGIE DES ALTERNS

PS7-01

FOODBORNE DISEASE OUTBREAKS IN BAMAKO: AN EPIDEMIOLOGICAL STUDY

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INTRODUCTION
Foodborne diseases are a serious public health problem, both in developed and developing countries. The aim of this study is to determine the main characteristics of foo dborne disease outbreaks in Bamako, capital of Mali.

METHODS
This is a retrospective analysis of foodborne disease outbreaks, reported in two University Hospitals (CHU) and six Health Reference Centers (HRC) in Bamako.

RESULTS
During the study period, there were 255 outbreaks of food poisoning affecting 1,107 persons in Bamako. More than half of the cases (51.8%) were males with a male-female ratio of 1.1 and nearly 30% of the cases were children under the age of 6 years. The average age of the patients was 15 years. The most commonly implicated food vehicles in outbreaks were seeds, cooked rice and smoked fish. The median delay in presentation to hospital was 2.5 hours (range 1-15 hours).According to the results, the poisoning symptoms were varied, depending on the type of contaminated food, the type and degree of contamination, the ingested quantity and the delay before treatment. The average length of stay in hospital was 9 hours, with a range of 1 hour to 2 days. Among the cases for whom the outcome was known, a 56-year-old man died.

CONCLUSIONS/OUTLOOK
Foodborne disease will continue to be a matter of major concern around the world, despite some important successes at reducing the levels of certain pathogens in foods.

PS7-02

DEVELOPMENT OF A NUTRITIONAL SCORE ASSESSING ADHERENCE THE MEDITERRANEAN DIET AND ITS ASSOCIATION WITH UNDISCOVERED HYPERTENSION – A STUDY IN THE GENERAL POPULATION IN GERMANY

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INTRODUCTION

Many diseases, e.g. cardiovascular are related to negative lifestyle choices, i.e. increasing intake of energy-dense foods and decreasing physical activity. This is increasing globally, including Germany, where some 24% of the adult population is obese. Hypertension is associated with lifestyle and can be a risk factor for many diseases. We therefore wanted to quantify food intake in the German population and validate this by examining the association with hypertension.

METHODS

We used data from a food frequency questionnaire from the LIFE-Adult study to build a Mediterranean Diet-based two-part food score (-15 to 15 points) for unhealthy and healthy food. Using an ordinal regression we analysed the association between food intake and hypertension (known, none, newly discovered).

RESULTS

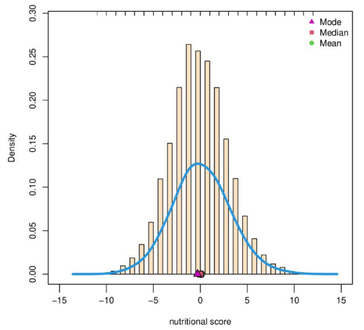
The median food score was zero: females (n=5124) had 2 points more than males (n=4669) (-1 v 1). Adjusting for sex, age, smoking and alcohol intake, a higher unhealthy food score meant a higher chance of having undiscovered hypertension (effect:0.036, p<0.001), while a higher healthy food score and the total score lowered the chance (effect: -0.007 & -0.025 , p=0.556 & p>0.001 respectively).
In particular, we saw that participants previously diagnosed with hypertension consumed less unhealthy food and those with newly discovered hypertenstion consumed less healthy food.

CONCLUSIONS/OUTLOOK

Our food score reflects the non- / adherence to a Mediterranean diet based on the Mediterranean diet adherence screener. The results show the (mixed) nutritional habits in Germany, i.e. food consumption is unlike the Mediterranean Diet. We also saw that food intake affects hypertension.

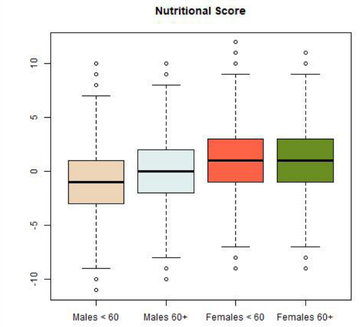
The observed effects, however, seem small and need to be further analysed regarding their relevance in health outcomes. This could and should be done longitudinally.

This method might be suitable for determining nutritional habits of the population in Germany. The score could be used as a co-factor in analysing health outcomes.



food score (total)

The distribution of the food score for the whole study population.



Age-sex grouped score distribution

Boxplot of total food score distribution, groupped by age and sex.

PS7-03

ASSOCIATION BETWEEN FAT-FREE MASS AND MORTALITY IN INITIALLY HEALTHY ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION
Body composition has come to be an essential factor in evaluating an individual's health status, and current research revolves around its contribution to the development of diseases. The aim of the present study was to examine the association between fat-free mass and all-cause mortality in initially healthy adults.

METHODS
We conducted a systematic review and meta-analysis and searched relevant databases for eligible publications. We calculated summary risk ratios (RR) and 95% confidence intervals (CI) using a random effects model, and we assessed publication bias and heterogeneity. We also determined the E-value to address potential unmeasured confounding.

RESULTS
Based on 35 studies and comparing the lowest vs. highest levels of fat-free mass, we found significantly increased mortality risk for individuals with low levels of fat-free mass (RR: 1.30, 95% CI: 1.19, 1.43). Sub-group analyses confirmed the association between low fat-free mass and increased mortality risk. An unmeasured confounder would need to be associated with fat-free mass and mortality with risk ratio of at least 1.92 to account for the observed effect size.

CONCLUSIONS/OUTLOOK
Low versus high levels of fat-free mass showed significantly increased mortality risk. Increased fat-free mass may be a decisive factor for maintaining a healthy metabolic profile and reducing all-cause mortality risk.

PS7-05

ADHERENCE TO THE DIETARY APPROACHES TO STOP HYPERTENSION (DASH) IN ASSOCIATION WITH HEPATIC, VISCERAL AND SUBCUTANEOUS FAT CONTENT IN PERSONS WITH RECENT-ONSET DIABETES

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INTRODUCTION

The Dietary Approaches to Stop Hypertension (DASH) has been shown to improve not only blood pressure, but also body weight and non-alcoholic fatty liver disease (NAFLD). Weight control is a cornerstone of diabetes management, as obesity and NAFLD are additional risk factors for complications. Thus, we aimed to investigate the associations of the DASH diet with liver fat (LF) content and adipose tissue distribution in persons with recent-onset diabetes and to examine whether changes in diet associate with changes in these outcomes.

METHODS

A total of 329 participants with recent-onset type 1 (T1D) (mean age 37 y) and type 2 (T2D) (mean age 52 y) diabetes of the German Diabetes Study (GDS) were included in the cross-sectional analysis and 83 of them in the analysis of changes during 5-year follow-up. A DASH score (range 8-40 points) was calculated based on validated food frequency questionnaires. Associations between the DASH score and MR spectroscopy-determined LF and MR imaging-determined visceral (VAT) and subcutaneous tissue (SAT) content were investigated using multivariable linear regression models by diabetes type. The proportion mediated by change in BMI for these associations was determined using mediation analysis.

RESULTS

The mean DASH score was 24 points in T1D and T2D. In T2D a higher baseline DASH score was associated with lower LF content [per 1 point: ß -0.3% (95%CI -0.6; -0.1)]. No clear associations were observed for VAT and SAT content. One point increase in the DASH score over 5 years was associated with a decrease in LF [-0.4% (-0.9; 0.1)], VAT [-100g (-175; -26)] and SAT content [-197g (-353; -41)] in T2D. The proportion mediated by BMI change on the association with LF, VAT and SAT content was 42% (95%CI 14; 68), 40% (26; 55) and 49% (18; 79). No precise estimated associations were observed in T1D.

CONCLUSIONS/OUTLOOK

A shift to a DASH diet is associated with a decrease in LF, VAT and SAT content in T2D, which is partly explained by changes in BMI.

PS7-06

RAMADAN DURING PREGNANCY AND OFFSPRING HEALTH: AN INTERDISCIPLINARY SYSTEMATIC REVIEW

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INTRODUCTION

Health effects of Ramadan during pregnancy on the offspring have been studied from two mostly separated strands of literature. One compares offspring of women who chose vs didn't choose to fast. The other treats Ramadan as a natural experiment, using an ITT approach classifying Muslims as potentially vs certainly not exposed based on their birthdates relative to Ramadan. The non-ITT studies usually focus on birth outcomes. The ITT-studies' design enables them to also study health in later life. Previous literature reviews ignored ITT-studies, potentially due to their non-standard methodology that was originally explored by econometricians. No literature review has yet integrated both strands of research.

METHODS

Systematic literature search using PubMed, EconLit and Web of Science supplemented by a Google Scholar search yielded 35 eligible studies. Data were extracted and quality assessed using a checklist.

RESULTS

Non-ITT studies struggled to sufficiently deal with bias due to self-selection into treatment. Most were classified as having a high risk of confounding, with unknown direction of bias. ITT-studies are subject to a bias toward zero, but associations they uncover are likely causal and their usage of large datasets ensured a high statistical power. Studies passing the quality threshold found no effects on birth outcomes such as birthweight. However, prenatally Ramadan exposed had higher child mortality rates and worse adult health outcomes along several dimensions. These tend to increase in size when the exposed get older. This pattern is congruent with fetal programming theory.

CONCLUSIONS/OUTLOOK

Medical advisories, guidelines and previous literature reviews mostly concentrate on medical studies using a traditional non-ITT approach. These focused on birth outcomes, on which neither ITT-, nor non-ITT studies found effects. Consequently, adverse long-run effects are often overlooked and pregnant Muslims remain not fully informed of potential health impacts of their Ramadan fasting decisions.

PS7-07

NUTRIDIARY: EVALUIERUNG EINES SMARTPHONEBASIERTEN WIEGE-ERNÄHRUNGSPROTOKOLLS DURCH EXPERTEN UND LAIEN

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INTRODUCTION
Die übliche Ernährung ist meist die interessierende Exposition in ernährungsepidemiologischen Studien. Zur Schätzung dieser wird eine wiederholte Anwendung von Kurzzeit-Ernährungserhebungsinstrumenten empfohlen. Für diesen Zweck wurde NutriDiary entwickelt, eine App zum Führen von Wiege-Ernährungsprotokollen (WEP) in der deutschen Bevölkerung. Nutzer können in der zugrundeliegenden Datenbank, die 139.000 Markenprodukte und generische Lebensmittel enthält, per Texteingabe oder Barcode-Scan nach Lebensmitteln suchen. Um die Nutzerfreundlichkeit von NutriDiary zu testen, wurde eine Evaluierungsstudie durchgeführt.

METHODS
Die Studienpopulation umfasste 49 Teilnehmende (86 % weiblich, 55 % Expert*innen) im Alter von 18 bis 56 Jahren. Mit Hilfe von NutriDiary führten die Teilnehmenden ein 1-Tages-WEP und gaben am Folgetag eine vordefinierte Dummy-Mahlzeit (n=17 Lebensmittel) ein. Anschließend wurde ein Evaluierungsfragebogen beantwortet, aus dem der System Usability Scale Score (SUS Score, 0-100) berechnet wurde. Außerdem wurde eine Backward-Selection (PROC REG in SAS®) durchgeführt, um potenzielle Prädiktoren für den SUS-Score zu identifizieren (Alter, Geschlecht, Status (Expert*in/Laie), Betriebssystem (iOS/Android)).

RESULTS
Die mittlere Eingabezeit eines individuellen WEP betrug 42±21 min (1,7±0,6 min/Item) und die Eingabezeit der Dummy-Mahlzeit 15,4±5,3 min (0,9±0,3 min/Item). Die Anzahl der protokollierten Lebensmittel innerhalb des individuellen WEP lag zwischen 8 bis 46 Items. Der Median des SUS-Werts lag bei 82,5 (Q1-Q3: 70-88) und deutet auf eine gute Nutzerfreundlichkeit hin. Laie zu sein war das einzige Merkmal, das als potenzieller Prädiktor für einen höheren SUS-Wert identifiziert wurde (p=0,02).

CONCLUSIONS/OUTLOOK
Die Evaluierung zeigte eine gute Nutzerfreundlichkeit der NutriDiary App und unterstreicht ihr Potential für den Einsatz in großen Kohortenstudien in Deutschland.

PS7-08

MORTALITY AFTER HIP FRACTURE – CAN IT BE REDUCED BY THE CERTIFICATION TO A SPECIAL ORTHOGERIATRIC CENTER?

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INTRODUCTION
The mortality in patients after hip fracture is high, especially in men and in older persons. The presented analyses aimed to compare the mortality in geriatric patients after hip fracture in hospitals in Germany before, during, and after the certification to a special orthogeriatric center (ATZ).

METHODS
Claims data from a German health insurance company included N=22,935 persons with hip fracture aged 80 years or older who were treated in N=151 German ATZ-hospitals between 2014 and 2018. Adjusted hazard ratios (aHR) were applied to compare mortality before (PRE), during, and after (POST) the ATZ-certification.

RESULTS
Mortality totals up to 11.0% at 30 days after hip fracture in patients aged 80 years or older, 16.7% at 60 days, 20.3% at 90 days, and 26.8% at 180 days. Overall, the mortality differs only slightly in POST-ATZ compared to PRE-ATZ. However, a slightly, statistically not-significantly reduced short-term mortality (30 or 60 days after fracture) in POST-ATZ could be observed (aHR 0.96 to 0.97). The protective effect of the ATZ-treatment was stronger in men and in older persons with a statistically significant reduction in the 90-day mortality of 30% in men older than 90 years in POST-ATZ. In sensitivity analyses, similar results occurred when N=117.452 patients of control clinics (without certification until 2021-12-31) were also considered as PRE-ATZ patients.

CONCLUSIONS/OUTLOOK
Certification to a specific orthogeriatric center may reduce mortality, particularly in the most vulnerable subgroups like men and very old persons.

PS7-09

PREVALENCE OF UNDERWEIGHT, OVERWEIGHT AND OBESITY IN PEOPLE AGED 65 AND OLDER IN THE STUDY GESUNDHEIT 65+

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INTRODUCTION

The population aged 65 years or older has increased in Germany. With advancing age, the risk of limitations and diseases increase. Weight status, such as underweight, overweight, or obesity, are associated with several disorders or chronic diseases. This analysis is to describe the prevalence of underweight, overweight and obesity among people aged 65 years and older in Germany.

METHODS

'Gesundheit 65+' is a population-based longitudinal epidemiological study on the health situation of people aged 65 years and older in Germany. Based on two-stage stratified random sampling from 128 local population registries 3,694 individuals participated in the baseline survey (response 30.9%) between June 2021 and April 2022 (47.9% women, mean age 78.8 years). Self-reported body weight and height were available from the baseline survey, from which the body mass index (BMI, kg/m²) was calculated and categorized into underweight (<18.5 kg/m²), normal weight (18.5–25.0 kg/m²), overweight (incl. obesity ≥25kg/m²) and obesity (≥30kg/m²). Analyses were weighted and prevalences with 95% confidence intervals (CI) are presented, stratified by sex and age-group (65-79, 80 + years).

RESULTS

A total of 1.1% (CI 0.6–1.8) of the respondents are affected by underweight, 63.2% (CI 60.4–65.9) by overweight (incl. obesity), and 22.3% (CI 20.3–24.5) by obesity. Underweight is more prevalent among women compared to men. While more men than women are overweight there are no major sex differences in obesity prevalence. Obesity is more prevalent in the younger age group (24.2%, CI 21.5–27.1) than in the older age group (18.4%, CI 16.2–20.7).

CONCLUSIONS/OUTLOOK

According to self-reported data, a high proportion of participants in 'Gesundheit 65+' is affected by overweight or obesity. Obesity and underweight in old age can be associated with numerous negative and serious health consequences. Intervention measures should aim at a balanced diet and age-appropriate exercise physical activity.

PS7-10

MENTAL HEALTH ASPECTS IN OLDER AGE: RESULTS OF THE POPULATION-BASED STUDY OF OLDER PEOPLE IN GERMANY (GESUNDHEIT 65+)

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INTRODUCTION

The health of the aging population is increasingly in focus due to demographic change. In addition to physical limitations, mental health is of great importance as it contributes to coping with the demands of aging. Therefore, it is necessary to identify specific intervention needs to maintain autonomy in old age.

METHODS

'Gesundheit 65+' is a population-based longitudinal epidemiological study on the health situation of people aged 65 and older in Germany. Based on a two-stage stratified random sampling from 128 local population registries, 3,694 individuals participated in the baseline survey between 06/2021 and 04/2022 (47.9% women, mean age 78.8 years). Weighted prevalences for self-
reported depression (12-month prevalence), depressive symptoms by PHQ-2, loneliness by R-UCLA, low social support by OSS-3, and general life satisfaction by age group (65-79, 80+ years), sex, and education are reported.

RESULTS

Depressive symptoms are shown more frequently by women than men (15.6% CI 13.3-18.2 vs. 11.1% CI 9.1-13.3), and the older age group is more frequently affected in both sexes. Men with higher education are significantly less likely to show depressive symptoms. Women are more likely to suffer from depression than men (13.6% CI 11.6-15.7 vs. 7.7% CI 6.1-9.6). Women report more often loneliness than men (22.3% CI 19.7-25.2 vs. 15.2% CI 12.8-18.0), with older women being significantly more often lonely than younger women (29.0 vs. 19.4%). Low social support most often affects women with low education (23.4%). Younger men and men with higher education more often show higher overall satisfaction with life than older men and those with lower education.

CONCLUSIONS/OUTLOOK

A need for intervention was predominantly evident for women, the very old, or those with low education. Further analyses based on the follow-ups over one year will show how mental health has changed.

PS7-11

PHYSICAL ACTIVITY IN PARTICIPANTS OF THE BERLIN AGING STUDY II (BASE-II): COMPARISON OF ACCELEROMETER-BASED AND SELF-REPORTED MEASURES

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INTRODUCTION
Lack of physical activity (PA) was shown to be responsible for a substantial proportion of premature deaths and non-communicable diseases. Estimations of an individual's PA often rely on self-reports but can also be obtained more objectively through accelerometers.

METHODS
In this study, we analyzed participants of the Berlin Aging Study II (BASE-II) that were followed-up as part of the GendAge study. Information on PA was collected with Actigraph's GT3X accelerometer and compared with a questionnaire-based PA measure (Rapid Assessment of Physical Activity, RAPA).

RESULTS
After exclusion of participants who did not fulfill our wear-time-based inclusion criteria, 760 participants were available for analysis. Mean age of our study population was 75.6 years (SD = 3.8 years, age range: 66.0 – 94.1 years) and 53% of the included participants were women. Differences in accelerometer-based PA levels between RAPA groups were statistically significant except for energy expenditure. Although posthoc analyses indicated generally low agreement between each RAPA group and device-based measures, participants who reported being "rarely or never active" at the first RAPA question had statistically significant lower activity levels in Vector Magnitude, step counts, and cut-off defined moderate physical activity (t-test, $p<0.05$).

To further evaluate these measures, we subsequently examined their relation to laboratory variables known to be associated with PA. A weak correlation was found between device-based PA measures and Total Cholesterol, High Density Lipoprotein-Cholesterol, Low Density Lipoprotein-Cholesterol, Triglycerides, fasting glucose and glycated hemoglobin A1c (Pearson's $r \leq 0.25$).

CONCLUSIONS/OUTLOOK
A limited degree of agreement between subjective and device-based PA measures was found in BASE-II participants. However, when no more detailed information is available, the first RAPA question could potentially be a valuable compromise.

28. SEPTEMBER 2023
9:30 AM – 10:30 AM

PS8 | POSTERSESSION – FREIE UND FACHÜBERGREIFENDE THEMEN

PS8-01

NATIONAL RESEARCH DATA INFRASTRUCTURE FOR THE RESEARCH OF MICROBIOTA (NFDI4MICROBIOTA) PROVIDING ACCESS TO DATA, INFRASTRUCTURE, TOOLS AND METHODOLOGIES

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The logo of the NFDI4Microbiota consortium

INTRODUCTION

Next-generation sequencing and multi-omics help to explore the link between the microbiome and epidemiology. The created wealth of data is not yet enough used and re-used. The NFDI (National Research Data Infrastructure) wants to change this by developing a comprehensive research data management. NFDI4Microbiota aims to support the microbiological community by giving access to data, analysis services, training and standards.

METHODS

The NFDI4Microbiota consortium builds and provides a computational infrastructure and analytical workflows required to store, access, process, and interpret various microbiome-related data types. NFDI4Microbiota works on developing and implementing software and standardized workflows for users to analyse their datasets (i.e. for quality control, data processing, statistical analyses, and visualization).

The German microbial research will be boosted by training and community building activities, and by creating a cloud-based system that will make the storage, integration, and analysis of microbial data, especially omics data, consistent, reproducible, and accessible. So, NFDI4Microbiota promotes the FAIR principles (Findable, Accessible, Interoperable and Re-usable) and Open Science.

RESULTS

NFDI4Microbiota consists of ten partner institutions, is backed by five professional societies and more than 50 participants. Several workshops and training events for the community have already taken place and more will follow. An ambassador program connects the consortia with the participants, thereby helping to identify the needs of their local community. Technical solutions are developed, tested and refined in several use cases from different fields of microbiology. All relevant information and services are made available via the web portal.

CONCLUSIONS/OUTLOOK

Producers and users of data will benefit from FAIR data being more likely to be cited and integrated into a wider microbial inquiry. The current data parasitism would shift to a future data mutualism benefiting all partners.

PS8-02

ASSOCIATION OF URINE AND PLASMA METABOLITES WITH KIDNEY FAILURE AND DEATH IN A CHRONIC KIDNEY DISEASE COHORT

Steinbrenner I.[1], Schultheiss U.[1,2], Bächle H.[1,3], Cheng Y.[1,4], Stockmann H.[5], Gronwald W.[6], Oefner P.[6], Schaeffner E.[7], Eckardt K.-U.[8,9], Köttgen A.[1], **Sekula P.**[1],
On behalf of the GCKD Investigators

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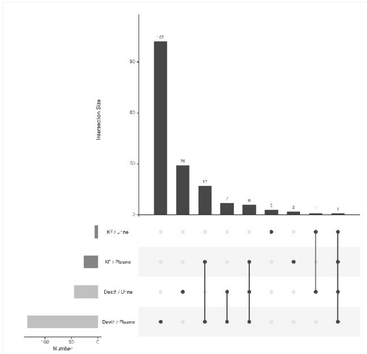

Figure: Intersection plot for the 168 metabolites associated in at least one of the four analyses

INTRODUCTION

Potential biomarker candidates that enable better identification of persons with chronic kidney disease (CKD) at higher risk for disease progression and adverse events are needed. Using urine and plasma metabolite measurements, we aimed to identify metabolites associated with kidney failure (KF) or death, and to compare results with previously reported results and across matrices.

METHODS

In this metabolome-wide association study, data and metabolite measurements of persons with CKD from the German Chronic Kidney Disease (GCKD) study were utilized. The primary endpoint was kidney failure (KF), the secondary endpoint was death of any cause. After a median of 6.5 years of follow-up, 500 KF events and 680 deaths were recorded.Based on a discovery-replication design (2:1), time-to-event analyses using multivariable Cox regression models were conducted to identify metabolites associated with endpoints.

RESULTS

The screen of 1,513 urine and 1,416 plasma metabolites measured at baseline revealed 168 unique metabolites significantly associated with KF (N=30) or death (N=163). For KF, the most harmful association was observed for plasma hydroxyasparagine (hazard ratio [HR]: 1.95, 95% confidence interval [CI]: 1.68-2.25). Across matrices and endpoints, 32 metabolites were identified more than once, but only the unnamed metabolite X-12117 measured in plasma and urine was identified for KF and death (Figure). Among the 30 metabolites associated with KF, 14 metabolites were previously reported and confirmed (e.g., C-glycosyltryptophan), while the remaining 16 were not reported before, including 8 named metabolites, e.g., plasma mannonate (xenobiotic; HR: 1.55, 95%CI: 1.41-1.71).

CONCLUSIONS/OUTLOOK

This comprehensive screen on associations between metabolites and KF or death in persons with CKD confirmed previously reported associations but also highlights several findings not known before warranting further research, such as the ability of metabolite levels predicting KF.

PS8-03

FREQUENCIES, COMORBIDITIES AND QUALITY OF LIFE OF ATOPIC DERMATITIS AND PSORIASIS IN DIFFERENT REGIONS OF GERMANY - RESULTS OF THE GERMAN NATIONAL COHORT (NAKO)

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INTRODUCTION
Atopic dermatitis (AD) and psoriasis are the two most common chronic inflammatory skin diseases in western countries. Both are often experienced as stigmatizing and can be accompanied by comorbidities, resulting in a marked reduction in quality of life. To date, there are hardly any data on the epidemiology of AD and psoriasis in Germany with large case numbers from different regions.

METHODS
The NAKO has been inviting participants aged 20 to 69 years in 18 study centers throughout Germany since 2014. We analyzed the data of 100.000 individuals from the baseline investigation from 2014 to 2019. Skin diseases were ascertained by a personal, standardized, computer-assisted interview.

RESULTS
We observed an overall frequency of 7.6% (95% CI 7.4-7.8%) for AD and 6.1% (95% CI 6.0-6.3%) for psoriasis. While the frequency of AD was higher in women (9.3% vs. 5.6% in men), frequencies were similar for psoriasis across sexes. Age-stratified analyses showed a decreasing frequency of AD with increasing age, while the frequency of psoriasis increased with age, with a peak between 60 and 69 years. Previously reported comorbidities such as depression, asthma, herpes zoster and anxiety were observed in more than 10% of AD patients. Among psoriasis patients, hypertension, dyslipidemia, depression, diabetes and psoriatic arthritis were the most common comorbidities, with frequencies between 9-35%.

CONCLUSIONS/OUTLOOK
This analysis aims to better represent the frequencies of AD and psoriasis in Germany. Compared to previous studies in Germany, we observed an increased frequency in AD, while that for psoriasis remained the same. To the best of our knowledge, we are the first to report an estimate of the lifetime prevalence of psoriasis in Germany. We are currently investigating associations of AD with allergic diseases and will be comparing sociodemographic parameters and quality of life between AD and psoriaris patients and healthy participants.

PS8-04

DO PRENATAL AND POSTNATAL CONDITIONS INTERACT IN SHAPING COGNITIVE HEALTH? EARLY-LIFE NUTRITION SHOCKS AND COGNITIVE PERFORMANCE AMONG CHILDREN IN RURAL INDIA

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INTRODUCTION
Organisms adapt to prenatal conditions in a way that prepares for similar postnatal circumstances. Fetal programming research has identified associations between various prenatal shocks and numerous health outcomes, yet the role of the postnatal environment for effect manifestation remains understudied. This is the first study to investigate the interplay of pre- and postnatal environmental conditions for cognitive health among school-aged children. We focus on nutrition, a cognitive health risk factor in both pre- and postnatal life.

METHODS
This study uses data from the 2007-2018 Annual Status of Education Report (ASER) on 5-16-year-olds from rural India (N=4,589,590) linked to University of Delaware rainfall data. As rural India heavily depends on rainfed agriculture, we exploit droughts – i.e. rainfall below the 20th percentile of the district-specific mean - as a quasi-experiment for nutritional shocks. Drought exposure is assigned based on birth year. We first test if prenatal drought exposure is associated with test scores, and then interact prenatal exposure with exposure in the first years of life, while controlling for household, district, year of birth, and year of interview.

RESULTS
Our results show that prenatal drought exposure is associated with lower scores in math and reading, as well as a lower probability of being on track in school, particularly among 11-16 year-olds. The interaction analyses on this age group suggest that in the event of a postnatal drought, the negative effects on test scores in adolescence are concentrated among children who had not also prenatally experienced a drought. The effects on being on track in school did not vary by prenatal exposure status.

CONCLUSIONS/OUTLOOK
Prenatal exposure to suboptimal conditions might mitigate the effects of similar shocks in early postnatal life for cognitive health. Future research on interactions between such pre- and postnatal factors is needed, e.g. to gain insights for resilience-building in face of the climate crisis.

PS8-05

SARS-COV-2-ANTIKÖRPERPRÄVALENZ IN EINER BEVÖLKERUNGSBEZOGENEN KOHORTE (HCHS) – ZEITLICHER VERLAUF UND DUNKELZIFFER

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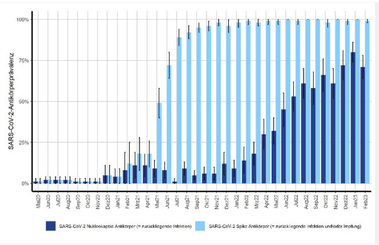

Zeitlicher Verlauf der SARS-CoV-2-Antikörper-Prävalenz in der Hamburg City Health Study

Dargestellt sind Prävalenzen (inkl. 95%-Konfidenzintervallen) der SARS-CoV-2 Nukleokapsid Antikörper hinweisend auf eine zurückliegende SARS-CoV-2 Infektion sowie der SARS-CoV-2 Spike Antikörper hinweisend auf eine zurückliegende SARS-CoV-2 Infektion und/oder Impfung im Beobachtungszeitraum 05/2020 - 02/2023.

INTRODUCTION
Ziel der Analysen war es, die SARS-CoV-2-Antikörperprävalenz sowie die Dunkelziffer der SARS-CoV-2-Infektion im zeitlichen Verlauf und in Bezug auf soziodemographische Merkmale darzustellen.

METHODS
Die Hamburg City Health Study (HCHS) ist eine bevölkerungsbasierte Kohortenstudie zur Gewinnung von Erkenntnissen über Volkskrankheiten auf Basis einer Zufallsstichprobe der Hamburger Bevölkerung (Alter 45 - 74 Jahre). Seit Mai 2020 wird bei den Studienteilnehmer:innen (TN) routinemässig eine SARS-CoV-2-Antikörpertestung durchgeführt.

RESULTS
Im Zeitraum von Mai 2020 bis Februar 2023 wurde bei 4.214 TN eine SARS-CoV-2-Antikörpertestung durchgeführt. Bei 920 TN (22 %) konnte durch den Nachweis von Antikörpern gegen das Nukleokapsid von SARS-CoV-2 eine zurückliegende SARS-CoV-2-Infektion festgestellt werden, wobei die Prävalenz von 1 % [0 %; 3 %] im Mai 2020 auf 71 % [64 %; 78 %] im Februar 2023 anstieg. Antikörper gegen das SARS-CoV-2 Spike-Oberflächenprotein konnten bei 2.664 (63 %) TN nachgewiesen werden. Die Prävalenz stieg von 1 % [0 %; 3 %] auf 99 % [98 %; 100 %] im Beobachtungszeitraum.

Für 3.754 TN lagen Selbstangaben zum Infektionsstatus vor. 638 TN war ihre Infektion bekannt und 166 TN unbekannt. Die Prävalenz einer unbekannten Infektion lag im Mai 2020 bei 1 % [0 %; 3 %] und im Februar 2023 bei 9 % [5 %; 13 %]. Bei jüngeren (19 %), erwerbstätigen (18 %) und nicht alleinstehenden (22 %) TN war die Prävalenz einer bekannten Infektion höher als entsprechend bei älteren (13 %), nicht erwerbstätigen (12 %) und alleinstehenden (14 %) TN. Die Prävalenz der unbekannten Infektionen unterschied sich nicht nach soziodemographischen Merkmalen.

CONCLUSIONS/OUTLOOK
Anfang 2023 konnte bei mehr als zwei Drittel der TN eine zurückliegende SARS-CoV-2-Infektion sowie bei annähernd allen TN ein Immunschutz durch zurückliegende Impfung und/oder Infektion nachgewiesen werden. Im Gegensatz zur Prävalenz einer bekannten Infektion unterscheidet sich die Dunkelziffer nicht nach soziodemographischen Merkmalen.

PS8-06

PSYCHOSOZIALE GESUNDHEIT UND LEBENSQUALITÄT VOR UND WÄHREND DER SARS-COV-2 PANDEMIE – ERGEBNISSE EINER BEVÖLKERUNGSBEZOGENEN KOHORTENSTUDIE (HCHS)

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INTRODUCTION
Neben den Folgen einer Infektion kann die Covid-19 Pandemie auch Auswirkungen auf die psychosoziale Gesundheit haben. Diese wurden in der folgenden Analyse anhand validierter Skalen untersucht.

METHODS
Die populationsbasierte Hamburg City Health Study (HCHS) dient der Untersuchung von Volkskrankheiten und rekrutiert seit 2016. Von April 2020 bis August 2022 wurden 3346 Teilnehmer:innen (TN) als Pandemiegruppe rekrutiert und 1:1 zu historischen Kontrollen nach Alter, Geschlecht und Bildung gematcht. Bei diesen TN wurden PHQ-9, SF-8, GAD-7 und EQ-5D verglichen.

RESULTS
Deskriptiv war der Anteil der TN mit Verdacht auf eine leichte Depression (PHQ-9 >10) in der Pandemiegruppe erhöht (Männer 4,6% vs. 5,8%; Frauen 8,0% vs. 9,6%), gleiches galt für den Anteil möglicher Angststörungen (GAD-7 >10; Männer 3,1% vs. 3,4%; Frauen 4,4% vs. 5,6%). Die Lebensqualität (EQ-5D) war in beiden Gruppen vergleichbar. Die physische und mentale gesundheitsbezogene Lebensqualität (SF-8; PCS und MCS) war in der Pandemiegruppe leicht gesenkt. In linearen mixed-effects Modellen war der PHQ-9 für die Pandemiegruppe signifikant erhöht (ß 0.17 [0,00; 0,35], p=0,046). Sowohl der EQ-5D (ß -0.01 [-0,02; -0,01], p<0,001), als auch die PCS (ß -0,36 [-0,71, -0,01], p=0,044) und MCS (ß -0,85 (-1,25; -0,44] p<0,001) des SF-8 blieben in der Pandemiegruppe signifikant erniedrigt. Für den GAD-7 zeigte sich kein Unterschied. Logistische Regressionen ergaben ein OR von 1,56 ([1,18; 2,06], p=0,002) für einen PHQ-9 >10, sowie ein OR von 1,55 [1,55; 1,55], p<0,001) für einen GAD-7 >10 in der Pandemiegruppe. Unterschiede im Zeitverlauf waren bei keiner der Skalen zu erkennen.

CONCLUSIONS/OUTLOOK
Die Unterschiede in den Skalen waren statistisch signifikant, aber marginal. Dennoch zeigten sich erhöhte Wahrscheinlichkeiten sowohl für den Verdacht auf eine leichte Depression, als auch für den Anteil möglicher Angststörungen in der Pandemiegruppe gegenüber gematchten Kontrollen.

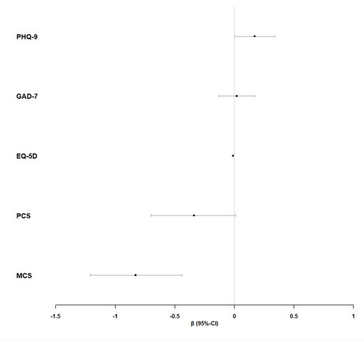

Abbildung 1: Psychosoziale Skalen seit Beginn der Pandemie im Vergleich zu gematchten Kontrollen vor

Ergebnisse aus linearen mixed-effects Modellen mit dem Matching-Cluster als fixem Effekt. EQ-5D = European Quality of Life 5 Dimensions, GAD-7 = Generalizied Anxiety Disorder Scale-7, MCS = Mental Component Summary (SF-8), PCS = Physical Component Summary (SF-8), PHQ-9 = Patient Health Questionnaire 9, CI = Confidence Interval.

PS8-07

EINFLUSS DER COVID-19 PANDEMIE AUF DIE INANSPRUCHNAHME MEDIZINISCHER VERSORGUNGSLEISTUNGEN DURCH PERSONEN MIT CHRONISCHEN ERKRANKUNGEN

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INTRODUCTION
Die COVID-19-Pandemie wirkte sich auch auf die medizinische Versorgung anderer Erkrankungen aus. Untersucht wurde, inwieweit Personen mit chronischen Vorerkrankungen vom Aussetzen medizinischer Versorgungsleistungen, differenziert nach patienten- und anbieterseitigem Auslöser, betroffen waren.

METHODS
Es wurde eine Querschnittstudie auf Datenbasis der laufenden Kohortenstudie Hamburg City Health Study (HCHS) durchgeführt, in welche mit Beginn der Pandemie ein COVID-Modul u.a. zur Erfassung der Inanspruchnahme von Versorgungsleistungen integriert wurde. Die Studienpopulation bestand aus allen HCHS-Teilnehmer:innen (TN) (Bevölkerungsstichprobe, 45 - 74 Jahre) von 4/2020 bis 11/2021. Als Grunderkrankungen wurden u.a. Herz-Kreislauf-, Nieren- und Lungenerkrankungen, Krebs und Diabetes mellitus betrachtet. Die Analysen erfolgten deskriptiv und multivariat in logistischen Regressionen.

RESULTS
Von den 2.566 Teilnehmer:innen wiesen 43,4 % mindestens eine Vorerkrankung auf. 21,4 % der Personen mit Vorerkrankungen hatten mindestens eine Versorgungsleistung ausgesetzt oder eine Terminabsage erhalten. 15,4 % gaben an, von sich aus auf einen Arztbesuch verzichtet zu haben. Fachärztliche Leistungen (Anteil 43,8 %) entfielen häufiger als hausärztliche (16,6 %). Nach Adjustierung für Alter, Geschlecht und Bildung zeigte sich kein Zusammenhang zwischen einer Vorerkrankung und der patientenseitigen Nicht-Inanspruchnahme, während Lungen- (OR 1,80; $p < 0,005$) und Krebserkrankungen (OR 2,33; $p < 0,001$) unabhängige Risikofaktoren für ärztliche Terminabsagen waren. 42,2 % der patient:innenseitigen Absagen erfolgten aus Angst vor einer Ansteckung mit SARS-CoV-2.

CONCLUSIONS/OUTLOOK
Jede:r fünfte Patient:in mit einer chronischen Erkrankung war in der Pandemie vom Aussetzen medizinischer Leistungen betroffen. Gesundheitspolitik und Medien stehen vor der Herausforderung, Ängste in der Bevölkerung vor einer Infektion so zu managen, dass notwendige Versorgungsleistungen dadurch nicht vermieden werden.

PS8-08

INANSPRUCHNAHME MEDIZINISCHER REHABILITATIONSMASSNAHMEN DURCH ÄLTERE BESCHÄFTIGTE – ERGEBNISSE AUS DER 4. WELLE DER LIDA-STUDIE

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INTRODUCTION
Die medizinische Rehabilitation gewinnt hierzulande durch die steigende Zahl älterer Beschäftigter im Zuge des demographischen Wandels an Bedeutung für den Erwerbsverbleib. Hier wird die Inanspruchnahme medizinischer Rehabilitationsmaßnahmen durch ältere Beschäftigte und deren Einflussgrößen untersucht.

METHODS
Daten von 5525 sozialversicherten Beschäftigten der Jahrgänge 1959, 1965 und 1971 aus der 4. Welle der lidA(leben in der Arbeit)-Studie 2022/2023 wurden untersucht. Mittels multipler logistischer Regression einschließlich Interaktionstestung wurde der Einfluss von Alter, Geschlecht, Bildung, Migrationshintergrund, subjektiver Gesundheit und Arbeitsstress (Modell beruflicher Gratifikationskrisen) auf die medizinische Reha-Inanspruchnahme in den letzten vier Jahren analysiert.

RESULTS
Rund jeder fünfte ältere Beschäftigte hatte medizinische Rehabilitationsmaßnahmen in Anspruch genommen. Die Chance der Inanspruchnahme stieg mit zunehmendem Alter und abnehmendem Bildungsstand. Signifikante Einflussgrößen im multiplen logistischen Regressionsmodell waren zudem ein schlechter subjektiver Gesundheitszustand, als stärkster Prädiktor, und hoher Arbeitsstress. Signifikante Interaktionen zwischen Bildung und Geschlecht, Alter, Migrationshintergrund, Gesundheit oder Arbeitsstress fanden sich nicht.

CONCLUSIONS/OUTLOOK
Während die Ergebnisse plausibel erscheinen, ist es interessant, dass sich der Alters- und Bildungsgradient in der Inanspruchnahme von medizinischen Rehabilitationsmaßnahmen auch nach Adjustierung für Gesundheit und Arbeitsstress zeigte. Das wirft, auch unter Berücksichtigung der Ergebnisse der Interaktionstestung, die Frage auf, durch welche weiteren Determinanten Bildungs- und Altersunterschiede in der Inanspruchnahme von Rehabilitationsmaßnahmen erklärbar sind. In weiterführenden Studien gilt es zudem zu untersuchen, inwieweit die Inanspruchnahme medizinischer Rehabilitationsmaßnahmen den Bedarf älterer Beschäftigter an diesen deckt.

PS8-09

EXPLORING THE PROCESS OF CO-CREATING CAUSAL-LOOP DIAGRAMS IN THE EVALUATION OF A NOVEL PROJECT COMBINING CROWD SOURCING AND RESPONSIBLE RESEARCH AND INNOVATION (JOINUS4HEALTH).

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INTRODUCTION

The Horizon-2020 funded JoinUs4Health (JU4H) project aims to promote citizen engagement in science through the novel combination of Responsible Research and Innovation (RRI) and crowdsourcing. The project has made considerable headway and we now seek to evaluate its impact and performance against the stated aims.

We chose to evaluate JU4H using the Network for One Health Evaluation framework (NEOH). NEOH is based on a system thinking approach, and a key aspect is building the theory of change from causal-loop diagrams co-created with stakeholders. Causal-loop diagrams identify key variables that impact a problem of interest and indicate the causal relationships between them. Here we present the interim results from pilot workshops exploring the process of co-creating causal loop diagrams for a project addressing a problem within the RRI context.

METHODS

We conducted two online workshops with project members from JU4H using the Zoom platform. First, we introduced participants to the concept of systems thinking, and then went on to explain causal loop diagrams and how to create them. Using the breakout room and whiteboard features in Zoom, we separated the participants into groups of three and tasked them with developing causal loop diagrams for JU4H. At last, each group presented and described their diagrams.

RESULTS

Workshop participants created four separate causal-loop diagrams. Although the maps differed considerably, reflecting the different participant viewpoints, there were clear points of similarity that generated active discussion, for instance, the topics of outreach activities, staffing resources, and citizen participation in specific areas of the project. These discussions provided a pathway for refinement and consolidation of all diagrams into a single overarching map.

CONCLUSIONS/OUTLOOK

The pilot workshops demonstrated that causal-loop diagrams could be developed by participants to successfully describe the relationships between key variables impacting a problem within the RRI context.

PS8-11

INCIDENCE OF SNAKEBITES IN THE DEPARTMENT OGOOUÉ ET DES LACS, GABON

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INTRODUCTION
Snakebite envenoming is classified as a neglected tropical disease by the WHO. Gabon has at least 30 species of venomous snakes. However, there are no published data on the incidence of snakebites. We present the data from a community-based survey on snakebites in the department of Ogooué et des Lacs in Gabon assessing the incidence of snakebites per 100,000 inhabitants per year, the circumstances of the bites as well as their clinical outcomes.

METHODS
We conducted a cross-sectional survey with 10,000 inhabitants in the department Ogooué et des Lacs. The study area was divided into (i) remote, (ii) rural and (iii) urban sector. All inhabitants living in the department's communities (Sector i, ii) were included and a simple random household selection in the town of Lambaréné (Sector iii) was done. The selected households or individuals were interviewed about snakebite incidences in the past 12 months using a structured questionnaire.

RESULTS
To date, we have collected information from 8516 participants in the ongoing survey and calculated an incidence of 294 per 100,000 per year (95% CI: 199-433) for the whole study area. Incidences per sectors (i-iii) show a higher incidence in the remote sector [i = 798/100,000 (95% CI: 405-1570)] than in rural [ii= 222/100,000 (95% CI: 122-387)] and urban sector [iii =250/100,000 (95% CI: 107-583)]. 68% (n=17) of the victims sought care in the formal health care system while 20% (n=5) sought help from traditional healers only and 12% (n=3) only performed self-medication. No death or sequelae after snakebite were reported in the past year within the sampled population.

CONCLUSIONS/OUTLOOK
Our preliminary results show a high incidence of snakebites in the department. Most snakebites happen in remote areas, where antivenom is not available. Increasing the availability of antivenom, as well as integration of traditional healers in the referral pathway and community engagement will play a key role in improving snakebite management.

PS8-12

THE CAUSAL EFFECTS OF PSYCHOSOCIAL WELL-BEING AND EMOTION-DRIVEN IMPULSIVENESS ON FOOD CHOICES OF EUROPEAN ADOLESCENTS

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INTRODUCTION
Low psychosocial well-being (PWB) and high emotion-driven impulsiveness (EDI) are associated with unhealthy eating. Yet, it is unclear whether a hypothetical intervention targeting one or the other might be more effective in reducing unhealthy food choices. Therefore, we aimed to compare the (separate) causal effects of PWB and EDI on European adolescents' sweet and fat propensity.

METHODS
We included 2,065 participants from the IDEFICS/I.Family cohort (mean age: 13.4). Food choices were operationalized using sweet (score range: 0 to 68.4) and fat (range: 0 to 72.6) propensity calculated from food frequency data. EDI was assessed using the negative urgency subscale from the UPPS-P Impulsive Behaviour Scale. PWB was assessed using the KINDL^R Health-Related Quality of Life Questionnaire. We estimated, separately, the average causal effects of PWB and EDI on sweet and fat propensity applying a semi-parametric doubly robust method (targeted maximum likelihood estimation). Further, we investigated a potential indirect effect of PWB on sweet and fat propensity mediated by EDI using a causal mediation analysis.

RESULTS
If all adolescents, hypothetically, had high levels of PWB, compared to low levels, we estimated a decrease in average sweet propensity by 1.43 [95% confidence interval (CI): 2.61 to 0.25]. A smaller effect was estimated for fat propensity. Similarly, if all adolescents had low levels of EDI, compared to high levels, average sweet propensity was decreased by 2.07 [CI: 0.87 to 3.26] and average fat propensity by 1.85 [CI: 0.81 to 2.88]. The indirect effect of PWB via EDI was 0.61 [CI: 1.09 to 0.24] for average sweet propensity and 0.55 [CI: 0.86 to 0.13] for average fat propensity.

CONCLUSIONS/OUTLOOK
Comparing both psychological factors, an intervention targeting EDI would be marginally more effective in reducing sweet and fat propensity.

28. SEPTEMBER 2023
9:30 AM – 10:30 AM

PS9 | POSTERSESSION – AG1 INFEKTIONSEPIDEMIOLOGIE + AG14 NEUROLOGISCHE UND PSYCHIATRISCHE EPIDEMIOLOGIE

PS9-01

CONTAINMENT OF SARS-COV-2: TESTING STRATEGIES AND ASSESSMENT OF INFECTIVITY

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INTRODUCTION
Limiting the transmission of SARS-CoV-2 through rapid case detection, isolation, and quarantine has been a challenge for public health agencies. At the time of first notification of a case, information allowing for estimating infectivity is often scarce. Yet, this information is necessary in order to avoid disproportionate infection control measures for individual cases in a pandemic.

METHODS
Strategies of testing in the school and hospital setting, data on the association of ct values and demographic/clinical features, and other markers of infectivity, as well as their relevance from the health authorities' point of view are presented and discussed.

RESULTS
Gargle pool rRT-PCR testing could be implemented quickly in schools and hospitals. It proved to be an effective, valid, economic and well-received test system. Virus isolation was associated with high viral load and detection of viral antigen. The odds for virus isolation were lower with increasing time from symptom onset and the presence of SARS-CoV-2-IgG antibodies. In 2,606 cases, Ct values ≤20 were more frequent in symptomatic cases (20.9% vs. 11.3%), whereas Ct values >30 were more common in asymptomatic cases (32.6% vs. 18.0%). We observed lower median Ct values of E and N gene in symptomatic cases. In a random forest model, the total number of symptoms, respiratory symptoms, and age were most strongly associated with low Ct values.

CONCLUSIONS/OUTLOOK
Pool testing strategies are suitable for infection prevention in particular settings. Cases with high viral load and detection of viral antigen should be isolated, restrictive measures should be lifted with increasing time to symptom onset and seroconversion. Certain symptoms and age were associated with lower Ct values. Practicing all due caution, Ct values together with clinical information can be used as a pragmatic approach in estimating infectivity at the first notification of a case and, thus, in guiding containment measures. Repeated testing can be necessary in ambiguous cases.

PS9-02

THE ROLE OF CHILDREN AND ADOLESCENTS IN THE EPIDEMIOLOGY OF THE COVID-19 PANDEMIC IN SOUTHWEST GERMANY

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INTRODUCTION
This study investigated the role of children and adolescents (0-19 years) in the epidemiology of the first five COVID-19 pandemic waves in a region in Southwest Germany. It assessed differences between age groups with respect to quarantine, infection, transmission, and fatal outcomes.

METHODS
The study analysed routinely collected data by the public health authority of the Rhine-Neckar district, which is also responsible for Heidelberg city. The population was divided into three age groups: children and adolescents (0-19 years), adults (20-65 years), and the elderly population (>65 years). The following events were assessed for each age group and wave of the pandemic: quarantine, infection and fatal outcome; relative risks for quarantine, infection and fatal outcome; quarantine sensitivity (quarantined proportion of infected population) and positive predictive value of quarantine (infected proportion of quarantined population); secondary attack risks (infected proportion of contact persons).

RESULTS
Children and adolescents were overrepresented among quarantine events with respect to their proportion of the population. While at the beginning of the pandemic they were underrepresented among infection events, this relation reversed with the emergence of the alpha variant. There were no fatal outcomes in this age group. Quarantine sensitivity was highest in this age group, while the positive predictive value of quarantine was lowest. While transmission from the young population increased over time, it remained lower than that from other age groups.

CONCLUSIONS/OUTLOOK
The infection, transmission, and fatal outcomes within the aged 0-19 population were largely in alignment with previously published literature. The quarantine sensitivity and positive predictive value can be used as metrics for the overall effectiveness and efficiency of contact tracing within the context of the COVID-19 pandemic.

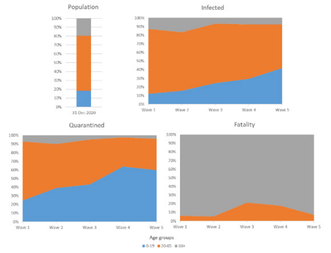

Figure 1: Changes in age group proportions of infection, quarantine and case fatality.

Percentage values are age group proportions of: the total population, quarantined population, infected population or COVID-19 case fatality population. Stacked area chart of outcomes progressing over the five waves of the pandemic, from 27 January 2020 until 30 April 2022.

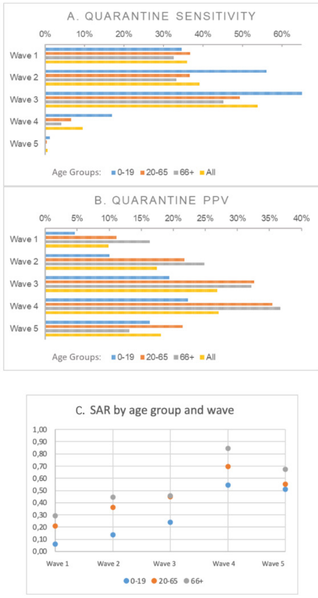

Figure 2A-B. Quarantine sensitivity and positive predictive value; 2C. Secondary attack risks

A-B.

Sensitivity = cases captured in quarantine / total number of cases. Positive predictive value (PPV) = cases captured in quarantine /
number of people quarantined.

C.

Secondary attack risks (SAR) for the three different age groups as infection spreaders. SAR = contact persons infected / all contact persons.

PS9-03

DEVELOPMENT OF A SPREAD MODEL CONCERNING THE INFLUENCE OF ENVIRONMENTAL STRESSORS ON COMMUNICABLE DISEASES

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INTRODUCTION

Environmental pollution, as well as climate change with its increasing temperatures and other risks influence human health in different ways. At the same time the Covid-19 pandemic and other epidemics have shown how vulnerable our highly interconnected world is with respect to communicable diseases. Full intensive care stations in hospitals during the Covid-19 waves made it clear that anything that helps estimate and battle future pandemics would be a relief for society.

METHODS

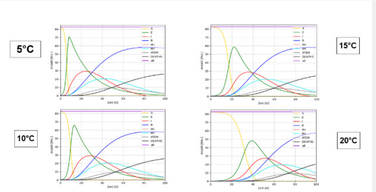
The approach of this project is to find links between environmental stressors and the severity and spread of communicable diseases like Covid-19 and Influenza. This can contribute to a tool for decision makers to estimate individually which measures (reduction of air pollution, lockdowns, etc.) are useful for a specific region at a certain time to keep the burden on the health care system as low as possible.

RESULTS

We use the statistical connection between the environmental stressors and key numbers of a pandemic (infections, hospitalizations, etc.) to develop a spread model (SEIR) based on partial differential equations. The model predicts the influence of environmental stressors on the spread ratio (amongst others) of Covid-19 or Influenza.

CONCLUSIONS/OUTLOOK

The presentation will outline the state of the spread model and explain how the connection with the stressors as well as the influence of the stressors on each other is integrated into the model. Estimates of how realistic the model is so far will be given as well as preliminary results.



first impression of the qualitative influence of outside temperature on a communicable disease

example figure for the outcome of the model, concerning the influence of temperature on communicable respiratory diseases. The figure shows the groups Susceptible, Exposed, Infectious, Recovered, “AU” (unable to work), “KH” (hospitalized), “ATEM” (respiratory therapy), deaths and the number of individuals in those groups over time in days. We will present the influence of different environmental stressors and their interaction at the conference.

PS9-04

EPIDEMIOLOGICAL PROFILE OF PLEURAL TUBERCULOSIS IN KENITRA, MOROCCO

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INTRODUCTION

Pleural tuberculosis is a prevalent form of extrapulmonary tuberculosis in Morocco, which can result from either primary infection or reactivation of a previous tuberculosis focus. The objective of this study was to investigate the epidemiological profile of pleural tuberculosis in the Kenitra province.

METHODS

We conducted a retrospective analysis of medical records of patients diagnosed with pleural tuberculosis at the Diagnostic Center of Tuberculosis and Respiratory Diseases in Kenitra between 2014 and 2017.

RESULTS

During the study period, 1,142 patients were diagnosed with pleural tuberculosis, with a mean age at diagnosis of 38.5±20.5 years, and males accounting for 62.5% of the cases. More than half of the patients (52%) resided in rural areas, and an associated location was reported in 22 cases. Of the cases studied, 10.25% had a history of tuberculosis infection, and 43% had previously undergone tuberculosis treatment. Among the patients, 43 had diabetes, 33 had heart disease, and 5 had TB/HIV co-infection. Signs of tuberculosis impregnation were found in 90% of patients, while chest radiography showed a unilateral effusion in 62% of cases. The mean time to diagnosis was 19 ± 25 days, and the mean time to treatment initiation was 153 ± 63 days. The outcome was favorable in 80% of cases.

CONCLUSIONS/OUTLOOK

Pleural tuberculosis is a significant health problem in the Kenitra province of Morocco. Adequate diagnostic tools are essential to improve the management of this disease, which can have a long delay in diagnosis and treatment initiation.

PS9-05

ANJOUAN'S EXPERIENCE DURING THE COVID-19 SECOND WAVE: CHALLENGES AND LESSONS LEARNED

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INTRODUCTION
Since December 2019, the world has been ravaged by a novel virus, SARS-CoV-2, which causes COVID-19. While the majority infected individuals experience mild to moderate respiratory symptoms and recover without medical intervention, older adults with pre-existing medical conditions such as diabetes mellitus, chronic diseases, and cancer, are at a significantly higher risk of developing severe illness. The pandemic has occurred in successive waves, with many countries facing a resurgence of the virus in 2020 and 2021. In addition to the challenges of developing specific vaccines, the emergence of new strains of SARS-CoV-2 has been closely linked to the second wave. This study aimed to describe the demographic and clinical characteristics of patients hospitalized with COVID-19 during the second wave of the pandemic in Anjouan.

METHODS
We conducted a retrospective study of COVID-19 patients who required hospitalization between January 8 and February 9, 2021.

RESULTS
During the study period, a total of 66 COVID-19 patients were admitted to the hospital. The mean age of the patients was 49 years, with a slight predominance of males (53%). The most affected age group was between 51-60 years (27.3%), and the majority of cases were from urban areas (74.2%). The most common chronic comorbidities observed in the patient population were hypertension (34.8%) and diabetes (33.3%). The most frequent symptoms reported were asthenia (72.7%), cough (66.7%), dyspnea (66.7%), and chills (66.7%). The outcome was favorable for 79% of the patients.

CONCLUSIONS/OUTLOOK
The study results indicated a significant increase in both the incidence and mortality rates of COVID-19 during the second wave of the pandemic in Anjouan. The majority of patients received home-based care. Advanced age and the presence of comorbidities, including hypertension, asthma, and diabetes, were identified as crucial risk factors associated with increased disease severity and higher mortality rates.

PS9-06

MULTIFACETED DRIVERS OF COVID-19 VACCINE HESITANCY IN A LARGE POPULATION-BASED COHORT STUDY IN GERMANY

Baumkötter R.[1,2], Yilmaz S.[1,2], Zahn D.[1,2], Schulz A.[1], Prochaska J.[1,2,3], Hettich-Damm N.[4], Schmidtmann I.[5], Schuster A.[6], Lackner K.[7,2], Münzel T.[8,2], Beutel M.[4], Wild P.[1,2,3]

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INTRODUCTION
COVID-19 vaccine hesitancy inhibits large-scale vaccination coverage. The aim was to characterize individuals with vaccine hesitancy against SARS-CoV-2.

METHODS
Between March and June 2021, individuals from the population-representative Gutenberg COVID-19 Study in Germany were extensively characterized. The 5C and VAX scales were used to investigate attitude toward vaccination. Multivariable robust Poisson and linear regression were applied to estimate determinants of vaccine hesitancy.

RESULTS
Of 9,139 individuals included, 50.9% were vaccinated, 44.4% willing, and 4.7% were hesitating (2.5% undecided, 2.2% unwilling) to receive a COVID-19 vaccination. Individuals aged 45-54 years had the highest hesitancy to be vaccinated. The strongest predictors in undecided and unwilling individuals were conspiratorial beliefs (Prevalence Ratio [PR]=2.13[95% confidence interval 01.31;3.45] and PR=5.68[3.57;9.04]). Undecided and unwilling individuals were less likely vaccinated against influenza/pneumococci, (PR=0.19[0.12;0.30], PR=0.14[0.08;0.23]), had less knowledge about COVID-19 vaccines (PR=0.20[0.14;0.29], PR=0.29[0.20;0.44]), and less fear of COVID-19 (PR=0.42[0.28;0.63], PR=0.24[0.14;0.44]). Specific determinants for undecided individuals were lower income, no arterial hypertension, and higher prevalence of migration background, diabetes mellitus, cardiovascular disease, and previous SARS-CoV-2 infections. Individuals unwilling to receive a vaccination were more frequently using YouTube to obtain pandemic-related information (PR=3.68[2.23;6.05]), although television was still the most frequently used information source. Approximately 75% of individuals vaccinated or willing to be vaccinated and 95% of individuals with vaccine hesitancy had concerns about potential future side effects of the vaccine.

CONCLUSIONS/OUTLOOK
Hesitation to vaccinate has multifaceted drivers, varying in parts between undecided and unwilling individuals and should be considered in campaigns to increase COVID-19 vaccination rates.

PS9-07

INCIDENCE AND PERSISTENCE OF POST COVID-19 CONDITION IN ADULTS- ONE YEAR AFTER ACUTE INFECTION – A MATCHED COHORT STUDY BASED ON ROUTINE HEALTHCARE DATA

Tesch F.[1], Ehm F.[1], Wende D.[2], Loser F.[3], Vivirito A.[4], Menzer S.[5], Batram M.[6], Buschmann T.[7], Ludwig M.[4], Rößler M.[2], Seifert M.[1], König C.[3], Schulte C.[2], Hertle D.[2], Ballesteros P.[2], Baßler S.[7], Bertele B.[3], Bitterer T.[5], Riederer C.[8], Sobik F.[8], Reitzle L.[9], Scheidt-Nave C.[9], Schmitt J.[1]

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INTRODUCTION
It is still unknown what proportion of persons suffer from long-term consequences of COVID-19. In October 2021, the World Health Organization (WHO) proposed a definition of post COVID-19 condition (PCC) as symptoms that last at least 3 month after onset of SARS-CoV-2 infection and frequently include fatigue, respiratory symptoms and cognitive dysfunction.

METHODS
The WHO definition of PCC was translated into ICD-10-GM Codes and investigated in a cohort of patients with laboratory-confirmed COVID-19 during 2020 and matched to controls in German routine healthcare data. Incidence rates were calculated and incidence rate ratios (IRRs) were estimated for developing any of the predefined diagnoses conditional on a preceding diagnosis of COVID-19. Within the COVID-19 cohort the persistence of PCC was followed up to one year after infection.

RESULTS
A cohort of COVID-19 patients in the year 2020 was followed up to 2021-09-30 in routine healthcare data. The incidence in the COVID-19 group compared to matched controls for any investigated symptoms and conditions after three months was accessed. Main contributions were dyspnea (R06.0) and malaise/fatigue (R53). The highest IRR was observed for chronic fatigue syndrome (CFS; G93.3) the lowest for cognitive impairment (F06.7, U51). After one year a minority of the patients still had at least one specific diagnosis. The longest persistence of the symptoms was observed for CFS, cognitive impairment (F06.7, U51) and memory loss/disorientation (R41).

CONCLUSIONS/OUTLOOK
The more specific and serious diagnoses had a higher likelihood to occur in the COVID group compared to the matched control group and also these diagnoses persisted longer in the COVID group compared to less serious diagnoses. Due to the high number of infected people during the first two waves of the pandemic this result translates into considerable burden for the medical system.

PS9-08

PREVALENCE AND OBSTETRIC MANAGEMENT CHANGES DURING THE COURSE OF THE COVID-19 PANDEMIC IN PERIPARTUM SARS-COV-2 POSITIVE WOMEN – AN ANALYSIS OF THE CRONOS REGISTRY DATA.

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[4] *Julius-Maximilians-University Würzburg, Department of Midwifery and Maternal Health, Würzburg, Germany*
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INTRODUCTION

The COVID-19 pandemic has been marked by dynamic changes in virulence, health policy, and scientific knowledge. The current analysis of CRONOS data (www.dgpm-online.org) aims to present the infection prevalence among parturients and subsequent changes in obstetric management over time in Germany.

METHODS

For the present prevalence analysis, 52 of 130 participating CRONOS hospitals with demonstrated high and continuous recruitment adherence were selected. The analysis includes women with peripartum infection (<14d before birth). Monthly period prevalence was calculated using the number of affected women on the CRONOS registry relative to total monthly births in each hospital from March 2020 to May 2022 and compared with RKI data. Trends related to changes in obstetric management (e. g. rate of iatrogenic deliveries) were calculated considering severity of illness.

RESULTS

2184 women were identified. By June 2021, the obstetric population shows a discretely higher infection prevalence compared to the general population. From October 2021, the infection prevalence in CRONOS is lower than in the RKI data (figure 1). The overall rate of iatrogenic deliveries remains unchanged over time (p-value for trend = 0.779, not shown). From wave 1 to wave 4, the rate of deliveries due to SARS-CoV-2 infection rose among moderately to severely ill women (p-value for trend 0.0000) and was increased compared to mildly ill women (p=0.001). A significant decrease in infection related delivery rate was observed in wave 5 (Omicron) (figure 2).

CONCLUSIONS/OUTLOOK

Screening measures in hospitals at the time of admission for delivery resulted in good coverage of infected women. The decrease in reported prevalence in waves 4 and 5 of CRONOS compared with the RKI data is most likely due to recruitment fatigue caused by clinician workload due to the increase in caseload and cases with severe illness. The treatment of mildly ill women has not changed over time.

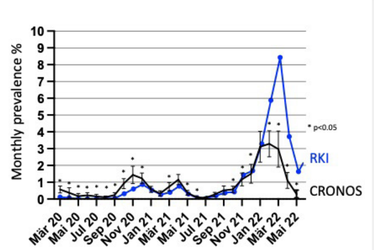

Figure 1. Monthly prevalence of SARS-CoV-2 infection throughout the pandemic.

Figure 1 shows the monthly prevalence of women infected with SARS-CoV-2 during childbirth in participating hospitals (black line) and the monthly prevalence in the general population as reported by the RKI (blue line) throughout the pandemic. Significant differences between prevalence in women during childbirth and in the general population are indicated by *.

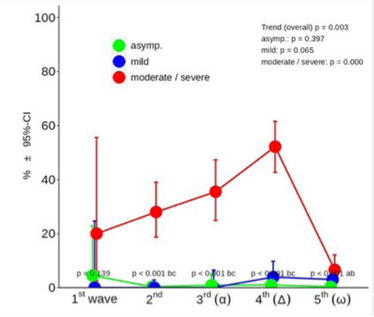

Figure 2. Iatrogenic deliveries because of SARS-CoV-2 infection.

Figure 1 shows the monthly prevalence of women infected with SARS-CoV-2 during childbirth in participating hospitals (black line) and the monthly prevalence in the general population as reported by the RKI (blue line) throughout the pandemic. Statistical test (p-values at the x-axis: Chi²-test, if frequencies are too low: Fisher test, a = group 1 (green) vs. 2 (blue), b = 1 vs. 3 (red), c = 2 vs. 3), trend test: logistic regression (Agresti, 2007): Timeline was included numerically (year and decimal weekly proportion).

PS9-09

ASSOCIATION OF CIGARETTE SMOKING WITH ACUTE COVID-19 HOSPITALISATION AND GENERAL HEALTH RECOVERY SIX TO 12 MONTHS AFTER INFECTION

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for the EPILOC Phase 1 Study Group

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INTRODUCTION
A recent population-based study suggests a lower risk of acute COVID-19-related hospitalisation in cigarette smokers. In contrast, many studies linked smoking with increased risk for post-acute sequelae of COVID-19. Cumulative dosage or the role of smoking cessation have not yet been studied.

METHODS
EPILOC is a population-based study of 18 to 65-year-old subjects in Baden-Württemberg who were PCR positive for SARS-CoV-2 (Oct 1st, 2020 to Apr 1st, 2021). Survivors were contacted via public health offices in Aug-Sep 2021 and asked to answer a standardised questionnaire on socio-demographics, lifestyle factors, and general health recovery (GHR) compared to pre-infection. We used generalised additive models to assess associations of smoking status, pack-years, and time since smoking cessation with treatment during acute COVID-19 and GHR.

RESULTS
The dataset included 10 608 individuals (41.2% male, mean age 43.8 years). Medical treatment for acute COVID-19 was reported by 22.2% of participants (3.5% inpatient). The average GHR was 90% (mean 8.6 months after positive PCR).

In adjusted analysis, current smoking was associated with any treatment (OR=0.71 [0.60 to 0.84]) and inpatient treatment (OR=0.32 [0.18 to 0.57]) during acute COVID-19. Odds for treatment in former smokers were similar to those in never-smokers.

Adjusted average GHR was lower in former (-1.2% [-1.9 to -0.6]) and current (-2.0% [-2.9 to -1.2]) than in never-smokers. There was an association by pack-years smoked, especially in current smokers (p=0.020). In former smokers, time since smoking cessation was positively associated with GHR (p=0.010). Former smokers who stopped 30 years ago had the same average GHR as never-smokers.

CONCLUSIONS/OUTLOOK
Cigarette smoking is associated with GHR after COVID-19. Quitting smoking may promote better long-term outcomes. Our data support further investigation of possible protective mechanisms of smoking for acute COVID-19 outcomes to understand pathomechanisms.

PS9-10

THE ASSOCIATION BETWEEN THE NUMBER OF SYMPTOMS AND THE SEVERITY OF POST-COVID-FATIGUE AFTER SARS-COV-2 INFECTION TREATED IN AN OUTPATIENT SETTING

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INTRODUCTION

BACKGROUND:

Post-Covid-Fatigue (PCF) is one of the most reported symptoms following SARS-CoV-2 infection. Currently, research on persistent symptoms focuses mainly on severe infections, while outpatients are rarely studied.

OBJECTIVE:

To investigate whether the severity of PCF is related to the number of acute and persistent symptoms due to mild to moderate COVID-19 and to compare the most common symptoms during acute infection with the persistent symptoms in PCF patients.

METHODS

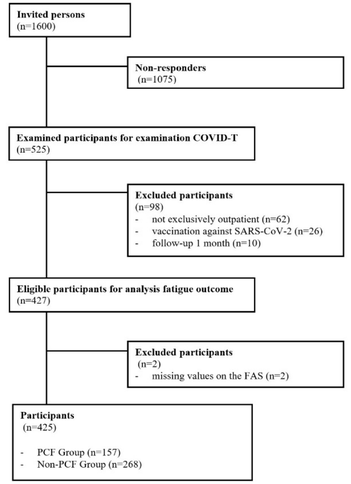
A total of 425 participants were examined after COVID-19 treated as an outpatient (median 249 days [IQR: 135;322] after acute disease) at the University Hospital Augsburg, Germany. The Fatigue Assessment Scale (FAS) was used to quantify the severity of PCF. The number of symptoms (maximum 41) during acute infection and persistent symptoms (during the last 14 days before examination) were added up to sum-scores. The association between the number of symptoms and PCF was calculated by using multivariable linear regression models.

RESULTS

Of the 425 participants, 37 % (n=157) developed PCF. Most of them were women (70 %). The median number of symptoms was significantly higher in the PCF group than in the non-PCF group at both time points. In multivariable linear regression models, both sum-scores were associated with PCF, (acute symptoms:β-estimate per additional symptom [95 %-CI]: 0.48 [0.39;0.57], p<.0001); persistent symptoms:β-estimate per additional symptom [95 %-CI]: 1.18 [1.02;1.34], p<.0001).

CONCLUSIONS/OUTLOOK

Each additional symptom that occurs in COVID-19 increases the likelihood of suffering a higher severity of PCF. Further research is needed to identify the aetiology of PCF.



Abbreviations: COVID-T, Corona Thrombosis Study; FAS, fatigue assessment score

Study selection flowchart

PS9-11

ASSOCIATIONS BETWEEN INDIVIDUAL SYMPTOMS OF DEPRESSION AND IMMUNOMETABOLIC MARKERS IN MAJOR DEPRESSION

Chae W.R.[1,2], Baumert J.[3], Nübel J.[3], Brasanac J.[1], Gold S.[1,4,5], Hapke U.[3], Otte C.[1]

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INTRODUCTION
Inflammation and metabolic dysregulations are likely to underlie atypical, energy-related depressive symptoms such as appetite and sleep alterations. Indeed, increased appetite was previously identified as a core symptom of an immunometabolic subtype of depression. The aim of this study was to 1) replicate the associations between individual symptoms of depression and immunometabolic markers, 2) extend previous findings with additional markers, and 3) evaluate the relative contribution of these markers to depressive symptoms.

METHODS
We analyzed data from 266 persons with major depressive disorder (MDD) in the last 12 months from the German Health Interview and Examination Survey for Adults (DEGS1) and its mental health module (DEGS1-MH). Diagnosis of MDD and individual depressive symptoms were determined by the Composite International Diagnostic Interview (CIDI). Associations were analyzed using multivariable regression models, adjusting for depression severity, sociodemographic and behavioral variables, as well as medication use.

RESULTS
Increased appetite was associated with higher body mass index (BMI), waist circumference (WC), insulin, and lower high-density lipoprotein. In contrast, decreased appetite was associated with lower BMI, WC, and fewer metabolic syndrome (MetS) components. Insomnia was associated with higher BMI, WC, number of MetS components, triglycerides, insulin, and lower albumin, while hypersomnia was associated with higher insulin. Suicidal ideation was associated with higher number of MetS components, glucose, and insulin. None of the symptoms were associated with C-reactive protein after adjustment for covariates.

CONCLUSIONS/OUTLOOK
Appetite alterations and insomnia were most important symptoms associated with metabolic markers. Longitudinal studies should investigate whether the candidate symptoms identified here are predicted by or predict the development of metabolic pathology in MDD.

WORKSHOPS

27. SEPTEMBER 2023
9:30 AM – 11:00 AM

NAKO WORKSHOP

NAKO-01

THE GERMAN NATIONAL COHORT (NAKO): DESIGN, CURRENT STATE, AND FURTHER FOLLOW-UP DATA COLLECTION

Greiser K.[1], Bohn B.[2], Hilger-Kolb J.[2], Panreck L.[2], Breunig E.[3], Lieb W.[4], Pischon T.[5], Schikowski T.[6], Völzke H.[7]

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INTRODUCTION
The German National Cohort (NAKO) is the largest population-based cohort study in Germany and provides a central resource for epidemiologic research. NAKO aims to investigate the development and aetiology of diseases, identify risk factors and enhance early detection and prevention of diseases with a focus on diabetes, cancer, cardiovascular, pulmonary, neurological, psychiatric, and infectious diseases.

METHODS
Participants aged 20-74 years were examined at 18 study centres across Germany. During their visit to the study centre, they participated in an extensive examination programme including a face-to-face interview, self-administered, computer-based questionnaires, in-depth biomedical examinations (e.g., blood pressure, electrocardiograms, spirometry) and provision of bio-samples (blood, urine, stool, saliva, nasal swabs). In addition, a subgroup received whole-body Magnet Resonance Imaging (MRI) with focus on brain, heart, the musculoskeletal system, and body fat distribution.

All study participants are re-invited for examinations at the study centres at 4-5 year intervals. The programme of the first re-examination is similar to the baseline programme in order to detect changes in risk factor profiles and in vascular, cardiac, metabolic, neurocognitive, pulmonary and sensory function. A third examination will start in 2024.

Data collection is standardized, and central quality control and data cleaning is performed. For more complex data (e.g., echocardiography, accelerometry), competence units process the data and derive variables on exposure, functions, and disease.

RESULTS
Between 2014 and 2019, overall 205,415 participants were recruited, including 30,861 with MRI, and by 30.04.23, 103,639 participants were re-examined, including 15,396 with MRI re-examination.

CONCLUSIONS/OUTLOOK
Due to its large sample size, the in-depth examination programme and the longitudinal design, NAKO provides an excellent source for better understanding of determinants for health and disease at the population level.

NAKO-02

DESCRIPTION OF THE COVID 2.0 SU RVEY IN THE GERMAN NATIONAL COHORT (NAKO GESUNDHEITSSTUDIE) AND PRELIMINARY RESULTS

Mikolajczyk R.[1], Diexer S.[1], Fricke J.[2], Ahnert P.[3], Pischon T.[4], Karch A.[5]
on behalf of the NAKO Consortium

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INTRODUCTION
The COVID-19 pandemic had a huge impact on society and raised attention to the challenges related to infectious diseases. While a lot of research was initiated during the pandemic, the recruitment of participants in most instances started at the time point of infection. In contrast, the German National Cohort (NAKO Gesundheitsstudie) has the ability to study pre-existing risk factors. In order to obtain information about SARS-CoV-2 infections and the following sequelae a dedicated data collection was conducted.

METHODS
An online survey was conducted in the NAKO between September 2022 and February 2023. Invitation via e-mail was followed by two reminders sent to all NAKO study participants who provided e-mail addresses. The questionnaire was implemented in LimeSurvey and included the following topics: current health status including mental health measurements, restrictions of health services during the pandemic, other collateral effects of the pandemic, reported infections with SARS-CoV-2 and symptoms of acute infection, 4-12 weeks, 12 or more weeks, and one year after infection as well as vaccination status.

RESULTS
Of 150766 invited NAKO participants, 110362 responded to the second COVID-19 questionnaire. Respondents in 60% reported at least one SARS-CoV-2 infection, 59453 reported one, 6061 two, and 414 three or more infections. The time points of infections followed the general incidence in the German population and thus infections could be mapped to specific variants based on periods of dominance. Of those who reported an infection with SARS-CoV-2, 42% reported symptoms 4 to 12 weeks after infection (ongoing COVID-19), 35% reported symptoms 12 or more weeks after infection (Post-COVID-19), and 37% one year after infection.

CONCLUSIONS/OUTLOOK
Combined with existing biosamples and measurements prior to infection, NAKO offers an excellent opportunity to study risk factors for infection and post-infection syndromes.

NAKO-03

DISTRIBUTION AND CORRELATES OF IMAGING MARKERS OF THE KIDNEY AND ITS COMPARTMENTS FROM POPULATION-SCALE, MRI-BASED AUTOMATED KIDNEY SEGMENTATION.

Kellner E.[1], Sekula P.[2], Lipovsek J.[2], Russe M.[1], Hornbach H.[1,2], Schlett C.L.[1], Nauck M.[3,4], Völzke H.[4,5], Kroencke T.[6,7], Bette S.[6], Kauczor H.-U.[8], Keil T.[9,10,11], Pischon T.[12,13,14], Heid I.M.[15], Peters A.[16,17,18,19], Niendorf T.[20], Lieb W.[21], Bamberg F.[1], Büchert M.[1], Reichardt W.[1], Reisert M.[1], Köttgen A.[2]

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[18] *DZHK (German Centre for Cardiovascular Research), Partner Site Munich, Munich Heart Alliance, Munich, Germany*
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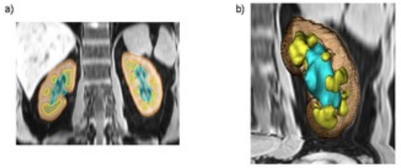

Figure 1: Example of automated kidney segmentation into cortex, medulla, and hilus compartments.

Panel a) shows the water-only image in a gray-scale 2D sagittal view, generated by multi-planar-reconstruction of the 3D T1-Dixon data. Cortex, medulla and hilus are shown as colored overlays in orange, yellow and turquoise, respectively. Panel b) shows a rendered 3D view of the same kidney. The three-dimensional winded structure of the medulla can be appreciated.

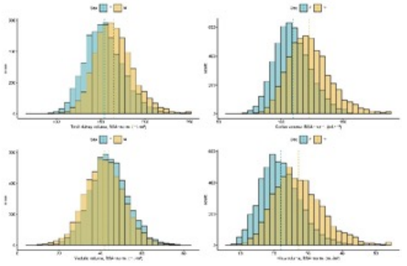

Figure 2: Distribution of kidney volume markers by sex.

The different panels show histograms of BSA-normalized total kidney, cortex, medulla, and hilus volumes (mL/m²) for both sexes: yellow for men (M, N=4,972), blue for women (F, N=4,962). After correction for BSA, men have higher total, cortex, and hilus volumes as compared to women, whereas this is not observed for medulla.

INTRODUCTION

Automated and accurate kidney segmentation is a prerequisite for population-scale, imaging-based research into kidney function and disease. Segmentation of the kidneys and their compartments cortex, medulla, and hilus has the potential to yield new imaging-based markers of kidney function and disease. Using a robust deep learning framework for kidney segmentation, we aimed to derive novel imaging markers from abdominal magnetic resonance images from participants of the population-based NAKO (German National Cohort) study and to evaluate their correlation with clinical data.

METHODS

Using images from 11,207 NAKO participants, a hierarchical 3D convolutional neural network optimized for multi-scale problems of combined localization and segmentation was trained and used to derive novel imaging markers (Figure 1). Measures of agreement between model predictions and human readers were good to excellent.

RESULTS

After extensive automated and visual quality control, median values for body surface area (BSA)-normalized total kidney, cortex, medulla, and hilus volumes of 9,934 persons were 158, 115, 43, and 24 mL/m2, respectively. We provide distributions of these four kidney volume markers in the entire sample, per sex, and in a subset of persons free of kidney disease and commonly associated conditions (Figure 2).Multivariable adjusted regression analyses identified diabetes, male sex, and higher estimated glomerular filtration rate (eGFR) as important predictors of higher total and cortex volumes. For example, each unit higher eGFR was significantly associated with a 0.98 mL/m2 higher total kidney volume. Volumetric kidney markers were lower in persons with compared to those without eGFR-defined chronic kidney disease, with medulla showing the strongest differences.

CONCLUSIONS/OUTLOOK

Automated segmentation of kidneys from population-based imaging is feasible, providing a basis for the future study of the derived markers with respect to kidney disease progression.

NAKO-04

RECORD LINKAGE OF PRIMARY WITH SECONDARY AND REGISTRY DATA IN THE GERMAN NATIONAL COHORT: NOW READY TO START

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[2] *Leibniz Institute for Prevention Research and Epidemiology (BIPS), Bremen, Germany*
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[4] *Universität Leipzig, Institut für Medizinische Informatik, Statistik und Epidemiologie, Leipzig, Germany*

INTRODUCTION
The German National Cohort (GNC) primary data are enriched with secondary and registry data from different data holders like statutory health insurances (SHI), private health insurance companies (PHI) and cancer registries. Individual data linkage will support morbidity follow-up and provide important exposure and progression data that cannot be obtained in any other way.

METHODS
Study participants are asked for informed written consent to link their secondary and registry data. Confidentiality is ensured, among other things, by a complex pseudonymisation procedure using an independent trust centre. Legal and technical requirements for annual transmission and long-term use of the participants' data were established with the data holders. The GNC is under supervision of the Federal Commissioner for Data Protection and Freedom of Information (BfDI).

RESULTS
At baseline, 205,000 study participants were screened and interviewed in 18 study centres across Germany. The second study wave started 2019; a third will start in 2024. A high willingness to consent of about 90% to use secondary and registry data is observed for all types of data. The first data extraction from cancer registries results is finished. Claims data of 103,496 participants from SHI and PHI are integrated in the scientific database up to now. The data will support identification and validation of relevant study endpoints as incident diagnoses. Secondary and registry data are also available for research via an established use and access process.

CONCLUSIONS/OUTLOOK
Large-scale record linkage of secondary and registry data is a novelty in Germany. In addition to the identification of incident diseases, an almost complete medication history can be collected for the majority of study participants, independent of health insurance. However, linking the data and the identification of endpoint is associated with a high administrative and technical effort.

NAKO-05

ASCERTAINMENT AND VALIDATION OF INCIDENT CANCERS IN THE NAKO - FOCUS ON REGISTRIES

Katzke V.[1], Karpa F.[1], Nimptsch K.[2], Kaaks R.[1]
on behalf of the NAKO expert group on cancers

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INTRODUCTION
In the German National Cohort (GNC) cancers are one of the main chronic disease outcomes to be investigated. Data on prevalent and incident cancers are collected through different sources and comprehensively validated. They serve as important resources for future scientific projects.

METHODS
Cancer data is collected via different means including self-reports of study participants at recruitment and follow-up, notifications on medical records used for verification of other diseases, and, most importantly, linkages to federal state cancer registries. For the latter, study participants were asked for consent to link their registry data. Information on cancers obtained through linkages with epidemiological and more recently clinical cancer registries will form the basis of validated cancer datasets. Other notifications of cancers will be added upon extensive active validation using medical records obtained through physicians and clinics.

RESULTS
At recruitment, 205,000 study participants were screened and interviewed, followed by a second study wave starting 2019. A high willingness to consent of about 90% to linkages with registry data is observed at baseline. Up to now, one data extraction from 12 out of 13 cancer registry linkages is finished. Out of 167,000 linked participants 9,144 developed a cancer. The most frequent tumours are cancers of the breast (604 prevalent, 454 incident), prostate (327, 362) and colorectum (165, 171). Pancreatic cancer (14, 51) and cancer of the ovaries (26, 38) or liver (4, 15) are rare.

CONCLUSIONS/OUTLOOK
Because of a 2-3 year delay in cancer registry reporting, approximately 10-15% of 5-years prevalent cancers are still lacking. This gap will be closed with the second linkage round until end of 2023. Cleaned and uniform cancer registry data covering the prevalent cases will be available from 2024 onwards, with however limited us of incident data up to then. Two-year incident data is projected to be available after the third linkage wave in 2025.

28. SEPTEMBER 2023
4:00 PM – 5:30 PM

WS1 | WORKSHOP 1 – CAREER PERSPECTIVES FOR EPIDEMIOLOGISTS

ENG

DGEpi members have a wide variety of job opportunities open to them after graduation that they may not even be aware of Epidemiology is now applied in many different areas. The workshop will provide an overview of different career perspectives for epidemiologists. The invited persons will report on their careers in research and teaching, public health services, ministries and health insurance companies. You will learn anything about the broad fields of activity and all of them will be open for practical information and advice. You will see, that the fields of activity for epidemiologists are diverse and each professional field offers its own tasks and challenges.

DE

DGEpi-Mitgliedern stehen nach ihrem Abschluss eine Vielzahl von Berufsmöglichkeiten offen, die ihnen vielleicht gar nicht bewusst sind. Denn die Epidemiologie wird heute in vielen verschiedenen Bereichen angewandt. Der Workshop soll einen Überblick über die verschiedenen Karriereperspektiven für Epidemiologinnen und Epidemiologen geben. Die eingeladenen Personen werden über ihre Karrieren in Forschung und Lehre, im öffentlichen Gesundheitsdienst, in Ministerien und Krankenkassen berichten. Sie erfahren alles über die breit gefächerten Tätigkeitsfelder und alle Personen sind offen für praktische Informationen und Ratschläge. Sie werden sehen, dass die Tätigkeitsfelder für Epidemiologinnen und Epidemiologen vielfältig sind und jedes Berufsfeld seine eigenen Aufgaben und Herausforderungen bietet.

28. SEPTEMBER 2023
4:00 PM – 5:30 PM

WS2 | WORKSHOP 2 – DIGITALE EPIDEMIOLOGIE

WS2-01

DIGITALE EPIDEMIOLOGIE: MEHR ALS LIMESURVEY UND SOCIAL MEDIA ANALYSEN?

Castell S., Klett-Tammen C.

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INTRODUCTION

Digitale Epidemiologie ist ein buzz word, das gerne eingesetzt wird, weil es Assoziationen wir “innovativ”, “modern”, “relevant” und “notwendig” hervorruft. Aber was verbirgt sich hinter dem Begriff eigentlich genau? Was bedeutet “Digitale Epidemiologie” in der Praxis? Beinhaltet Digitale Epidemiologie die Digitalisierung des Fachgebietes oder sind das voneinander zu trennende Bereiche? Wie verändern Projekte der digitalen Epidemiologie die epidemiologische Arbeitswelt?

METHODS

Hierbei handelt es sich um den Rahmenvortrag des Workshops, der die weiteren Beiträge in einen Kontext setzt. Hierbei werden auch interaktive Elemente wie Erstellung eines Advanced Organiser eingesetzt und den Teilnehmenden anschließend zur Verfügung gestellt.

RESULTS

Ziel des Rahmenvortrags ist es nicht, finale Antworten zu geben,...

CONCLUSIONS/OUTLOOK

...sondern die Vielfalt des Gebietes und mögliche konzeptionelle Konflikte sowie weiter zu führende notwendige Diskussionen darzustellen.

WS2-02

WASSERFALL, SCRUM: WAS IST DAS? – EPIDEMIOLOGISCHE SOFTWAREENTWICKLUNG

Klett-Tammen C., **Castell S.**

Helmholtz Centre for Infection Research, Department of Epidemiology, Braunschweig Lower Saxony, Germany

INTRODUCTION

In der Softwareentwicklung werden agile Methoden wie Scrum eingesetzt. Scrum basiert – im Gegensatz zur Wasserfall-Planung - auf der Annahme, dass ein Entwicklungsprozess nicht top-down und im Voraus zu entwerfen ist. Er zeichnet sich durch Selbstorganisation und ständige Anpassung an neue Erfordernisse auf, die z.B. durch ein vertieftes Verständnis oder Veränderung von externen Prämissen entstehen können. Um Softwareentwicklung effektiv und überprüfbar zu machen, werden Entwicklungsschritte in Epics und User Stories dokumentiert. Scrum basiert auf bestimmten Werten, verschiedenen Rollen mit spezifischen Aufgaben und Verantwortlichkeiten, festgelegten Events und Artefakten, die im Vortrag erläutert werden.

METHODS

Vorstellung des Scrum-Rahmenkonzepts[KC1] [CS2]

Vorstellung von Beispielen von Epics und User-Stories

Input zu Methoden des Managements von Softwareentwicklung mit Fokus auf Scrum

Durchführung eines beispielhaften Sprints bzw. von Elementen daraus, um die Methode unmittelbar erfahrbar zu machen

RESULTS

Das vom Helmholtz-Zentrum für Infektionsforschung (Abteilung für Epidemiologie) entwickelte eResearch System PIA („Prospektive Monitoring- und Management – App“) dient als Beispiel zur Veranschaulichung von agilen Entwicklungsprozessen. Agile Entwicklung in Projekten ermöglicht Learnings aus den Prozessen unmittelbar zu integrieren und Anforderungen z.B. aus neuen Drittmittelprojekten zu berücksichtigen. Methoden aus der (agilen) Softwareentwicklung werden auch im Rahmen von Projektmanagement gewinnbringend eingesetzt.

CONCLUSIONS/OUTLOOK

Diese Workshop-Einheit bietet Einblicke in professionelle Forschungssoftwareentwicklung und macht diese erfahrbar.

WS2-03

EXPERIENCES WITH DIFFERENT ASPECTS OF EVALUATING THE IMPLEMENTATION OF A SURVEILLANCE OUTBREAK RESPONSE MANAGEMENT AND ANALYSIS SYSTEM (SORMAS) WITHIN THE PUBLIC HEALTH SERVICES IN GERMANY

Walter C.[1,2,3], Burggraf L.[4,5], Fischer F.[6,7], Glöckner S.[1,8], Klett-Tammen C.[1], Lehner J.[4], Schanze H.[1], Starke D.[4], Krause G.[1,3,8,9]

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INTRODUCTION
In 2020, the Federal Ministry of Health decided to support the implementation of an open source digital Surveillance Outbreak Response Management and Analysis System (SORMAS) for the local health department (LHD) response to the COVID-19 pandemic in Germany. Following the implementation on a large scale with different underlying conditions in different LHDs, we evaluated the implementation using a triangulation approach.

METHODS
We conducted focus groups from December 2020 to December 2021, with participants from LHD and an online-based survey in May 2022 with all LHD in Germany. We used adapted qualitative content analysis, including the Unified Theory of Acceptance and Use of Technology (UTAUT-model). For survey data, we applied score-building and logistic regressions to identify different characteristics that are associated with satisfaction and successful implementation.

RESULTS
In twelve discussions 70 persons participated. We found 27 categories and 26 subcategories of supporting and hindering factors for implementing the SORMAS system. Sustainability and political pressure were mentioned among others. In the survey 1095 participants were included. Decreased satisfaction is correlated with longer working experience within a LHD. If user perceived the implementation as mandatory by the state governments, user indicated lower satisfaction than starting SORMAS on a voluntary basis or following the guidelines by the federal government.

CONCLUSIONS/OUTLOOK
Methodological triangulation is an appropriate approach to evaluate the satisfaction and implementation of SORMAS in German LHDs. The aspect that the same factors were mentioned as barriers and facilitators implies that there are no simple solutions for implementing new digital systems. The benefit of the implementation has to be communicated clearly and specific concepts should be developed for more experienced persons.

WS2-04

EXPLORING THE CO-EVOLUTION OF SOCIAL NETWORKS AND INFECTIOUS DISEASES: INSIGHTS FROM AGENT-BASED SIMULATIONS AND INCENTIVIZED, BEHAVIORAL EXPERIMENTS

Nunner H.[1], Buskens V.[2], Corten R.[2], Kaandorp C.[3], Kretzschmar M.[4]

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[3] *Utrecht University, Research Data Management Support, Utrecht, Netherlands*
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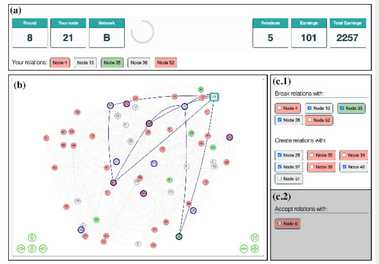

Graphical user interface (GUI) of the network experiment
The GUI is divided into three parts: the information bar **(a)**, the network viewer **(b)**, and the interaction panel **(c)**. The information bar **(a)** shows the number of rounds that have been played, information about the network (the participant's node number, the number and disease states of neighboring nodes), and the point rewards. The network viewer **(b)** shows the entire network including all nodes and relations. The interaction panel **(c)** allows interacting with other participants (breaking existing relations, proposing new relations, accepting proposed new relations).

INTRODUCTION
Social networks can influence the spread of infections. Clusters, for example, can slow down transmission dynamics. However, much evidence is based on static networks, assuming social behavior not to change during an outbreak. Physical distancing measures are used for disease control, while people perceiving high risks of an infection (susceptibility, disease severity) limit social contacts voluntarily. Regardless of the reason, network changes can change transmission dynamics dramatically.

METHODS
To understand the effect of risk perception and self-imposed contact reduction on the spread of infections, we compared a large-scale (2,879 participants), interactive, incentivized experiment with an agent-based simulation. Both experiment and simulation rewarded maintaining social relations (network degree) and structures (network clustering), and penalized acquiring infections.

RESULTS
Significantly fewer infections occurred in the experiment than in the simulation because participants disconnected from infectious neighbors more often and established fewer relations with infectious others than the artificial agents. This resulted in suboptimal network positions (too few relations, breaking up of clusters) and point rewards. Participants avoided infected others regardless of personal disease state, although if infected or recovered, they were not at risk of re-infection.

CONCLUSIONS/OUTLOOK
Our results suggest that participants prioritize avoiding infection over maintaining network positions. This could support the design of non-pharmaceutical interventions and indicates the need to mitigate the risk of social isolation during an outbreak.

Despite the similarities between simulation and experiment, the differences between the human participants and the simulated agents have a strong impact on the course of our hypothetical epidemics. This demonstrates that the combined application of theoretical, computational models and incentivized, behavioral experiments provides better insights than either method alone.

WS2-05

EVALUATION OF DIGITALLY SUPPORTED-COVID-19-SYMPTOM-MONITORING IN A HEALTH CARE FACILITY IN SOUTHERN GERMANY FROM THE USER PERSPECTIVE – A QUALITATIVE STUDY

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INTRODUCTION
To simplify and standardize the recommended monitoring and documentation of symptoms in health care facility staff during the SARS-CoV-2 pandemic, the eResearch system PIA (Prospective Monitoring and Management-App) was adapted and implemented in a rehabilitation centre in Germany in 2021-2022. Usage of PIA was voluntarily. We now evaluate feasibility, benefits and challenges.

METHODS
We invited staff members (users and non-users) from different sections of the institution to participate in semi-structured face-to-face interviews in winter 2022/23 and apply adapted qualitative content analysis.

RESULTS
The preliminary analysis comprised 14 interviews with users and seven interviews with non-users of different professions. Most of interviewees of either group stated to feel protected from a SARS-CoV-2 infection at their workplace. PIA-users tended to accept pandemic measures (>90%). All of them assessed protection of data privacy concerning the application as good, whereas a bigger part of the non-users disclaimed pandemic measures (85%) and two out of seven (30%) specified a lack of confidence in data protection as one of the reasons for not participating at a symptom monitoring via the PIA. Technical problems were reported by 85% of the users. The implementation in the stressful situation of acute outbreaks in this setting was mentioned as a barrier for accepting PIA.

CONCLUSIONS/OUTLOOK
The implementation of new digital health tools should not take place in the acute situation of a pandemic but should be introduced during routine work-periods, with time to familiarize the staff members with the tool and to adapt it where appropriate. Based on these findings, the future symptom-monitoring of staff-members can be adapted, involving staff members, leaders of health care facilities and public health professionals.

WS2-06

NEEDS OF DIGITAL TOOLS IN TUBERCULOSIS CONTROL PROGRAMS OF LOW/MIDDLE-INCOME COUNTRIES WITH HIGH/ MODERATE BURDEN OF TUBERCULOSIS

Hovardovska O.[1], Hoffmann H.[2,3], Wagner D.[4], Kalmambetova G.[5], Sydykova M.[5], Kabasakalyan E.[6], Kirakosyan O.[7], Lange B.[1,8], For DIGG-TB project

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[5] *National Tuberculosis Center, National Reference Laboratory, Bishkek, Kyrgyzstan*
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[7] *Research Center Borstel, Leibniz Lung Center, Borstel, Germany*
[8] *German Centre for Infection Research (DZIF), TI Bioresources, Biodata and Digital Health, Braunschweig, Germany*

INTRODUCTION

Tuberculosis (TB) national control programs are very challenging, especially in countries with low/middle income that have a high or moderate burden of TB. The role of digital tools in supporting TB programs in those countries is important to further progress. The aim of the study was to map existing digital tools in Armenia and Kyrgyzstan.

METHODS

For mapping of digital tools a list of possible digital interventions and a questionnaire were created; interviews withnationalusers from Armenia and Kyrgyzstan were held. Digital tools were stratified by targeted users - patients, healthcare providers, and policymakers. A database for available digital tools was created and analyzed (Table 1).

RESULTS

Interventions focused on patients' audience are covered partially by the pilot App in Kyrgyzstan, various solutions are used in Armenia - mobile Apps for messages and control of adherence to treatment. Digital tools for healthcare providers are widely implemented in the laboratory system of Kyrgyzstan, which allows automatic recording and reporting of results for the majority of tests. Artificial intelligence is partially used for Chest X-ray analysis in Armenia, but the lack of digitalization is in TB laboratories. Digital solutions for surveillance and monitoring provided for policymakers' audience are presented by e-TB-manager and TB-MIS in Armenia and Kyrgyzstan, respectively; HISAM and Quan-TB are partially covering program management in Armenia, Quan-TB – in Kyrgyzstan.

CONCLUSIONS/OUTLOOK

Our mapping found several digital tools that have been implemented in both countries. Gaps apparent from the mapping performed digital tools are interconnectivity, expansion to institutions beyond the often centralized laboratory, treatment, and surveillance institutions, and inclusion of E-learning for patients and healthcare providers. Retrospective cohort studies on actual patient, process, and laboratory endpoints are needed.

Targeted user	Possible Digital Intervention	Armenia	Digital solution	Kyrgyzstan	Digital solution
Patient	1. Video Directly Observed treatment (VDOT)	yes	ReMeti based, Erasmigrame	partial	One Impact (pilot study)
	2. Text messages (control of treatment)	yes	Mobile	partial	One Impact (pilot study)
	3. Mobile phone apps	yes	Achere TB Armenia	partial	One Impact (pilot study)
	4. Mobile app for E-learning	no		no	
	5. Using Artificial intelligence in TB treatment	no		no	
	6. Semi/Spent automated recording and reporting	no		partial	TRANS (LIMA SI)
Healthcare providers	7. Culturing and drug susceptibility automated recording and reporting	partial	EpiCenter (for MACRA MoS)	partial	EpiCenter (for MACRA MoS)
	8. Polymerase Chain Reaction automated recording, and reporting	no		partial	TRANS (LIMA SI)
	9. Whole Genome Sequencing analyzing, recording, and reporting	no		no	
	10. Text messages (test results reported to clinicians)	partial	e-TB manager	yes	E-TB register
	11. Using Artificial intelligence in TB Diagnosis	partial	CADeTB	no	
	12. Mobile app for E-learning	no		no	
	13. Digital platform for training of practical skills	yes	TB Hospot ECMCP	no	
	14. Digital platform for training of laboratory guidelines etc.	partial		no	TB-MIS
	15. Educational platform for video lectures	no		no	
	16. Using Artificial intelligence in TB treatment	no		no	
	17. Chest X-ray analysing, recording, and reporting	partial	CADeTB	partial	TRANS (CADeTB)
	18. Health information system webpages	yes	e-TB-manager 3.0	yes	TB-MIS
	19. Progress management	partial	HISAM, Quan-TB	partial	Quan-TB
Policymakers	1. Health information system webpages	yes	e-TB-manager 3.0	yes	TB-MIS
	2. Progress management	partial	HISAM, Quan-TB	partial	Quan-TB

Table 1. Mapping of digital tools in the national TB control program in Armenia and Kyrgyzstan

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WS3 | WORKSHOP 3 – INTERVENTION STUDIES

WS3-01

MÖGLICHKEITEN UND GRENZEN VON INTERVENTIONSSTUDIEN IN DER EPIDEMIOLOGIE

du Prel J.-B.

Bergische Universität Wuppertal, Arbeitswissenschaft, Wuppertal North Rhine-Westphalia, Germany

INTRODUCTION

Interventionsstudien könnten in vielen Bereichen der Epidemiologie die Evidenzlage verbessern. Sie werden allerdings in der nicht-klinischen epidemiologischen Forschung nur selten durchgeführt. Dieser Beitrag führt in die experimentelle Epidemiologie ein und zeigt Chancen aber auch Grenzen von Interventionsstudien auf.

METHODS

Beschreibung von Interventionsstudien, deren Einteilung und Besonderheiten mittels selektiver Literaturrecherche und eigener Erfahrung.

RESULTS

Im Unterschied zur beobachtenden wird in der experimentellen Epidemiologie versucht eine Zielgröße durch einen gezielten Eingriff zu verändern. Im Rahmen von Interventionsstudien wird dabei zumeist eine experimentelle Gruppe mit ein oder mehreren Kontrollgruppen verglichen. Idealerweise werden Interventionsstudien randomisiert und dreifach verblindet durchgeführt. Im Unterschied zu randomisierten kontrollierten klinischen Studien, wo die Intervention beispielsweise in der Applikation eines Medikamentes an Patienten besteht, besteht die Intervention in Feldstudien darin eine bestimmte Exposition bei gesunden Probanden zu verhindern und die Inzidenz eines gesundheitsbezogenen Endpunktes zu vermindern. Wegen der niedrigen Inzidenz ist die benötigte Fallzahl in Feldstudien im Vergleich zu RCTs oft ungleich höher. In Gruppenuntersuchungen werden nicht Individuen, sondern Gruppen miteinander verglichen.

CONCLUSIONS/OUTLOOK

Durch Intervention, Randomisierung und Verblindung zeichnen sich Studien in der experimentellen im Vergleich zur beobachtenden Epidemiologie durch bessere Steuerbarkeit, Struktur- und Beobachtungsgleichheit aus. Dadurch können Confounding und andere Formen von Bias verhindert werden. Die Durchführung von Interventionsstudien kann jedoch aus ethischen, monetären und zeitlichen Gründen nicht möglich sein. Bei RCTs kann die externe Validität eingeschränkt sein. Bei Feldstudien können sich in der Praxis Einschränkungen bezüglich der Struktur- und Beobachtungsgleichheit ergeben.

WS3-02

PILOTSTUDIE ZUR AKZEPTANZ VERSCHIEDENER BELEUCHTUNGSSITUATIONEN FÜR EINE INTERVENTION ZU DYNAMISCHER BELEUCHTUNG BEI SCHICHTARBEITENDEN

Rabstein S.[1], Bieske K.[2], Herold R.[3], Riegert K.[1], Schierz C.[2], Brüning T.[1], Harth V.[3], Behrens T.[1]

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[2] *Technische Universität Ilmenau, Fachbereich Lichttechnik (TU Ilmenau), Ilmenau Thuringia, Germany*
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INTRODUCTION
Licht im blauen Wellenbereich ist der wichtigste Zeitgeber für die innere biologische Uhr. Licht in der Nacht sowie veränderte Lichtprofile werden als mögliche Ursache für die Entstehung von Krankheiten aufgrund von Schichtarbeit erforscht. In Vorbereitung einer Interventionsstudie zu verbesserter Beleuchtung bei Beschäftigten mit Nachtschicht wurde eine Pilotstudie zur Untersuchung der Akzeptanz verschiedener Beleuchtungsszenarien durchgeführt.

METHODS
Für Oktober 2020 wurden zwei Lichtszenarien für die Beleuchtung in der Nachtschicht in einer Werkshalle des beteiligten Unternehmens geplant, die je Untersuchungswoche in der Wochenmitte gewechselt wurden. Spektrale Strahlungsgrößen zur Bestimmung von photometrischen und melanopischen Größen wurden in der Halle und an einem Arbeitsplatz mittels Spektralradiometer gemessen. Die Nachtschicht-Gruppe Beschäftigter einer Untersuchungswoche füllten Fragebögen zur Bewertung der Szenarien aus. Insgesamt wurden n = 84 Fragebögen ausgewertet. Die Zufriedenheit mit der Beleuchtung sowie die Wahrnehmung von Helligkeit, Lichtfarbe, Blendung wurden mit gemischten Proportional-Odds-Modellen adjustiert nach Confoundern untersucht.

RESULTS
Es zeigte sich, dass der visuell wirksame Anteil des Lichts der Hallenbeleuchtung durch die statische Arbeitsplatzbeleuchtung stark überlagert wurde. Die geplanten Szenarien wurden über die Lichtsteuerung noch nicht ausreichend abgebildet. Bei 70% Beleuchtungsstärke mit wärmerer Lichtfarbe im Vergleich zu 100% Beleuchtungsstärke zeigten sich keine Unterschiede in der Gesamtbewertung (OR 1,34; 95%CI 0,40-4,59), jedoch eine geringere Unzufriedenheit mit der Helligkeit (OR 0,45; 95%CI 0,21-0,95) und ein erhöhtes Risiko für Blendung (OR 3,87; 95%CI 1.02-14.6).

CONCLUSIONS/OUTLOOK
Die Ergebnisse wurden in die Planung der finalen Beleuchtungsszenarien. Die störende Wirkung der Arbeitsplatzleuchten wurde mittels abschirmender Blenden und durch Halbierung ihres Lichtstroms reduziert.

WS3-03

EVALUATION OF PLANNED AND UNPLANNED INTERVENTIONS IN ENVIRONMENTAL EPIDEMIOLOGY – LESSONS LEARNED FROM OPPORTUNISTIC STUDIES

Gianicolo E.

Institut für Medizinische Biometrie, Epidemiologie und Informatik der Universitätsmedizin der Johannes-Gutenberg-Universität, Abteilung Epidemiologie und Versorgungforschung, AG Evaluation politischer Interventionen, Mainz, Germany

INTRODUCTION

To overcome limitations of epidemiological observational studies, so-called “natural experiments” can be used. The aim of this presentation is to describe the lessons learned from some opportunistic studies conducted in Italy and Germany.

METHODS

Evaluations of the following political interventions will be presented: A law in Apulia for the improvement of air quality in Taranto; the closure of a bridge and its effect on air quality and mobility behaviour in Mainz; the nuclear phase-out after the disaster in Fukushima and its effect on childhood leukaemia incidence in Germany.

RESULTS

No specific results will be presented.

CONCLUSIONS/OUTLOOK

A law to reduce concentrations of pollutants emitted by a steel industry in Taranto was enacted in 2012. The evaluation of the law has shown that the availability of data on potential confounders is a challenge. Our study demonstrated a reduction in pollutant concentrations (-25% for $PM_{2.5}$). However, the steel industry was suffering from the effects of the economic crisis, especially in the years after the law was enacted, and production data were unfortunately not available to us. Therefore, it was not possible to ascribe the observed effect of the reduction in pollutant concentrations entirely to the law.

We conducted a study in Mainz in collaboration with the Max Planck Institute during the closure of a bridge to investigate the extent to which air quality and mobility behaviour change when an important major road is closed. This study demonstrated how central interdisciplinary collaboration is to evaluating complex phenomena such as air pollution concentrations under different weather and traffic conditions.

The German nuclear phase-out after the Fukushima disaster (2011) provides quasi-experimental conditions to investigate whether there were changes in the incidence rates of childhood leukaemia around nuclear power plants before and after 2011. This quasi-experimental approach allowed controlling for confounding variables that are constant over time.

WS3-04

NEUES DIENSTZEITMODELL DER POLIZEI HAMBURG: FALLSTRICKE UND CHANCEN BEI DER PLANUNG UND DURCHFÜHRUNG EINER WISSENSCHAFTLICHEN EVALUATION DER INTERVENTION

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Universitätsklinikum Hamburg-Eppendorf (UKE), Zentralinstitut für Arbeitsmedizin und Maritime Medizin (ZfAM), Hamburg, Germany

INTRODUCTION

Durch die Störung der zirkadianen Rhythmen kann Schichtarbeit einen negativen Einfluss auf die menschliche Gesundheit haben. Mit dem Ziel, die Gesundheitsverträglichkeit, die Vereinbarkeit mit dem Privatleben und die Zufriedenheit zu erhöhen, wurde 2015 ein neues Dienstzeitmodell im Wechselschichtdienst der Polizei Hamburg durch eine polizeiinterne Arbeitsgruppe mit Beteiligung der Betriebsmedizin entwickelt. Die Einführung des neuen Schichtplans wurde von der Aufsichtsbehörde unter der Auflage einer wissenschaftlichen Begleitung genehmigt.

METHODS

In der einjährigen Pilotphase (2015 bis 2016) wurde der neue Schichtplan in 6 der 24 Kommissariate (PK) implementiert. Die Teilnahme an der Pilotierung erfolgte nach Abstimmung in den PKen, wobei eine 2/3-Mehrheit erforderlich war. Die Ergebnisse der Evaluation der Pilotphase dienten als Grundlage für weitere Abstimmungen in den restlichen PKen, die ab 2017 das Modell sukzessive einführten. Fünf Jahre nach Pilotierung fand eine erneute Evaluation statt.

RESULTS

Die Zuordnung zur Interventions- (neuer Schichtplan) bzw. Kontrollgruppe war durch die Abstimmungsergebnisse vorgegeben. Für die Datenerhebung im Sinne eines kontrollierten Vorher-Nachher-Designs mussten strenge Datenschutzanforderungen erfüllt werden. Die Beteiligung lag für beide Evaluationen bei ca. 70%. Der sukzessive Wechsel von der Kontroll- in der Interventionsgruppe erforderte eine Anpassung der Evaluationsmethodik für das 5-Jahres Follow-up. Die Operationalisierung der subjektiven (Gesundheit, Belastung, Vereinbarkeit mit Privatleben und Zufriedenheit) und objektiven Evaluationsparameter (Krankenstand, Dienstunfälle) erforderte eine enge Kommunikation mit der Polizei.

CONCLUSIONS/OUTLOOK

Die Evaluation einer stufenweisen Implementierung einer Intervention unter den reellen Bedingungen der Arbeitswelt erfordert eine kontinuierliche Kommunikation mit dem Auftraggeber, eine frühzeitige Klärung der datenschutzrechtlichen Bestimmungen sowie qualitative und quantitative Auswertungsstrategien.

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WS4 | WORKSHOP 4 – EPIDEMIOLOGISCHE FORSCHUNGSDATEN GUT MANAGEN

WS4-01

EPIDEMIOLOGISCHE FORSCHUNGSDATEN GUT MANAGEN – SACHSTAND, IDEEN UND OFFENE FRAGEN

Zeeb H., Dierkes J.

Leibniz-Institut für Präventionsforschung und Epidemiologie – BIPS GmbH, Bremen, Germany

Dieser Workshop wird von der NFDI4Health ausgerichtet und zielt darauf ab, erste Ergebnisse und Services vorzustellen und zu diskutieren, die konkrete Relevanz für die Epidemiologie in Deutschland haben. Dazu gehören Erkenntnisse aus einem unserer Use cases zu nicht-übertragbaren Erkrankungen ebenso wie die zentrale Studienplattform, die mittlerweile zur Verfügung steht und mit Anregungen aus der epidemiologischen Community weiter entwickelt wird. Zudem ist eine Plenumsdiskussion zum modernen Forschungsdatenmanagement unter dem Titel „Alter Wein in FAIRen Schläuchen?“ geplant, zu der neben Protagonist:innen der NFDI4Health auch Nachwuchsforschende aus der DGEpi teilnehmen werden.

Struktur:

Moderation: Hajo Zeeb, Jens Dierkes

Vortrag 1:

Datenharmonisierung in großen epidemiologischen NCD-Studien – ein Pilotprojekt (Carolina Schwedhelm, MDC Berlin, zugesagt)

Vortrag 2:

Der German Central Health Study Hub – Status, Möglichkeiten, Entwicklungspotenziale

(Johannes Darms, ZB MED – Informationszentrum Lebenswissenschaften, Köln, angefragt)

Plenumsdiskussion:

Alter Wein in FAIRen Schläuchen? Wie stehen bisheriges und modernes Forschungsdatenmanagement in der Epidemiologie zueinander?

Teilnehmende (geplant): Juliane Fluck, Iris Pigeot, Carsten-Oliver Schmidt, Ulrich Sax, NN (AG 13 DGEpi), ggf. weitere; Moderation des Plenums: N.N.

Der Workshop sollte Teil des Hauptprogramms der Tagung sein.

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WS5 | WORKSHOP 5 – LOVE YOUR DATA!

WS5-01

LOVE YOUR DATA! TRAINING ON MANAGEMENT OF EPIDEMIOLOGICAL RESEARCH DATA

Dierkes J., Gonzalez-Ocanto M., Lindstädt B., Perrar I., Restel K.
for NFDI4Health consortium
University of Cologne, Cologne, Germany

Tutors: Marisabel Gonzalez-Ocanto, Katja Restel

Research data in the epidemiological sciences can be quite complex in many respects, ranging from different data sources, data types, many more or less standardised documentation workflows, to the intricacies of personal health data privacy.
NFDI4Health - the National Research Data Infrastructure for Personal Health Data - deals with data generated in clinical trials, epidemiological and public health studies. NFDI4Health aims at helping researchers to make research data more FAIR (data that are findable, accessible, interoperable, and reusable). NFDI4Health services are provided to permanently store, semantically enrich, and share data in interoperable form and to merge data from different sources, while respecting privacy requirements.
In this 2,5h training, participants will be introduced to the main phases of the biomedical research-data life cycle as well as the meaning and practicalities of FAIR data management in the context of personal health data.
Participants will be introduced to NFDI4Health and learn how to use the services and tools developed by NFDI4Health, to make their data more discoverable, understandable, and reusable (i.e., FAIR) under the constraints of data privacy.
The training will be held in an interactive and hands-on format. For example, there will be exercises where participants can try out the NFDI4health services to search and publish study metadata and instruments.
This training is primarily aimed at graduate and postgraduate researchers, but any epidemiologist interested is welcome.
Structure (2.5h):
1. Data life cycle, FAIR principles, and research data management in Epidemiology
2. Practical exercise and discussion
3. NFDI4Health and its services
4. Practical exercise and discussion
The training is planned as part of the pre-programme on Monday afternoon, and it will be free of charge.

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WS6 | WORKSHOP 6 – DISTRIBUTED ANALYSIS OF SENSITIVE DATA

WS6-01

DISTRIBUTED ANALYSIS OF SENSITIVE DATEN – PERSONAL HEALTH TRAIN

Welten S.[1], **Kirsten T.**[2], Wünsche H.[3], Lauble V.[3], Mou Y.[1]

[1] *RWTH Aachen University, Aachen, Germany*
[2] *Leipzig University, Leipzig, Germany*
[3] *(Robert Koch-Institut (RKI), Berlin, Germany*

The secondary use of clinical and medical study data and its FAIRification is currently an emerging challenge in modern medical data science, which has the potential to sustainably improve medical research and patient's care. Hence, collaborations between institutions in research projects and sharing of data are crucial to leverage the potential and impact of healthcare data but come along with some challenging aspects. In particular, the process of data sharing, the access to potentially sensitive data causes considerations about data protection, privacy, and data sovereignty, which poses a significant obstacle for many institutions in making their data available for research purposes.

The consortium NFDI4Health aims at building Germany-wide infrastructure allowing to manage, search, and request access to distributed study data. The data is managed in so called Local Data Hubs (LDH) together with rich metadata on different levels ranging from general study level to the data items or data objects (e.g., images). The Personal Health Train (PHT) complements this decentralized infrastructure by providing the ability to analyse the data available at each LDH locally. Therefore, no data needs to be moved over institutional borders and, thus, considers requirements such as privacy, data sovereignty, and avoiding large data transfer. PADME (https://padme-analytics.de) is a PHT implementation providing indirect access to data at different LDHs. It supports two modes of operations. First, incremental analytics (often called incremental learning) is the analytics mode, in which the analysis routine moves from LDH to LDH in a predefined order. The overall result – ranging from a simple frequency table to an artificial intelligence model - is then updated by taking the intermediate results per location into account. Second, the federated mode of operation performs the analysis routine in parallel at each LDH selected and included into the analysis procedure. Both operational modes follow the analysis paradigm "bring the analysis to the data" complementing the centralized approach in which all relevant data is shifted to a single data management facility.

PADME comes with substantial advantages comparable to similar distributed approaches. The program code of the analysis routine is packaged together with an execution environment before it is shipped to relevant LDHs. In this way, the analysis routine a) can be implemented in any programming language by the scientist and b) is executed at each LDH without any further configuration at LDHs' site specially for the intended analysis. While data needs to be uniquely structured at each LDH (which is one goal of NFDI4Health) for each analysis, there is no limitation according to the applied data management system at each LDH that could range from simple file system and object stores over relational database management systems to FHIR databases.

This workshop introduces the concepts of PADME PHT from an end user perspective while simultaneously addressing security and privacy aspects. Medical experts, biometricians, epidemiologists and other interested persons will learn how PADME PHT practically can be applied to answer relevant research questions by reusing distributed sensitive data and what advantages the infrastructure has over other and conventional approached. In particular, we will show and experiment together with the participants for which analysis scenarios in the epidemiological domain this infrastructure can be easily used to gain an added value for all sites data providers and consumers / users.

THE WORKSHOP WILL ADDRESS THE FOLLOWING ASPECTS:

Introduction to distributed analytics

How to interact with the PHT infrastructure

Setup your own station with data

Send your own analysis to your own station

The Workshop is for scientists with interest on medical data science.

SITE NOTES:

Bring your own laptop – we will only have a limited set of laptops

Using the PADMEPHT infrastructure requires a local Docker Engine - .

All necessary artefacts for the workshop are provided as containers which can be downloaded during the workshop

Further information

Installation guides https://docs.padmeanalytics.de

Main landing page: https://padmeanalytics.de

Information about Docker: https://docs.docker.com/getdocker/

TIMELINE - 90MIN

20Min: Impulse Talk

60 Min: Hands-on Training

10Min: Wrap-up

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WS8 | WORKSHOP 8 – FEDERATED DATA ANALYSIS OF PERSONAL HEALTH RELATED DATA USING DATASHIELD

WS8-01

FEDERATED DATA ANALYSIS OF PERSONAL HEALTH RELATED DATA USING DATASHIELD

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[2] *Max-Delbrück-Centrum für Molekulare Medizin (MDC), Berlin, Germany*
[3] *Robert Koch-Institut (RKI), Berlin, Germany*

The NFDI4Health Project addresses a multitude of challenges for institutes and research communities that want to FAIRify their research data. While making study data FAIR (Findable, Accessible, Interoperable & Reusable) is one aspect that has gathered momentum across scientific communities, another important topic for collaborative research now and in the future is cantered around data analysis of harmonized datasets. Due to varying degrees of informed consent from study participants and limitations that origin from regulations and data privacy laws, sharing one's dataset has been a great concern for many institutes that otherwise would like to collaborate with different institutes in order to fully utilize the strength of their combined collected data.

In this workshop, participants will be introduced to the federated data analysis platform DataSHIELD through which researchers can remotely analyse data from multiple sources (institutes) simultaneously. As a federated data analysis platform, the data itself is being kept by the original data holders on special servers (Opal Server) to which permitted researchers are able to connect to. Furthermore, the researchers are only able to use functions from special client-server side packages which underpin control for the data holders onto what type of analysis is being allowed since the server-side packages and methods are governed by the data holders. By using such a system, analysts never see the individual-level data and are only able to receive aggregated results should the minimum requirements for the data analysis, such as number of data points etc., be sufficiently met.

The workshop will comprise two parts for the participants: First, a general overview about DataSHIELD and its components will be given in a presentation which should last about 20min. This is followed by a 60min hands-on session which will give the audience a live view into how DataSHIELD works in the R environment. Thus, workshop participants will learn the theoretical backgrounds of the DataSHIELD framework, practical aspects of using functions in single study and multiple study setups and how the data holders keep control of minimum analysis requirements and allowed packages/functions in this ecosystem.

SIDE NOTE:
To take part in the hands-on-demonstration, the workshop participants are advised to bring their own laptops with an installation of R and RStudio. As organisers, we will prepare suitable test datasets and servers to which connections will be made as well as R Scripts for an easier start / walkthrough. The workshop will be given in either German or English depending on the audience. Questions can be answered in both languages. We welcome all data analysts, no matter the experience in federated data analysis or script programming language R.

TIMELINE - 90MIN

- 20Min: Impulse Talk
- 60 Min: Hands-on Training
- 10Min: Wrap-up

28. SEPTEMBER 2023
4:00 PM – 5:30 PM

WS9 | WORKSHOP 9 – USING NATURAL EXPERIMENTS AMONG MIGRANTS TO ADVANCE UNDERSTANDING OF CONTEXTUAL HEALTH EFFECTS

WS9-01

USING NATURAL EXPERIMENTS AMONG MIGRANTS TO ADVANCE UNDERSTANDING OF CONTEXTUAL HEALTH EFFECTS: EXPERIENCES, CHALLENGES AND FUTURE DIRECTIONS

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Analyses of context and health have typically been limited in their ability to disentangle compositional and contextual effects. In recent years, natural experiments have increasingly been used to study such effects, which may include small-area neighborhood characteristics as well as policy interventions. Natural experiments, which have traditionally been utilized in the field of economics, hold great promise for social epidemiological research to identify causal effects of context on health. Being a highly contested political space, migration policies provide several opportunities to use natural experiments to study contextual effects. However, natural experiments entail several unique methodological challenges which need to be addressed if they are to add value to existing research.

The aim of this workshop is to bring together epidemiologists and economists to discuss opportunities and challenges for natural experiments among migrant populations, and identify potential areas for further research using this methodology. We will begin by providing an overview of the methodological approach of natural experiments and existing applications among migrant groups, both in health and economic research. This will be followed by two pitch presentations showcasing recent studies which used natural experiments among refugee populations in Germany. It will include results from a study on the introduction of the electronic health card for refugees (policy intervention) as well as an analysis of the effect of regional deprivation on refugee health (small-area contextual effects). Presenters will discuss opportunities and challenges inherent in their analytical approaches as well as potential future directions. Finally, we will engage the audience in a discussion on future applications of natural experiments among migrant groups in social epidemiology. Interested participants can join in formulating a research agenda for natural experiments among migrant groups following the workshop.

28. SEPTEMBER 2023
4:00 PM – 5:30 PM

WS10 | WORKSHOP 10 – HOW TO ENSURE AND MEASURE PUBLIC HEALTH IMPACT OF MODELLING OF INFECTIOUS DISEASE DYNAMICS

WS10-01

HOWTO ENSURE AND MEASURE PUBLIC HEALTH IMPACT OF MODELLING OF INFECTIOUS DISEASE DYNAMICS

Lange B.[1], Jäger V.[2],
on behalf of MONID (Modellierungsnetz für schwere Infektionskrankheiten, https://webszh.uk-halle.de/monid/)

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During the COVID-19 pandemic, infectious disease models and modeling efforts in Germany were marked by fragmented – often excellent, but isolated – efforts from various modelling groups to inform the general public and decision makers with scenario and prediction simulations.

To provide a central platform for these efforts a new modelling network for severe infectious diseases has now been established in Germany (MONID), made up of ten large modelling consortia and more than 30 academic institutions across Germany. In the future this network aims to harmonize standards and communication to decision makers in case dynamic modelling of infectious diseases is needed.

In this workshop we want to have an open discussion on a) how information from modelling efforts can be presented to be helpful to decision makers and have public health impact and b) how we can measure usefulness and impact of modelling efforts.

The following topics are meant to initiate a discussion and present the new modelling network as well as some work from its consortia:

MONID:
A new modelling network for severe infectious diseases in Germany R. Mikolajczyk / A. Kuhlmann

INFOEXPAND:
Understanding the mechanics of pandemics as a basis for policy design. V. Priesemann

PREPARED:
Ensuring effectiveness of modelling within clinical medicine – A. Karch

OPTIM-AGENT:
Building a comprehensive agent based model able to be used in diverse infectious disease outbreaks to evaluate and compare alternative actions for Germany.W. Bock

Moderating: V. Jäger / B. Lange

28. SEPTEMBER 2023
4:00 PM – 5:30 PM

WS12 | WORKSHOP 12 – PLANETARE GESUNDHEIT IN DER DGEPI

WS12-01

PLANETARE GESUNDHEIT IN DER DGEPI: POTENTIALE UND MÖGLICHE SYNERGIEN

Koller D.[1], **Pradella F.[2],**
Alle beteiligten Arbeitsgruppen, Vorstand DG Epi, Arbeitskreis Klima & Nachhaltigkeit in der DG Epi

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EINLEITUNG
Das transdisziplinäre Forschungsfeld „Planetare Gesundheit“ untersucht die Zusammenhänge zwischen der Gesundheit des Planeten und der menschlichen Gesundheit. Angesichts der auch zukünftig anhaltenden Relevanz dieses Themas soll dieser Workshop dazu beitragen, die Aktivitäten innerhalb DGEpi zu diesem Forschungsfeld zu bündeln und potentiell weiter zu entwickeln. Dieser Workshop knüpft an den Workshop des Arbeitskreises „Klima & Nachhaltigkeit“ auf der Jahrestagung 2022 an, auf dem andiskutiert wurde, wie die DGEpi ihren ökologischen Handabdruck durch Forschungsaktivitäten verstärken kann.Methoden

Der Workshop bietet Raum für einen arbeitsgruppenübergreifenden inhaltlichen Austausch zwischen allen interessierten Mitgliedern der DGEpi. Zum Einstieg beinhaltet der Workshop einen Kurzvortrag zum Forschungsfeld „Planetare Gesundheit“. Im Mittelpunkt steht jedoch die darauffolgende partizipative Diskussion: Wie können der Austausch und die interdisziplinäre Forschung zu Planetarer Gesundheit innerhalb der DGEpi gestärkt werden? Wie kann dabei die Expertise aller am Thema interessierten Arbeitsgruppen eingebunden werden, ohne jedoch die Strukturen der Arbeitsgruppen zu beeinträchtigen? Die Arbeitsgruppen im Vorfeld kontaktiert und dazu eingeladen, das Thema vorab intern zu beraten.

ERGEBNISSE
Ziel ist es, das Bewusstsein und die Aktivitäten der DGEpi im Bereich der Planetaren Gesundheit zu stärken. Es werden neue Erkenntnisse zur nachhaltigen Ausgestaltung der DGEpi als wissenschaftliche Fachgesellschaft gewonnen. Die Teilnehmenden werden zudem mit dem Konzept der Planetaren Gesundheit und den Aktivitäten des Arbeitskreises Klima & Nachhaltigkeit bekannt.Schlussfolgerung/Ausblick

Die Forschung zu Planetarer Gesundheit kann ein Beitrag der DGEpi zur Förderung der Nachhaltigkeit sein. Der Austausch in diesem Workshop trägt zur Entwicklung von Ideen dazu bei, wie die Forschung zu Planetarer Gesundheit in der DGEpi arbeitsgruppenübergreifend gestaltet werden kann.